

# **The Impact of Cultural Context on Web Design for e-Government in South Africa**

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**The Impact of Cultural Context on Web design for e-Government in South  
Africa**

by

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Submitted in fulfilment  
of the requirements  
for the degree

**Magister Technologiae**

in

**Information Technology**

in the

**School of Information and Communication Technology**

in the

**Faculty of Engineering, the Built Environment and Information Technology**

of the

**Nelson Mandela Metropolitan University**

**Supervisor: Ms Darelle Van Greunen**

December 2008

# DECLARATION

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I, **Alexandros Yeratziotis** declare that:

- The work in this dissertation is my own work.
- All sources used or referred have been documented and acknowledged.
- This dissertation has not previously been submitted in full or partial fulfilment of the requirements for an equivalent or higher qualification at any other recognised education institute.

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Alexandros Yeratziotis  
12 December 2008

## ABSTRACT

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The role and power of ICT today, particularly the Internet, cannot be underestimated. The Internet has a great impact on the business environment, where a large majority of companies and organisations have made substantial investments in an online presence in the form of websites, as well as the IT infrastructure needed to improve business processes. In terms of websites, research has shown that it is critical to identify the target market of the site and the actual users, and to construct the site according to their specific needs and preferences. This is to a large extent the focus of the field of Human Computer Interaction. It therefore makes perfect sense that many software products and websites fail to meet the users' needs, as they are designed mainly by Western designers for Eastern and African users. In essence, the failure is due to the fact that the design does not accommodate the cultural behaviours, understandings and preferences of the intended users, thus making it difficult for them to use and adopt them. This has been confirmed by many researchers who have studied various culture dimensions and their relation to Web design.

As mentioned, the role of the Internet in terms of its effect in the business world is becoming increasingly important. However, the Internet could prove to play an influential role in the public sector as well and could therefore be used as a critical tool by government in the form of e-Government. Many countries are adopting e-Government initiatives in an attempt to improve their relations within government itself and with their citizens and businesses. This would help them to render better service delivery and at the same time empower the citizens to also participate in the governance of the country itself.

The concept for this dissertation was formulated in terms of three key ingredients: e-Government, culture dimensions and Web design. The purpose of this dissertation is to examine the way a specific culture dimension, referred to as the cultural-context dimension, which focuses on the communication process, can impact in Web design. Once this is achieved, it will be possible to determine how this can positively affect the design of the South African e-Government website so that the overall usability of the site may be improved. The improvements will be justified because the site would then match the cultural behaviours, perceptions and Web design preferences of South African users. In short, the goal of this

dissertation is to provide guidelines and recommendations that will improve the South African e-Government website ([www.gov.za](http://www.gov.za)) by examining anthropologist Edward Hall's cultural-context dimension and its role in the Web design process.

## ACKNOWLEDGMENTS

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I would like firstly to express my thanks and sincere gratitude to my supervisor, Darelle Van Greunen. She was always supportive, understanding and enthusiastic, and also provided me with encouragement throughout the duration of this dissertation. She was always willing to provide me with her advice and guidance at any time. Her knowledge and expertise in the field of Human Computer Interaction (HCI) research was most valuable, highly appreciated, and had a major contribution to this dissertation.

I also express my gratitude to both the Nelson Mandela Metropolitan University (NMMU) and the National Research Foundation (NRF) for the bursaries that they awarded me. The bursaries were highly appreciated and were of a great help to me.

I would also like to thank Bron Kaplan, Dr Jacques Pietersen from the NMMU Statistical Unit for the Statistical Analysis and Ms Alexa Barnby from UNISA Language Services for the professional editing. They all played an important role and made a great contribution to this dissertation. I also need to mention and give a general thanks to other researchers, from South Africa and abroad, who assisted me throughout this research by answering my emails and providing me with advice, help and the information I required at the time.

I am very grateful to all my family and friends (in South Africa and Cyprus) for all their support, understanding and encouragement. I could not have done this without them. My family was always there for me, mentally and financially. I appreciate everything you all did, and do, for me.

Special tribute needs to go to the Ioannou and Rau families. Their help throughout my studies was incredible. They took me in as their own son. I will never forget what they all did for me and I regard them as my family as well. They are all great people.

A special mention needs to go to my cousin, Gregory Ioannou. Thanks for everything you did and do for me, my brother (there are too many things to mention here, but you know).

I also praise the Lord and thank Him for all His blessings.

# TABLE OF CONTENTS

---

<b>DECLARATION.....</b>	<b>I</b>
<b>ABSTRACT .....</b>	<b>II</b>
<b>ACKNOWLEDGEMENTS.....</b>	<b>IV</b>
<b>CONTENTS.....</b>	<b>V</b>
<b>LIST OF FIGURES .....</b>	<b>XII</b>
<b>LIST OF TABLES .....</b>	<b>XIV</b>
<b>LIST OF GRAPHS .....</b>	<b>XVII</b>
<b>LIST OF ABBREVIATIONS .....</b>	<b>XVIII</b>
<b>CHAPTER 1: INTRODUCTION.....</b>	<b>1</b>
1.1 Background .....	1
1.2 Problem statement .....	3
1.3 Research objectives .....	3
1.4 Scope of research.....	4
1.5 Research methodology .....	4
1.6 List of chapters .....	6
<b>CHAPTER 2: CULTURE .....</b>	<b>9</b>
2.1 Introduction .....	9
2.2 Culture – general description and overview .....	9
2.2.1 Definitions of culture .....	10
2.2.2 Cultural dimensions .....	11
2.2.2.1 Hofstede’s cultural dimensions.....	11
2.2.2.2 Hall’s cultural dimensions .....	12
2.2.2.3 Cultural dimensions of four researchers .....	13
2.2.3 Characteristics of culture .....	14
2.2.4 Elements.....	15
2.2.5 The impact of culture in the business environment .....	16
2.3 Cultural context .....	19
2.3.1 Definition of cultural context.....	19
2.3.1.1 Communication.....	20
2.3.1.2 Context.....	21
2.3.1.3 Definitions.....	21
2.3.2 Low-context cultures.....	22

2.3.2.1	Description .....	22
2.3.2.2	Characteristics .....	23
2.3.3	High-context cultures .....	24
2.3.3.1	Description .....	24
2.3.3.2	Characteristics .....	24
2.3.4	Comparison between high- and low-context cultures .....	25
2.3.5	Country classification.....	28
2.3.6	The impact of cultural context.....	31
2.3.6.1	Examples of high- and low-context situations .....	32
2.3.6.2	Considerations for communication between high- and low-context people .....	33
2.4	Summary .....	34
 <b>CHAPTER 3: THE CULTURAL-CONTEXT DIMENSION AND WEB DESIGN.....</b>		<b>35</b>
3.1	Introduction .....	35
3.2	The impact of the Internet today .....	35
3.2.1	Activities over the Internet.....	36
3.2.2	Internet usage .....	37
3.3	Software – local and global use.....	39
3.4	The impact of culture on Web design .....	39
3.4.1	Cross-cultural differences .....	40
3.4.2	The colour cultural marker.....	41
3.4.3	The metaphor .....	42
3.4.4	A cultural website .....	43
3.4.5	The Culture Centre Design Process (CCD) .....	44
3.5	The impact of the cultural-context dimension on Web design.....	45
3.5.1	Wurtz’s research on websites.....	46
3.5.2	Marcus and Gould’s research on websites .....	51
3.5.3	Other cultural context features from various websites.....	53
3.6	Summary .....	56
 <b>CHAPTER 4: E-GOVERNMENT .....</b>		<b>57</b>
4.1	Introduction .....	57
4.2	E-Government – general description and overview .....	57
4.2.1	Definition of e-Government.....	58
4.2.1.1	ICT .....	58

4.2.1.2	Definitions.....	58
4.2.2	Goals and benefits of e-Government .....	59
4.2.2.1	Goals .....	59
4.2.2.2	Benefits .....	61
4.2.3	Stages of e-Government.....	62
4.2.3.1	United Nations phases/stages.....	62
4.2.3.2	Gartner Group phases/stages.....	63
4.2.3.3	World Bank phases/stages .....	64
4.2.3.4	Comparison of the stages of the three entities .....	64
4.2.4	Prerequisites of effective e-Government.....	66
4.2.5	Components of e-Government .....	68
4.2.6	E-Government website specifications.....	69
4.2.6.1	General considerations .....	69
4.2.6.2	Guidelines .....	70
4.3	E-Government in developing countries – general description and overview.....	72
4.3.1	Failure rates of e-Government projects.....	73
4.3.1.1	Design-reality gaps .....	74
4.3.1.2	Seven dimensions (ITPOSMO) .....	76
4.3.2	Costs of e-Government failure .....	78
4.3.3	Challenges.....	79
4.3.4	Threats.....	80
4.4	Summary .....	81

**CHAPTER 5: THE SOUTH AFRICAN CONTEXT ..... 82**

5.1	Introduction .....	82
5.2	E-Government in South Africa – general description and overview .....	82
5.2.1	Internet in South Africa.....	84
5.2.2	Previous evaluation of South Africa Government Online .....	85
5.2.3	Challenges facing South Africa .....	86
5.2.4	Concerns on the electronic model.....	88
5.2.5	Re-booting e-Government in South Africa.....	90
5.3	Description of South African e-Government website .....	91
5.3.1	The “home page” .....	91
5.3.2	The “services” category .....	93
5.3.2.1	Services for people.....	93
5.3.2.2	Services for organisations .....	93

5.3.2.3 Services for foreign nationals .....	93
5.3.3 The “information” category .....	94
5.3.3.1 What’s new .....	94
5.3.3.2 Events .....	94
5.3.3.3 Documents .....	94
5.3.3.4 Speeches and statements .....	95
5.3.3.5 About government.....	95
5.3.3.6 Government’s programme of action .....	95
5.3.3.7 Government departments .....	96
5.3.3.8 Key issues .....	96
5.3.3.9 Contact information .....	96
5.3.3.10 About South Africa .....	96
5.3.3.11 FAQs .....	96
5.3.3.12 Search for information .....	96
5.3.4 Other pages and links .....	97
5.4 Summary .....	98

**CHAPTER 6: CASE STUDY - THE SOUTH AFRICAN E-GOVERNMENT WEBSITE 99**

6.1 Introduction .....	99
6.2 Research hypotheses.....	100
6.2.1 The formulated research hypotheses.....	100
6.2.2 Techniques used to verify the formulated research hypotheses.....	100
6.3 Research methods.....	101
6.3.1 The case study.....	101
6.3.2 Heuristic evaluation .....	103
6.3.2.1 The heuristics .....	104
6.3.2.2 Expert reviewers selection .....	106
6.3.2.3 Limitations of heuristic evaluation .....	106
6.3.3 Ethnography .....	108
6.3.3.1 The online questionnaire.....	109
6.3.3.2 Designing the online questionnaire.....	111
6.3.3.3 Participants’ selection .....	113
6.3.3.4 Limitations of online questionnaire .....	114
6.4 Data analysis techniques.....	116

6.4.1	Online questionnaire data analysis techniques.....	116
6.4.2	Heuristic evaluation data analysis techniques.....	121
6.5	Data triangulation .....	123
6.6	South African culture .....	128
6.6.1	Population .....	128
6.6.2	Province preferences .....	128
6.6.3	Religion.....	129
6.6.4	Languages .....	129
6.7	Experimental design .....	130
6.7.1	Website selection .....	130
6.7.2	Website structure.....	130
6.7.3	Website goals .....	133
6.8	Summary .....	134
<b>CHAPTER 7: RESULTS AND RECOMMENDATIONS .....</b>		<b>135</b>
7.1	Introduction .....	135
7.2	Questionnaire analysis.....	135
7.2.1	Analysis of Question 1 items (biographical information).....	136
7.2.1.1	Item 1-1: Indicate your gender:.....	136
7.2.1.2	Item 1-2: What is your home language? .....	136
7.2.1.3	Item 1-3: Indicate your highest educational level completed? .....	137
7.2.1.4	Item 1-4: Please indicate your age group? .....	138
7.2.1.5	Item 1-5: Which category best describes your occupation? .....	138
7.2.1.6	Item 1-6: Please indicate the province where you are currently living..	139
7.2.1.7	Item 1-7: How often do you access the South African government website?.....	140
7.2.1.8	Final outcome.....	141
7.2.2	Analysis of Question 2 items (culture-related behaviour in Internet usage).....	141
7.2.2.1	Single sample t-test .....	141
7.2.2.2	Implications of the results .....	143
7.2.3	Analysis of Question 3 items (culture-related behaviour: government Website) .....	147

7.2.3.1	Single sample t-test .....	147
7.2.3.2	Implications of the results .....	148
7.2.4	The comparison: government and all purpose websites .....	151
7.2.4.1	Pairwise t-test .....	151
7.2.4.2	Results of minor implications .....	153
7.2.5	Analysis of Question 4 items (general culture-related behaviour) .....	156
7.2.5.1	Single sample t-test .....	157
7.2.5.2	Analysis of items 4-11 to 4-24 .....	158
7.2.5.3	Implications of the results .....	162
7.3	Expert Review Analysis .....	164
7.3.1	Analysis of Section 2 items (cultural-context heuristics) .....	164
7.3.1.1	Results .....	164
7.3.1.2	Implications .....	166
7.3.1.3	Usability task list .....	167
7.3.2	Analysis of Section 3 items (e-Government heuristics) .....	176
7.3.2.1	Results .....	176
7.3.2.2	Implications .....	178
7.3.2.3	Usability task list .....	179
7.3.3	Usability problems and recommendations .....	185
7.3.4	Analysis of hypotheses .....	187
7.4	Summary .....	188
<b>CHAPTER 8: CONCLUSION.....</b>		<b>189</b>
8.1	Introduction .....	189
8.2	Summary of work completed .....	190
8.3	Recommendations from results .....	191
8.4	Contribution to knowledge .....	196
8.5	Limitations of study .....	200
8.6	Future research .....	200
8.7	Summary .....	202
<b>BIBLIOGRAPHY .....</b>		<b>203</b>
<b>APPENDIX A: THE WORLD WIDE WEB .....</b>		<b>215</b>

<b>APPENDIX B: WEB DESIGN .....</b>	<b>220</b>
<b>APPENDIX C: WEB DESIGN GUIDELINES AND PRINCIPLES .....</b>	<b>225</b>
<b>APPENDIX D: USABILITY .....</b>	<b>230</b>
<b>APPENDIX E: INTERACTION DESIGN .....</b>	<b>233</b>
<b>APPENDIX F: SITE MAP OF SA GOVERNMENT WEBSITE .....</b>	<b>235</b>
<b>APPENDIX G: HOFSTEDE’S DIMENSIONS OF CULTURE .....</b>	<b>242</b>
<b>APPENDIX H: THE “CULTURAL-CONTEXT DIMENSION AND USER-INTERFACE DESIGN” QUESTIONNAIRE .....</b>	<b>246</b>
<b>APPENDIX I: THE RAW DATA OF THE QUESTIONNAIRE.....</b>	<b>257</b>
<b>APPENDIX J: SUMMARY OF QUESTIONNAIRE RESULTS .....</b>	<b>267</b>
<b>APPENDIX K: FREQUENCY TABLES ANALYSIS .....</b>	<b>272</b>
<b>APPENDIX L: THE “SA e-GOVERNMENT WEBSITE” EXPERT REVIEW .....</b>	<b>280</b>
<b>APPENDIX M: EXPERT REVIEW RESULTS.....</b>	<b>284</b>
<b>APPENDIX N: TECHNIQUES TO REDUCE ITPOSOMO GAPS.....</b>	<b>310</b>
<b>APPENDIX O: SUBMITTED PAPERS .....</b>	<b>313</b>

# LIST OF FIGURES

---

<b>CHAPTER 1: INTRODUCTION.....</b>	<b>1</b>
Figure 1.1 Layout of the dissertation.....	7
<b>CHAPTER 2: CULTURE.....</b>	<b>9</b>
Figure 2.1 High- and low-context nationalities scale according to culture.....	29
Figure 2.2 Communication patterns.....	30
Figure 2.3 High- and low-context profession scale.....	31
<b>CHAPTER 3: THE CULTURAL-CONTEXT DIMENSION AND WEB DESIGN.....</b>	<b>35</b>
Figure 3.1 Internet usage by world region.....	37
Figure 3.2 The culture centred design process.....	45
Figure 3.3 Animations on the high-context Japanese McDonald’s website.....	46
Figure 3.4 Animations on the high-context Japanese McDonald’s website.....	46
Figure 3.5 Individualistic values on the low-context Swiss McDonald’s website.....	47
Figure 3.6 Collectivistic values on the high-context Indian McDonald’s website.....	47
Figure 3.7 Individuals without the product on the low-context German McDonald’s website.....	48
Figure 3.8 Individuals with the product on the high-context Chinese McDonald’s website....	48
Figure 3.9 Transparency of information on the low-context Danish McDonald’s website.....	49
Figure 3.10 Transparency of information on the high-context Japanese McDonald’s website.....	49
Figure 3.11 Navigation design of the various low-context McDonald’s websites.....	50
Figure 3.12 Navigation design of the various high-context McDonald’s websites.....	50
Figure 3.13 Individualistic values on a USA website.....	51
Figure 3.14 Collectivism values on an Costa Rican website.....	51
Figure 3.15 Short-term orientation values on a German website.....	52
Figure 3.16 Long-term orientation values on a Chinese website.....	52
<b>CHAPTER 4: E-GOVERNMENT.....</b>	<b>57</b>
Figure 4.1 Focal domains for e-Government initiatives.....	61
Figure 4.2 The 5-stage model of e-Government development.....	66
Figure 4.3 Design-reality gaps in e-Government projects.....	77
<b>CHAPTER 5: THE SOUTH AFRICAN CONTEXT.....</b>	<b>82</b>

Figure 5.1 The “home page” .....	92
<b>CHAPTER 6: CASE STUDY – THE SOUTH AFRICAN E-GOVERNMENT WEBSITE</b>	<b>99</b>
Figure 6.1 The five steps of the user-centred design process.....	102
Figure 6.2 Example of item Q2-1 from the online questionnaire.....	117
Figure 6.3 The pyramid structure of the research methods .....	126
Figure 6.4 The research methods used to form the data triangulation approach.....	127
Figure 6.5 The continuum scale of data triangulation design .....	128
Figure 6.6 The home page of the South African Government website .....	131
Figure 6.7 Layers 1 and 2 of the design structure of the South African Government website.....	132
<b>CHAPTER 7: RESULTS AND RECOMMENDATIONS .....</b>	<b>135</b>
Figure 7.1 The scree plot of the items .....	159
<b>CHAPTER 8: CONCLUSION.....</b>	<b>189</b>
Figure 8.1 The South African Government portal .....	192
Figure 8.2 The re-designed South African Government portal .....	194
Figure 8.3 Expanding the Services link.....	195
Figure 8.4 Expanding the Information link .....	196
<b>APPENDIX A: THE WEB .....</b>	<b>215</b>
Figure A.1 WWW’s historical logo.....	216

## LIST OF TABLES

---

<b>CHAPTER 1: INTRODUCTION.....</b>	<b>1</b>
Table 1.1 Research objectives and methodologies.....	5
<b>CHAPTER 2: CULTURE .....</b>	<b>9</b>
Table 2.1 Examples of cultural models and their dimensions.....	13
Table 2.2 Values of low- and high-context cultures .....	26
Table 2.3 Contextual values and their characteristics .....	27
<b>CHAPTER 3: THE CULTURAL-CONTEXT DIMENSION AND WEB DESIGN.....</b>	<b>35</b>
Table 3.1 World Internet and population statistics.....	38
Table 3.2 Colour-culture chart .....	41
Table 3.3 Observations of the high- and low-context McDonald’s websites.....	50
Table 3.4 Comparison of values of the individualism vs. collectivism culture dimension.....	53
Table 3.5 Comparison of values of the short- vs. long-term orientation culture dimension....	53
Table 3.6 High- and low-context features .....	55
<b>CHAPTER 4: E-GOVERNMENT .....</b>	<b>57</b>
Table 4.1 Characteristics of the various e-Government development phases.....	64
Table 4.2 Recommendations to reduce the design-reality gaps .....	75
<b>CHAPTER 5: THE SOUTH AFRICAN CONTEXT .....</b>	<b>82</b>
Table 5.1 Internet usage and marketing report: South Africa .....	85
<b>CHAPTER 6: CASE STUDY – THE SOUTH AFRICAN E-GOVERNMENT WEBSITE</b>	<b>99</b>
Table 6.1 The hypotheses with the techniques that will be used to assist in validating them	101
Table 6.2 The features and benefits of an expert review.....	104
Table 6.3 The parameters used to distinguish high- and low-context websites .....	105
Table 6.4 The U.K e-Government website development guidelines .....	105
Table 6.5 Demographic variables assessed in online questionnaire.....	114
Table 6.6 The qualitative and quantitative research methods used in this study .....	123
Table 6.7 The data triangulation chart for this study.....	125
<b>CHAPTER 7: RESULTS AND RECOMMENDATIONS .....</b>	<b>135</b>
Table 7.1 Results of the single sample t-test for the All Purpose websites.....	141

Table 7.2	Derived conclusions from the analysis of the cognitive groups in all purpose websites .....	145
Table 7.3	Derived conclusions from the analysis of items that are not included in the cognitive groups in all purpose websites .....	146
Table 7.4	Results of the single sample t-test for the South African e-Government website.....	147
Table 7.5	Derived conclusions from the analysis of the cognitive groups in government websites.....	149
Table 7.6	Derived conclusions from the analysis of items that are not included in the cognitive groups in government websites .....	150
Table 7.7	Results of the pairwise t-test for government vs. all purpose websites.....	151
Table 7.8	Results of minor-significant differences from the comparison of All Purpose and Government Websites.....	155
Table 7.9	Results of the single sample t-test for the items which measure polychronic vs. monochronic, individualism vs. collectivism and long- vs. short-term orientation tendencies .....	157
Table 7.10	Eigenvalues and percentage variance explained .....	158
Table 7.11	Results of the factor analysis for items that measure cultural-context tendencies .....	159
Table 7.12	Results of the single sample t-test for the items 4-11 to 4-24 .....	161
Table 7.13	Derived conclusions from the analysis of items which measure polychronic vs. monochronic, individualism vs. collectivism, long- vs. short-term orientation and high- vs. low-context tendencies .....	162
Table 7.14	Results from Section 2 (cultural-context heuristics) of the expert review .....	165
Table 7.15	Summary of Section 2 (cultural-context heuristics) results .....	166
Table 7.16	Usability task list for Section 2 .....	168
Table 7.17	Results from Section 3 (e-Government heuristics) of the expert review .....	176
Table 7.18	Assessment of South African e-Government website according to the U.K e-Government development guidelines .....	178
Table 7.19	Usability task list for Section 3 .....	180
Table 7.20	Usability problems and recommendations to improve the South African e-Government website.....	185
Table 7.21	Analysis of research hypotheses.....	187
<b>CHAPTER 8: CONCLUSION.....</b>		<b>189</b>
Table 8.1	Areas for improvement on the South African government portal.....	193
Table 8.2	Research objectives accomplished .....	197
<b>APPENDIX A: THE WEB .....</b>		<b>215</b>

Table A.1 Comparing services and characteristics of Web 1.0 with Web 2.0.....	218
<b>APPENDIX G: HOFSTEDE’S DIMENSIONS OF CULTURE .....</b>	<b>242</b>
Table G.1 Index values for Hofstede’s five culture dimensions .....	243
<b>APPENDIX I: THE RAW DATA OF THE QUESTIONNAIRE.....</b>	<b>257</b>
Table I.1 The raw data.....	258
<b>APPENDIX J: SUMMARY OF QUESTIONNAIRE RESULTS .....</b>	<b>267</b>
Table J.1 Results summary for question 1 .....	268
Table J.2 Results summary for question 2 .....	269
Table J.3 Results summary for question 3 .....	270
Table J.4 Results summary for question 4 .....	271

## LIST OF GRAPHS

---

<b>CHAPTER 7: RESULTS AND RECOMMENDATIONS .....</b>	<b>135</b>
Graph 7.1 Percentage and total number of participants' values for gender status .....	136
Graph 7.2 Percentage and total number of participants' values for home language.....	137
Graph 7.3 Percentage and total number of participants' values for highest educational level .....	137
Graph 7.4 Percentage and total number of participants' values for age group .....	138
Graph 7.5 Percentage and total number of participants' values for occupation.....	139
Graph 7.6 Percentage and total number of participants' values for currently living province .....	139
Graph 7.7 Percentage and total number of participants' values for frequency of access to the SA government website .....	140

## LIST OF ABBREVIATIONS

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<b>Abbreviations</b>	<b>Term in Full</b>
CCD	Culture centred design process
CRM	Customer Relationship Management
DACST	Department of Arts, Culture, Science and Technology
DPSA	Department of Public Service and Administration
e-GIF	e-Government Interoperability Framework
e-GMF	e-Government Metadata Framework
e-Gov	Electronic government
e-Government	Electronic government
e-mail	Electronic mail
e-Trust Charter	Trust Charter for Electronic Service Delivery
GNI	Gross national income
GUI	Graphical user interface
HC	High-context
HCI	Human computer interaction
HTML	Hyper text markup language
ICT	Information and communications technology
IDV	Individualism
ISP	Internet service provider
IT	Information technology
ITPOSMO	Information, technology, processes, objectives and values, staffing and skills, management systems and structures, and other resources
LC	Low-context
LTO	Long-term orientation
MAS	Masculinity
M-Time	Monochronic time
NMMU	Nelson Mandela Metropolitan University
NRF	National Research Foundation
PDI	Power distance index
PKI	Public key identification
P-Time	Polychronic time
RDF	Resource description framework
SA	South Africa
SABS	South African Bureau of Standards
SACSA	South African Communications Security Agency
SDLC	Systems development life cycle
SMME	Small medium and micro enterprises
UAI	Uncertainty avoidance index
UK	United Kingdom
UN	United Nations
URL	Universal resource locator
USA	United States of America
W3C	World Wide Web Consortium
WAI	Web Accessibility Initiative
WWW	World Wide Web

# CHAPTER 1: INTRODUCTION

---

## 1.1 Background

This document will focus on two main issues, culture and e-Government, and will discuss the way culture can impact on the design of e-Government websites. Culture is a very broad topic and is a field of study in its own right: this research will focus on the dimension of cultural context, and how this affects the design of e-Government websites in South Africa.

Proper e-Government implementation is vital, not only because it can contribute to building a more efficient, accountable and transparent government but also, owing to its ICT component, because it has the ability to contribute effectively to anti-corruption efforts. In a country like South Africa, where corruption is regarded as a daily phenomenon, e-Government may offer a weapon to counter it (Phala, 2007); however, it is also vital to create an e-Government system that will be both usable and representative of the social and cultural backgrounds of normal South African citizens. By studying the cultural context of South African society, valuable information can be collected that could contribute to this cause.

Although culture is such a controversial issue, and defining it is not an easy task, an attempt will be made to do so in chapter 2. One understanding of culture is that it can be characterised as the passing on of knowledge, traditions and values of how one should live within a certain community of people who follow the same rules in order to belong to that particular group.

Different cultures produce different understandings and perceptions depending on the cultural environment in which people are raised. It is, therefore, only natural that culture should impact on Web design. Designers need to consider who will use their products, as this is vital for the product's success especially when, for example, Western Web designers are designing systems for use in developing countries and Eastern societies.

This research will focus both on how the cultural-context dimension affects the design of e-Government websites and also how well developed e-Government is in a South African context. E-Government refers to the Government's use of information technology to exchange information and services with citizens, businesses and other arms of government (Wikipedia, 2007; ISP Glossary,

2007). In order to create good services that all citizens can use easily and effectively, one has to consider the users. Proper design can help to avoid developing ill-conceived services (Macdonald, 2003).

E-Government can serve a variety of different ends. It can offer better delivery of government services to citizens, improve government's interactions with business and industry, empower citizens through access to information, or bring about more efficient government management. Benefits that can be gained include less corruption, increased transparency, greater convenience, revenue growth and/or cost reductions (World Bank, 2007).

Many countries have already implement e-Government while others are in the process of doing so. Some developed countries have managed to create quite successful systems (although there is still room for improvement), while others have failed (Dada, 2006). In developing countries, however, the failure rates are high: 50% of these systems are regarded as partial failures while 35% are classified as total failures (Dada, 2006). The reason for this is that there could be a mismatch between the current and future systems, as a result of the fact that there are large gaps between the physical, cultural, economic and various other contexts in which software designers are working and the places in which their systems will be implemented (Dada, 2006). These issues will be explored in detail in chapter 4.

The benefits of a well-designed e-Government system are countless. At the same time, however, there are many obstacles that could prevent the success of such a system: the most apparent being the digital divide. Considering the context of the culture for which one is designing might assist in communicating information more effectively and efficiently. This could result in e-Government systems that can be used and understood more easily so that users can complete their tasks more successfully.

## **1.2 Problem statement**

This research project will investigate the impact that the cultural-context dimension has on Web design and examine what needs to be considered in order to contribute to the design of more usable and successfully implemented e-Government websites in South Africa.

The low success rates obtained when implementing e-Government in developing countries can be attributed to many factors; however, this research will concentrate on the design factor of e-Government websites, and how it affects, if indeed it does, the success of the e-Government in South Africa.

## **1.3 Research objectives**

The primary objective of this research is to make suggestions that could contribute to a more effective and usable e-Government website in South Africa taking into account the cultural context of this society. These suggestions could enhance the user experience of e-Government in the country and at the same time make it more available and easier to utilise by a wider range of citizens, regardless of age, education and socioeconomic background.

In relation to this primary objective, a parallel goal is to create a tool that will help determine the South African cultural context. This tool will be designed in the form of a questionnaire. At the same time, this tool must determine elements of Web design that are preferred by people of both high- and low-context cultures. The main emphasis, however, will be on South African citizens' preferences when using general websites in comparison to government ones.

In order to achieve both of these primary objectives, a number of secondary objectives need to be accomplished. These include the following:

- to determine the components and characteristics of an e-Government website
- to determine the characteristics and values of high- and low-context societies
- to determine the heuristics to be used to measure and test the usability of the current e-Government website in South Africa in terms of cultural context
- to propose cultural context design guidelines for designing e-Government websites

### 1.4 Scope of research

The focus of this research will be on the South African population, who will be the biggest users of the South African government website. The main emphasis, however, will be on culture context as one of the cultural dimensions. In order to measure the cultural profile of the South African population, a questionnaire will be created, which will focus on three main aspects:

- the culture-related behaviour of South African citizens in general Internet usage
- the culture-related behaviour of South African citizens when using the South African government website
- the general culture-related behaviour of South African citizens (not related to ICT in any way)

This questionnaire will help distinguish two important facts that could prove critical for the success of this particular research project. These are to be found in the answers to the following two questions:

- Is South Africa a high- or low-context culture (in terms of the cultural-context dimension)? Determined by the tool (questionnaire) created. Countries from Africa are regarded as high-context cultures but South Africa has not yet been proven to be high context in its own right.
- Should the South African government website be designed in terms of a high-context design style or a low-context design style or should it be a combination of both design styles?

The second question presents a crucial dilemma. If South Africa proves to be a high-context culture, this would naturally imply that citizens will prefer using websites that have Web design styles, features and elements that are more understandable and preferred by people of a high-context culture rather than those better suited to people of a low-context culture. However, this might not be true in the case of the South African government website. In other words, although South Africans will generally prefer using websites that suit high-context cultures for their broad Internet usage, they might prefer using a government website that is designed to rather suit low-context cultures. This is an extremely significant issue that will need to be determined in this research.

### 1.5 Research methodology

The research philosophies and research methodologies to be followed in this study will combine both positivistic and phenomenological approaches. While the research philosophy tends to be

phenomenological, the study will also use positivistic methods that will contribute to the success of this research to gather the information required.

A large part of the work focuses on the people of the country and the position that South African society takes in terms of its cultural context. Countries from Asia, Africa, South America and much of the Middle East are classified as high-context cultures (Timbrook, 2001; LeBaron, 2003). South Africa as a country forms part of the Africa classification, yet it has not been classified individually. In order to confirm this classification, a background questionnaire will be sampled within the South African population. The following research methodologies will be used:

- a literature study
- a case study which will include usability evaluation methods such as heuristic evaluation and ethnography

A survey (online questionnaire) will also be integrated as part of the overall case study. Table 1.1 is a summary of the “Research objectives” and “Research methodologies” sections of this chapter. It shows the research questions, the objectives and the methods that will be used to accomplish these objectives more concisely.

<b>Research questions</b>	<b>Objectives</b>	<b>Objective type</b>	<b>Methodology</b>
What is the impact of the cultural-context dimension in terms of improving the current South African e-Government website?	Make suggestions and recommendations that will improve the e-Government website in South Africa by studying the cultural context of South African society.	Primary	Literature review
How can one design a tool to measure the cultural context of South African citizens in general and in relation to Web design?	Create a tool in the form of a questionnaire that will help collect the required information.	Primary	Literature review and user-centred design methods
What is e-Government? What are the goals of e-	Investigate the various e-Government websites	Secondary	Literature review and analysis of various e-

Research questions	Objectives	Objective type	Methodology
Government? What should an e-Government website specify?	and e-Government in general.		Government websites to gather valuable information.
What are high- and low-context societies or cultures? How is such a society determined?	Thoroughly investigate the cultural-context dimension and its characteristics.	Secondary	Literature review
How does the South African e-Government website rate? Is it usable? Does it take culture context into consideration? What are its current shortcomings?	Test the current e-Government website as thoroughly as possible.	Secondary	Literature review, case study, user-centred design methods and ethnography
What is the relationship between Web usage and culture?	Investigate they way culture can affect the Web usage process.	Secondary	Literature review
Are there culture-context guidelines in Web design (with particular emphasis on e-Government)?	This could be an outcome of the overall research project. Discussed as recommendations and guidelines.	Secondary	This will be a result of all the research methods that were combined.

**Table 1.1: Research objectives and methodologies for the study**

## 1.6 List of chapters

Figure 1.1 provides an overview of the layout of the dissertation. In terms of the structure, one can identify four main components. The first component is chapter 1, which is an introduction. The second component includes chapters 2, 3 and 4, which relate to the theory examined. Chapters 5, 6 and 7 are part of the third component in which all the experimental work was conducted. The final component, chapter 8, brings closure to the dissertation.

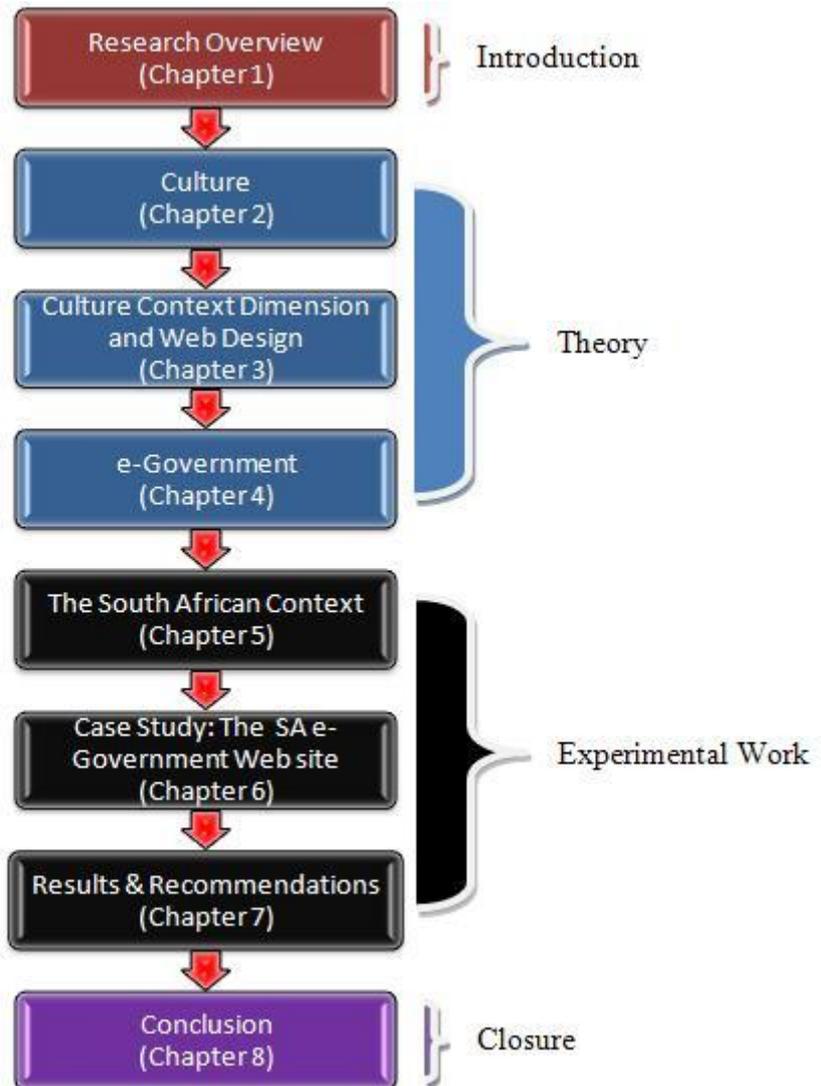


Figure 1.1: Layout of the dissertation

The chapters of the dissertation will now be discussed, including the name of the chapter and a brief description of each:

- *Chapter 1: Introduction.* This chapter will introduce the research topic and highlight the problem area. It will also discuss the research objectives of the project and the research methodologies that will be followed to attain these objectives.
- *Chapter 2: Culture.* In this chapter culture in general will be discussed in detail. The main focus of this chapter, however, in terms of culture, will be on the cultural-context dimension.
- *Chapter 3: Culture-context dimension and Web design.* This chapter will focus on how culture and, in particular, the cultural-context dimension impacts on the design of websites.

- *Chapter 4: e-Government.* This chapter will introduce the concept of e-Government. It will focus firstly on e-Government from a more general perspective and will then focus specifically on e-Government in developing countries. This includes the current situation, shortcomings and possible solutions for these.
- *Chapter 5: The South African context.* This chapter will focus on the e-Government structure in South Africa and will look at various aspects and concepts of e-Government in the South African context. This chapter will also include a description of the South African government website and its main features.
- *Chapter 6: Case study – South African e-Government website.* This chapter will include a case study of the South African Government website. It will also include the use of a user-centred design method (heuristic evaluation) and ethnography (online questionnaire).
- *Chapter 7: Results and recommendations.* The results of the expert reviews and heuristic evaluations will be examined and recommendations will be made on the findings. These evaluations form part of the overall case study.
- *Chapter 8: Conclusion.* A summary of the research undertaken will be provided. The ultimate goal of this research is to present guidelines, in terms of the cultural-context dimension, that will improve the design of the South African e-Government website. The secondary goal of this research is to present design guidelines for designing an e-Government website for either a high- or low-context culture.

## CHAPTER 2: CULTURE

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### 2.1 Introduction

This chapter will focus on two main aspects of the field of culture. The first part will contain a more general discussion on the topic of culture, which will be divided into the following sections:

- definitions of culture (section 2.2.1)
- the dimensions of culture (section 2.2.2)
- the characteristics of culture (section 2.2.3)
- the elements of culture (section 2.2.4)
- the impact of culture in the business environment (section 2.2.5)

The second part of this chapter will focus on one of the cultural dimensions in more detail: that of cultural context. Timbrook (2001) asserts that a society can be classified as either a high-context culture or as a low-context one depending on certain criteria that will be discussed later in this chapter. This theory of high and low-context cultures focuses on the way that people from different countries interact with one another in their daily lives (Timbrook, 2001). The following issues will be discussed in this section:

- definitions of cultural context (section 2.3.1)
- low-context cultures (section 2.3.2)
- high-context cultures (section 2.3.3)
- comparison between high- and low-context cultures (section 2.3.4)
- country classification (section 2.3.5)
- the impact of cultural context (section 2.3.6)

It is important to point out that, in this chapter, culture will be discussed from an anthropological perspective. However, in chapter 3 (“The impact of the cultural-context dimension on Web design”), culture will be discussed in terms of its influence on the field of Web design.

### 2.2 Culture – general description and overview

There is no doubt that culture has a major influence on our lives; however, the issues of what culture means, how it is defined and who has the right to define it are highly contested and very controversial. There have been many attempts to define culture and the next section contains some of these.

### 2.2.1 Definitions of culture

Culture is a vast, complicated subject and is often considered very personal or even sensitive. The fact is that culture has a very important role to play in a society (Verhelst, 1994).

The term “culture” has multiple meanings in various disciplines and in different contexts (Samovar, Porter & McDaniel, 2007). Each researcher within the field defines culture in their own terms and, most probably, from their own personal experience. There is no specific agreement on a definition of culture (Ford, 2005). Although many of these definitions differ, one should take note that within them there are similarities in the words and meanings used by the different researchers. Some definitions include:

- “Culture is a living thing, consisting of elements inherited from the past, outside influences, which have been embraced and new elements invented locally” (Verhelst, 1994).
- “Culture is communication, and communication is culture” (Hall, 1959, p 186).
- “Culture is a set of human-made objective and subjective elements that in the past have increased the probability of survival and resulted in satisfaction for the participants in an ecological niche, and thus become shared among those who could communicate with each other because they had a common language and they lived in the same time and place” (Samovar et al., 2007).
- “Culture ... is that complex whole which includes knowledge, belief, art, morals, law, custom, and any other capabilities and habits acquired by man as a member of society” (Taylor, 1881).
- “Culture refers to the cumulative deposit of knowledge, experience, beliefs, values, attitudes, meanings, hierarchies, religions, notions of time, roles, spatial relations, concepts of the universe, and material objects and possessions acquired by a group of people in the course of generations through individual and group striving” (Hofstede, 1997).

In terms of this chapter, culture was defined within the sense of its role in a community and how it influences the lives of the people therein. It is a fair assumption to say that one should define one’s culture him or herself. This can be done through one’s own personal experiences of and upbringing in the world.

Culture plays an immensely important role in a person's life. One should not forget, however, that it can also have a negative impact. Hofstede, for example, says “[c]ulture is more often a source of conflict than of synergy. Cultural differences are a nuisance at best and often a disaster” (Hofstede, 1987–2003).

### 2.2.2 Cultural dimensions

Cultural dimensions provide ways to help examine and understand a new culture that one might have to operate in. They also assist in recognising the values, beliefs and prejudices that exist in one's own culture. Most of the work in this chapter is influenced by the research of two anthropologists, Professor Geert Hofstede and Edward T. Hall, and a more detailed discussion of their theories of cultural dimensions will follow. The cultural dimensions of other researchers will also be included as a table.

Dimensions are used to examine cultural values by making use of extensive statistical data. Hofstede's work was one of the first attempts to accomplish this and his research resulted in a ranking system of cultures according to his own dimensions. These rankings give a clear picture of what is valued in each culture and also provide us with the ability to compare across cultures (Samovar et al., 2007).

#### 2.2.2.1 Hofstede's cultural dimensions

Hofstede's research has led him to the discovery of five cultural dimensions (discussed in more detail in Appendix G) which exist within a culture and which are essential to understand and take into consideration, as they will help to bring about more successful communication between people from the diverse cultural backgrounds. These are (Hofstede, 1987–2003):

- *Power distance index (PDI)*. This refers to the extent to which the less powerful members of organisations and institutions accept the fact that power is distributed unequally resulting in leaders and followers. Power and inequality play fundamental roles in any society.
- *Individualism (IDV)*. The opposite of this would be collectivism. Collectivism can be described as the degree to which individuals are integrated into groups. In individualist societies, everyone is expected to look after themselves and their immediate family. On the other hand, in collectivist societies, people are integrated into strong groups from birth onwards which protect them in return for unquestioning loyalty.

- *Masculinity (MAS)*. The opposite of this is femininity. This dimension refers to the distribution of roles between men and women, which is fundamental to the solutions that can be found within a society. Two important facts have emerged here. The first is that women's values differ less than men's do among different societies. The second is that men's values contain the dimension of being very assertive and competitive or modest and caring, depending on their culture.
- *Uncertainty avoidance index (UAI)*. This refers to a society's tolerance for uncertainty and ambiguity and focuses on how a culture programmes its members to feel either comfortable or uncomfortable in unstructured situations. Uncertainty avoidance cultures try to minimize the chance of unstructured situations. People in such societies believe in one truth (their own) and follow strict rules and laws. In contrast, uncertainty accepting cultures are more tolerant of opinions that differ to their own. They also tend to have as few rules as possible within their society.
- *Long-term orientation (LTO)*. This determines how people achieve their goals within a society. Work is done in terms of either a long-term or a short-term orientation. Values that are associated with long-term orientation are thrift and perseverance, while values that are associated with a short-term orientation include respect for tradition, fulfilling social obligations and protecting one's "face".

#### 2.2.2.2 Hall's cultural dimensions

Hall's model of culture focuses on three main concepts (ChangingMinds.org, 2002–2007; Ford, 2005):

- *Context*. This refers to the extent to which communicators depend on factors other than explicit speech to convey their messages. The information that is given within a communication depends on the context in which it occurs. Context can be classified into two main categories – high-context and low-context (LeBaron, 2003). This dimension will be discussed in detail in the next section as it is the main emphasis of this chapter and it has an important role to play in this research.
- *Time*. Hall classifies time as being either polychronic or monochronic. In monochronic time (or M-time), the focus is on doing one thing at a time. It is associated with careful planning and scheduling, such as "time-management" and is a characteristic of a Western civilisation. Monochronic people tend to be from a low-context culture. In

polychronic time (or P-time), human interaction is valued over a period of time and above material objects. There is less concern about getting things done. Rather, things are done in their own time. People also tend to perform many tasks at the same time, and this is a feature of a high-context culture.

- *Space*. Hall has identified four different senses of space or “invisible boundaries”, as they are also known, which exist in all cultures: territoriality, personal space, multisensory space and reactions to spatial differences. Territoriality relates to ownership and power. Personal space focuses on unwritten rules that exist within a culture on how one person is allowed to approach another person. Multi-sensory space refers to unconscious rules that exist as to what is too loud or intrusive. Its spatial boundaries extend to the five senses. In reactions to spatial differences, the distance that one keeps from another person while in a conversation is the main focus. This is also closely connected to personal space. An example of this would be if one was having a conversation with another person from a further distance away than expected. This would unconsciously create negative messages between the two communicators.

### 2.2.2.3 Cultural dimensions of four researchers

Table 2.1 summarises the different models of culture that were developed from the perspective of four different cultural researchers. These models can be identified by the cultural dimensions that are used to organise the cultural data. Along with Hofstede and Hall, the table also includes Victor’s and Trompenaars’s findings.

Dimensions	Hall	Trompenaars	Hofstede	Victor
1.	Speed of messages	Universalism vs. particularism	Power distance	Language
2.	Context	Neutral or emotional	Masculinity vs. femininity	Environment & technology
3.	Space	Individualism vs. collectivism	Individualism vs. collectivism	Social organisation
4.	Time	Specific vs. diffuse	Uncertainty avoidance	Contexting
5.	Information flow	Achievement vs. ascription	Time orientation	Authority conception
6.	Action chains	Time		Nonverbal behaviour
7.		Environment		Temporal conception

Table 2.1: Examples of cultural models and their dimensions (Ford, 2005)

### 2.2.3 Characteristics of culture

In this section, the focus turns towards the common characteristics of a culture. Regardless of the many different definitions and features of culture that are available, there seems to be a certain amount of agreement as regards the most important characteristics of culture. By examining these, one could become a better communicator (Samovar & Porter, 2004).

In order for a culture to exist and live out its life span, certain characteristics and behaviours need to be withheld from or followed by its people. The characteristics of a culture emanate from the words and terms that are used in a definition of culture and may basically be seen as an elaboration of the definitions themselves. These assist in gaining an improved understanding of culture and include the following (O'Neil, 2006):

- *Culture is an adaptive mechanism.* It is one's own cultural knowledge and technology that offer an individual the ability to survive on this planet. Culture provides humans with a major competitive advantage when it comes to survival over other life forms. It has also turned humans into the most dangerous and destructive species on this planet. Although culture has given humans much power, people still depend on their own cultural skills for survival.
- *Culture is learned.* When humans are born they do not have any instinctive patterns of behaviour to satisfy their own needs. As a result of this, they are also without any cultural knowledge; however, it is natural for a newborn human to learn new things rapidly, such as language and cultural traits. Newborn humans will accept the culture that they are brought up in as their own. It is important to note that a culture is non-instinctive and cumulative.
- *Cultures change.* No culture is static and all cultures change over time. It is possible for new cultural traits to be added to an existing culture and for some old cultural traits to be discarded because they are no longer useful. Humans today would most probably starve to death in the wilderness; in contrast, their ancestors would be able to feed themselves and survive in such conditions. What is more important today is being able to drive a car or use a computer. All these additions and subtractions of cultural traits result in cultural change.
- *People are usually not aware of their culture.* The reason for this is because they know it so well and are so close to it. The way people act and interact in their lives seems to be

completely natural and correct to them. Only once an individual comes into contact with people from different cultures will he or she start realising that his or her own patterns of behaviour are not universal. It is also natural to judge the customs and values of other cultures by those of one's own culture.

- *People do not know all of their own culture.* It is impossible for anyone to know everything about their own culture. Within societies there may exist specialised cultural knowledge that could be either gender, class, occupational or faith specific or have some other different purpose.
- *Culture gives us a range of permissible behaviour patterns.* Culture directs people as to how various activities should be conducted within one's society. It tells the individual how to behave appropriately within their society because role-models for these individuals already exist. These "rules" of permissible behaviour are usually flexible.
- *Cultures no longer exist in isolation.* It is almost certainly unlikely that there are societies today that are in total isolation from the rest of the outside world. Even the smallest tribal societies are integrated into the global economy to a certain extent. This has not always been the case though, and in the past certain societies were unaware of the existence of cultures other than their own. A shared global culture will not result in the current major cultures becoming extinct in the near future, but it has resulted in the disappearance of some small native cultures.

#### 2.2.4 Elements

Within a culture, members will share a collection of ideals, values and principles of behaviour. It is these morals which bind the members of a culture together. At the same time these morals will give meaning to the members' lives (Erickson, 2005).

There are certain elements that mark a collection of people as a culture. Understanding the elements of culture will allow one to appreciate the fact that while all cultures share a general core set of elements, these elements often distinguish one culture from another. There are five main features that all cultures possess. These include the following (Samovar et al., 2004):

- *History.* In all cultures, history plays a very important role. The members of a culture believe that history will guide its members into the future. History is passed on from one generation to the next and offers its members part of their identity. It highlights what is

important to that culture, its origins as well as great accomplishments from the past that it can be proud of.

- *Religion.* Another vital feature of a culture is that of religion. It is through religion that certain beliefs and activities are given meaning and legitimacy. Religion influences culture at all the levels of a society and impacts on everything, including business, politics and the individual behaviour of its members. Religion is very powerful and pervasive and its effects are both conscious and unconscious.
- *Values.* There is a strong relationship that exists between values and culture: when referring to the one it is difficult not to mention the other. Cultural values may be seen as a set of guidelines that determine the way the members of a culture should behave. Values tend to differ across cultures, which is the reason why people of different cultures may exhibit different behaviours under similar circumstances.
- *Social organisation.* Social organisations are also referred to as social systems or social structures. They symbolise the different social units that are contained within a culture. These social units, for example, family, government, schools and tribes help the members of a culture to organise their lives. These social systems will result in communication networks and will help establish norms of personal, familial and social conduct. An important fact is that the way these social organisations will function and the norms that they will portray differ and are unique to each culture.
- *Language.* This is a very important tool that is common to all cultures. It allows its members to communicate with one another. Language helps its members to share ideas, feelings and information. It is also one of the leading methods for the transmission of culture. The grammar, syntax and meanings of words in any language contain the identification mark of a specific culture.

### **2.2.5 The impact of culture in the business environment**

It is only to be expected that if culture has such an enormous role in a society, it will also have a major influence in the business world. This is especially true when it comes to cross-cultural business institutions. In other words, if a business institution deals with clients from other countries and cultures, or its staff consists of non-local people, it is essential that cultural aspects be taken into consideration. Business practices are regarded as extensions of the cultures themselves (Prawda, n.d.).

A discussion of culture in terms of its influence on the business environment would be very broad, so, for the purpose of this dissertation, the focus will be on the manager's role in a business, when it comes to managing staff from different cultures.

From a management perspective, cultural influences may sometimes even determine the policies, style and structures of an organisation. It is much simpler to manage a company that is running as a domestic operation and has a standardised culture because everyone will, firstly, speak the same language and, secondly, understand each other better because they all have similar behaviours, values and norms in the way they live their lives (Prawda, n.d.).

Culture has a great impact on domestic business operations. In simple terms, this is because each country has its own culture and every company is located within a country. This makes it impossible for culture not to have a direct effect on business. Humans are so focused on their own cultures, as individuals, that they tend to forget that the way they conduct business is culturally bound and the same applies to people in other countries. Basically, the domestic culture determines how domestic companies will operate (Business Now, 2007).

Research has shown that the role of manager can have many variations, depending on the culture in which one is managing. According to a survey that compared American and French managers, American managers are regarded as "problem solvers" in comparison with French managers, who are regarded as being "experts". This would negatively impact on the influence and effectiveness of an American manager in a French environment and vice versa. Business may no longer be restricted to domestic territories, however. On the contrary, business is now global and managers should be able to handle cultural diversity (Prawda, n.d.).

In order for one to be classified as a competent intercultural communicator, one needs to be aware of how cultural rules influence the communication context. If one neglects to take this into consideration, it could result in a number of surprises – from the embarrassing to the detrimental (Samovar et al., 2007). To be successful in intercultural communication, it is critical for one to understand both one's own cultural rules and the cultural rules of the individual that one is interacting with. If one can accomplish this, the other person's behaviour will make more sense and

one will be better prepared to control and modify own behaviour in order to meet the other person's expectations (Samovar et al., 2007).

The development of business communication skills in the multinational marketplace may be seen as a great challenge. Management aside, there are other universal concepts that are also extremely significant. Such concepts include business protocols, negotiation, decision making and conflict management. These concepts are often viewed differently from culture to culture (Samovar et al., 2007).

The national culture not only influences managerial style, beliefs and actions, but also makes a significant contribution to team effectiveness. Based on their cultural background, managers may or may not be comfortable working without the specific job knowledge about subordinate tasks. Hofstede's research on the analysis of the cultural dimension of uncertainty avoidance can be used as a guide in explaining this. For one to avoid any uncertainty within one's work, one will need to be an expert in all the aspects of the work of one's subordinates. In Hofstede's study, Japan (a high-context culture) ranked first out of 53 national cultures in terms of its uncertainty avoidance (Gannon, n.d.).

It is extremely important for managers to develop intercultural management skills in order to confront the international realities that they will have to deal with. It is also very possible that project teams will be created from people of very diverse cultures and it is the manager who is responsible for making the team cohesive and work together effectively (Samovar et al., 2004).

On the nature of culturally diverse project teams and their managers, Miller, Fields, Kuman and Oritz state the following:

Project teams made up of members with differing cultural, ethnic, and corporate backgrounds and of different genders can be significantly superior to homogenous teams if properly managed. They can also be much worse than even a poorly managed homogeneous team if leaders ignore differences between people of different backgrounds. In these situations, leadership characteristics should include an open style of management that increases trust, a good sense of humor to diffuse potential misunderstandings, a sincere

interest by the project manager in his or her staff as individuals and good communication style (in Samovar et al., 2004).

There are contrasting views on whether or not a manager in an organisation should be an expert or a delegator. This is particularly based on cultural differences. In organisations where there are managers and staff from different cultural backgrounds, it is only natural to expect that possible conflict will arise. Managers need to be sensitive towards their staff and accept their different expectations: expectations which are usually based on their own culture (Gannon, n.d.). To deal effectively with cultural diversity is a great challenge for any manager. It is the managers' cultural backgrounds, management orientations and communication styles that will lead them to develop different approaches in order to achieve their goals (Samovar et al., 2004).

### **2.3 Cultural context**

In this part of the chapter, the emphasis will be on Hall's cultural-context dimension. This section will focus on defining cultural context and taking a more in-depth look at what high- or low-context cultures are together with their characteristics. It will also discuss which countries are classified as low- or high-context cultures, and why this is so, as well as look at the general impact that the cultural-context dimension has.

#### **2.3.1 Definition of cultural context**

The dimension of cultural context is regarded as a communication tool that helps in understanding cultures. It is not a comprehensive way in which to understand culture and its relationship to communication and conflict, but it does assist in understanding the way different groups of people make sense of their own worlds (LeBaron, 2003).

Through his cultural-context dimension, Hall offers another effective way of examining cultural similarities and differences in both perception and communication. He classifies a culture as being either high- or low-context. This classification will depend on the degree to which meaning comes from the words that are being exchanged in a communication or from the setting in which the communication is taking place (Samovar et al., 2007).

This cultural dimension focuses mainly on two concepts, communication and context. A brief discussion on both these concepts is essential, as they are both directly connected to cultural context.

### 2.3.1.1 Communication

An easy and understandable definition of human communication is that it is the process through which symbols are transmitted for the purpose of eliciting a response (Khan, 2001). There are two basic types of communication method: verbal and nonverbal. Without getting into too much detail, the basic assumptions of human communication are the following (Samovar et al., 2007):

- *Communication is rule governed.* People's interactions are expected to follow culturally determined rules and certain forms of behaviour both consciously and unconsciously. These rules are usually determined by the social setting and the particular situation that one finds oneself in. Culture creates the rules that govern both verbal and nonverbal behaviours.
- *Context specifies communication rules.* The rules that are appropriate for a specific communication interaction are specified by the context. Such contexts could be a funeral, a classroom, a hospital or a day at the beach. The communication rules and expected behaviours for each of these contexts are different. If one does not follow the appropriate rules for each context, it may result in being ignored, being asked to leave or even being cited for contempt of court.
- *Communication rules are culturally diverse.* The rules that govern cultures can be very diverse. Even though the same social settings and contexts exist in different cultures, the rules that govern these situations can differ from culture to culture. Concepts such as time, dress, nonverbal behaviour and manners differ considerably among cultures.

Communication is a very important aspect of an individual's life and may be regarded as an essential tool for survival within any society. It is communication that helps people share their feelings, values, ideas and beliefs and it is considered to be the basis of all human contact. No matter what culture one lives in, everyone participates in the same activity when communicating. Even though the methods and results of the communication may vary, the process remains the same. Engaging in communication is what allows humans to share their realities with one another (Warfield, 2002; Samovar et al., 2004).

This was a brief overview of communication, which in itself is a whole separate field of research. This discussion was very limited, yet enough to serve its purpose, which is to assist one in understanding the cultural-context dimension better.

### **2.3.1.2 Context**

It is important to understand the term “context” because it will make it easier to comprehend the meaning of cultural context and, at the same time, make the link between communication and context more comprehensible. According to Samovar et al. (2007), context can be defined as “the information that surrounds an event; it is inextricably bound up with the meaning of the event”. Context is very important to consider in intercultural communication interchanges because the rules for specific situations are usually different. In other words, what is considered to be appropriate in one culture is not necessarily appropriate in another (Samovar, Porter & McDaniel, 2006).

It is a fact that communication will always take place within a context and that the nature of the communication depends on that context. One needs to understand the idea of communication being part of a larger system, rather than a process on its own. There are other various elements that, along with the context, also have vital roles in the communication procedure. These elements are the location where the communication is taking place, the occasion, the time, the number of people that are involved and the cultural setting (Samovar et al., 2004).

According to what has been discussed so far, one may suggest that communication involves more than just the process of sending and receiving messages, which can be in both verbal and nonverbal formats (Khan, 2001; Warfield, 2002). The way in which human interaction takes place depends largely on the social and physical settings that people find themselves in at the time of the communication. When engaging in a communication act, it is done within a specific environment or context (Samovar et al., 2006).

### **2.3.1.3 Definitions**

This was a brief introduction to the cultural-context dimension. In the following sections, cultural context will be discussed in more detail. The definitions of cultural context will also offer a better understanding of this dimension now, since both communication and context have been discussed in terms of their relationship to one another in this cultural dimension. Here are a number of definitions:

- “Context is probably the most important cultural dimension and most difficult to define. It refers to the entire array of stimuli surrounding every communication event – the context – and how much of that stimuli is meaningful” (O'Hara-Devereaux & Johansen, 2000).
- “High-context and low-context communication refers to the degree to which speakers rely on factors other than explicit speech to convey their messages” (LeBaron, 2003).
- “A high-context (HC) communication or message is one in which most of the information is already in the person, while very little is in the coded, explicitly transmitted part of the message. A low-context (LC) communication is just the opposite; i.e., the mass of the information is vested in the explicit code” (Samovar et al., 2007).
- “In general, HC communication employs indirect verbal expression and implication embedded in non-verbal communication. LC communication, in contrast, is direct and explicit information exchange” (Richardson & Smith, 2007).

Depending on whether meaning comes from the setting or from the words that are being exchanged in a communication, cultures can be categorised as either being a high- or low-context society (Samovar et al., 2004). There is a dramatic distinction between cultures as to how much of the context or environment is important and meaningful within a communication event.

This section discussed the concept that surrounds the cultural-context dimension. In the next section the two types of cultural context will be discussed separately and then compared to one another.

### **2.3.2 Low-context cultures**

This section is divided into two main subsections: a brief description of the low-context dimension and the characteristics of a low-context society.

#### **2.3.2.1 Description**

In a low-context culture, the surrounding context has no influence on the communication event. It is the message itself that provides all the meaning (O'Hara-Devereaux et al., 2000).

In a low-context society, cultures will ignore many of the stimuli that surround an explicit message and rather focus solely on the objective communication event. This communication event can be a word, sentence, or even a physical gesture (O'Hara-Devereaux et al., 2000).

Trust has an immense role to play within a culture and determines, to a certain extent, whether or not a culture is regarded high or low in terms of context. Context focuses on how much one has to know before a successful communication can transpire and the common knowledge that exists between the communicators. Thus, in a low-context society, it is suggested that individuals who are communicating with one another come “straight to the point”. They get to this “point” without first working on the trust status of the relationship that exists between the sender and receiver (Zakaria, Stanton & Sarkar-Barney, 2003).

Therefore, in low-context societies, people fabricate explicit rules and procedures to facilitate rapid communication with “socially distant” individuals and institutions (Zakaria et al., 2003).

### **2.3.2.2 Characteristics**

In low-context societies, people tend to have many more connections with other people. These connections may be of very short duration and/or be for certain and specific reasons. In these societies, it is essential that cultural beliefs and behaviours should be explicitly spelt out to new members so that they will know how to behave in that environment (Beer, 1997–2003).

In these societies, public context boundaries seem to be more fragile and such boundaries may be crossed by people’s expressive motivations. This will lead individuals to communicate their sensitive or intimate information more freely to people who are outside their own private network (Zakaria et al., 2003).

The direct style of communication that is apparent in low-context cultures may be observed through some of the most commonly used phrases in American culture. These include “don’t beat about the bush”, “get to the point”, and “say what you mean”. These types of phrase may be aligned to low-context societies because of the way they value time, individualism and accurate information. Their preferences of communication style are built on explicit and unambiguous foundations (Zakaria et al., 2003).

If a conversation was to take place between two people from a low-context society, the conversation would be very direct, specific and structured. The fact that the two communicators might be from the same cultural background plays no role at all. A person from a low-context culture would place a much higher value on the words that are spoken in the communication rather than on the nonverbal aspect of the communication (WIN ADVISORY GROUP, 2004–2005).

An important aspect of a low-context culture is the freedom of the individual to openly question or challenge any type of authority. This aspect is closely related to Hofstede's cultural dimension of individualism. In this type of culture, one may exhibit behaviours of personal power, and individuals are encouraged to seek answers and change when necessary.

A common feature in low-context cultures is a tendency for drastic changes to occur in the culture from one generation to the next (Answers.com, n.d.). It is as if the people of these cultures move with the times and adapt culturally to what is happening in the world around them.

### **2.3.3 High-context cultures**

This section is divided into two main subsections: a brief description of the high-context dimension and the characteristics of a high-context society.

#### **2.3.3.1 Description**

In a high-context society, cultures will assign great value and meaning to many of the stimuli that surround an explicit message (O'Hara-Devereaux et al., 2000) so verbal messages on their own have very little meaning; it is the surrounding context that will provide meaning to the verbal messages.

Communication messages, which include other elements, such as silence and body language, are regarded as high-context and it is often the case to pass a message that is not essentially spoken. This is accomplished through the situation, behaviour and para-verbal cues that are passed along with the communicated message (Wurtz, 2006).

Referring to the "trust" issue, which was discussed earlier in the description of a low-context culture, the reverse tends to happen in a high-context society. Individuals from high-context cultures normally choose to "circle around" a stranger first. They need to get to know the other individual first in a diffuse manner in order to institute trust and only then will they reveal the relevant information to the other party (Zakaria et al., 2003). Therefore, in high-context societies, people have the need to create and maintain trusted personal relationships for an effective communication to occur (Zakaria et al., 2003).

#### **2.3.3.2 Characteristics**

In high-context societies, groups of people have close relationships with each other. These connections have been established over long periods of time. It is not necessary to make the aspects

of cultural behaviour known in these situations because most members will know what to think and what to do from the years of interaction with one another (Beer, 1997–2003).

In such cultures, boundaries remain closed in public contexts. This means that an individual will very seldom communicate any sensitive or intimate information to anyone that is outside their own private network (Zakaria et al., 2003).

High-context individuals are more often quiet about their personal feelings and thoughts. They expect that the other party should be able to “read between the lines” so as to understand the exact meaning of a message (Zakaria et al., 2003). The concept of “saving face” is very important in high-context cultures which manifest itself in high-context people being generally cautious and/or ambiguous in their communications, so that they do not cause any embarrassment or humiliation to others. Here, they prefer using indirect communication styles (e.g. symbolic, ambiguous and vague). Directness in questions and answers is avoided as it may potentially lead to a “loss of face”, which would disrupt social harmony (Zakaria et al., 2003).

In a conversation between two people from a high-context culture, one would notice the following. Even though one can clearly hear the conversation happening, the words that are being passed between the two communicators will lack clarity and definition. This is because people from a high-context culture rely on long-term underlying meanings that they are both aware of because of their shared cultural background. They pay a great deal of attention to nonverbal communication and derive meaning from the speaker’s body language and facial expressions (WIN ADVISORY GROUP, 2004–2005).

Cultures that are of a high-context nature have a very strong sense of tradition and history. These cultures change very little over time and are regarded as static cultures that will keep their traditions down the generations (Answers.com, n.d.).

In high-context societies, people prefer group harmony rather than individual achievements, so it is unlikely that authority will be questioned. This is a characteristic of a collectivist society (Timbrook, 2001).

### **2.3.4 Comparison of high- and low-context cultures**

Since the characteristics of low- and high-context cultures have been described and discussed, the differences between the two cultures can be identified by comparing the cultural values of both cultures in tabular form (see Table 2.2).

Being part of either a high-context or low-context culture will shape the society accordingly. The two societies are quite different at many levels. Table 2.2 displays the values that are integrated in

both. The values of a high-context culture may be considered as the opposite to those of a low-context culture.

<b>High-context values</b>	<b>Low-context values</b>
Relational and intuitive, emphasises spiral logic, less written/formal information	Logical and linear, emphasises linear logic, rule oriented – people play by external rules
Love and harmony with nature	Personal control over the environment
Past oriented	Present and future oriented
Reliance on nonverbal codes over verbal messages, tends to give simple, ambiguous, non-contexting messages	Reliance on verbal over nonverbal messages, tends to emphasise highly structured messages, gives details, and places great stress on words and technical signs
Cooperative, value group sense	Competitive, value individualism
Tradition over change	Change over tradition
Implicitly embeds meanings at different levels of the sociocultural context	Overtly displays meanings through direct communication forms
Tends to take time to cultivate and establish permanent personal relationships, long-term relationships	Tends to develop transitory personal relationships, more interpersonal connections of shorter duration
Tends to use more “feeling” in expressions	Tends to use “logic” to present ideas
More internalised understandings of what is communicated	More knowledge is codified, public, external and accessible
Multiple cross-cutting ties and intersections with others	Sequencing, separation – of time, of space, of activities, of relationships
Knowledge is situational, relational	Knowledge is more often transferable
Decisions and activities focus on personal face-to-face relationships, often around a central person who has authority	Task-centred – decisions and activities focus on what needs to be done, division of responsibilities

**Table 2.2: Values of low- and high-context cultures (Timbrook, 2001; Anonymous1, n.d.; Beer, 1997–2003)**

The table above gives a succinct summary of what has been discussed. In addition, Table 2.2 discusses the ideals that both high- and low-context cultures live and stand by. This table should provide a better understanding of the two cultures and make apparent their differences.

Table 2.2 neatly clarifies the differences between a high-context and low-context culture. The next table, Table 2.3, summarises all the information from Table 2.2 according to a particular value or characteristic. This table compares high-and low-context cultures on the basis of ten different values.

<b>Characteristics/Values</b>	<b>High-context</b>	<b>Low-context</b>
Cultural understanding	Requires a sufficient understanding of a particular culture in order to operate well within the society.	Requires little knowledge of culture for its members to get along, and culture does not play a determinative role in forming individual identity.
Cultural assumptions	Assumes a rich common culture, the identity of individual members is defined in terms of that culture.	Assumes a society is based on laws, not humans (i.e. culture). A member of any other society can function well by merely adhering to minimal legal restrictions.
Nature of information	Information is implicit, requires little information since people are expected to have prior knowledge.	Background information is made explicit in an interaction where everything is spelt out clearly.
Information cues	Important information is transmitted via nonverbal and contextual cues.	Important information is transmitted via explicit verbal messages.
Speech and style of communication	Speech and communication is indirect, “beats about the bush”, uses ambiguous language, tends to avoid saying “no” directly to its counterparts.	Speech and communication is direct, “straight to the point”, highly values verbal speech, and eloquent speech, tends to express opinions and intentions freely and directly persuades others to accept its viewpoints.
Knowledge of information required	Has a broader network, stays well informed on many subjects.	Verbalises more background information; tends not to be well informed on subjects outside own subjects of interest.
Cultural orientation	Establishment of relationship is important prior to getting goals achieved, “relationship-oriented”.	Focuses on how to get goals and objectives accomplished, “goal and task oriented”.
Cultural expressiveness	Feelings and thoughts are not openly expressed. Often messages need to be “read between the lines”.	Texts written for low-context audiences must describe in detail all the relevant cultural features that are necessary to understand the text.

Cultural distinctions between working and personal relationships	Permeates and connects every aspect of life in an individual to everything else in his/her life.	Compartmentalises their personal relationships, their work, and many aspects of day-to-day life.
Background experiences	People are homogeneous with regard to experiences, information and networks.	People carry independent experiences, information, and networks, which are all based individually.

**Table 2.3: Contextual values and their characteristics (Zakaria et al., 2003)**

### 2.3.5 Country classification

There is a general idea as to which countries are classified as high-context cultures and which are classified as low-context cultures. Low-context countries primarily consist of countries from North America and much of Western Europe. High-context cultures primarily consist of countries from Asia, Africa, South America and much of the Middle East (Timbrook, 2001; LeBaron, 2003). People from a high-context society rely on their history, their traditions, their relationships and their status. Religion also has a vital role to play in these societies. They always value the group over the individual, while in a low-context society individualism is the key factor (O'Hara-Devereaux et al., 2000).

Figure 2.1 displays the hierarchy of countries according to the two types of culture. The countries start off at a high-context level and, as they move down the levels, they tend to be of a lower context nature. Figure 2.1 contains the hierarchies of two different sources. There are slight differences but both generally tend to agree on the cultural-context levels of the various countries.

Generally, high-context countries and people would include the Maoris of New Zealand, Native Americans and Chinese, Chilean, Iraqi and Japanese people. On the other hand, low-context countries include the United States, Norway, Austria, Germany, Canada, England and Sweden.

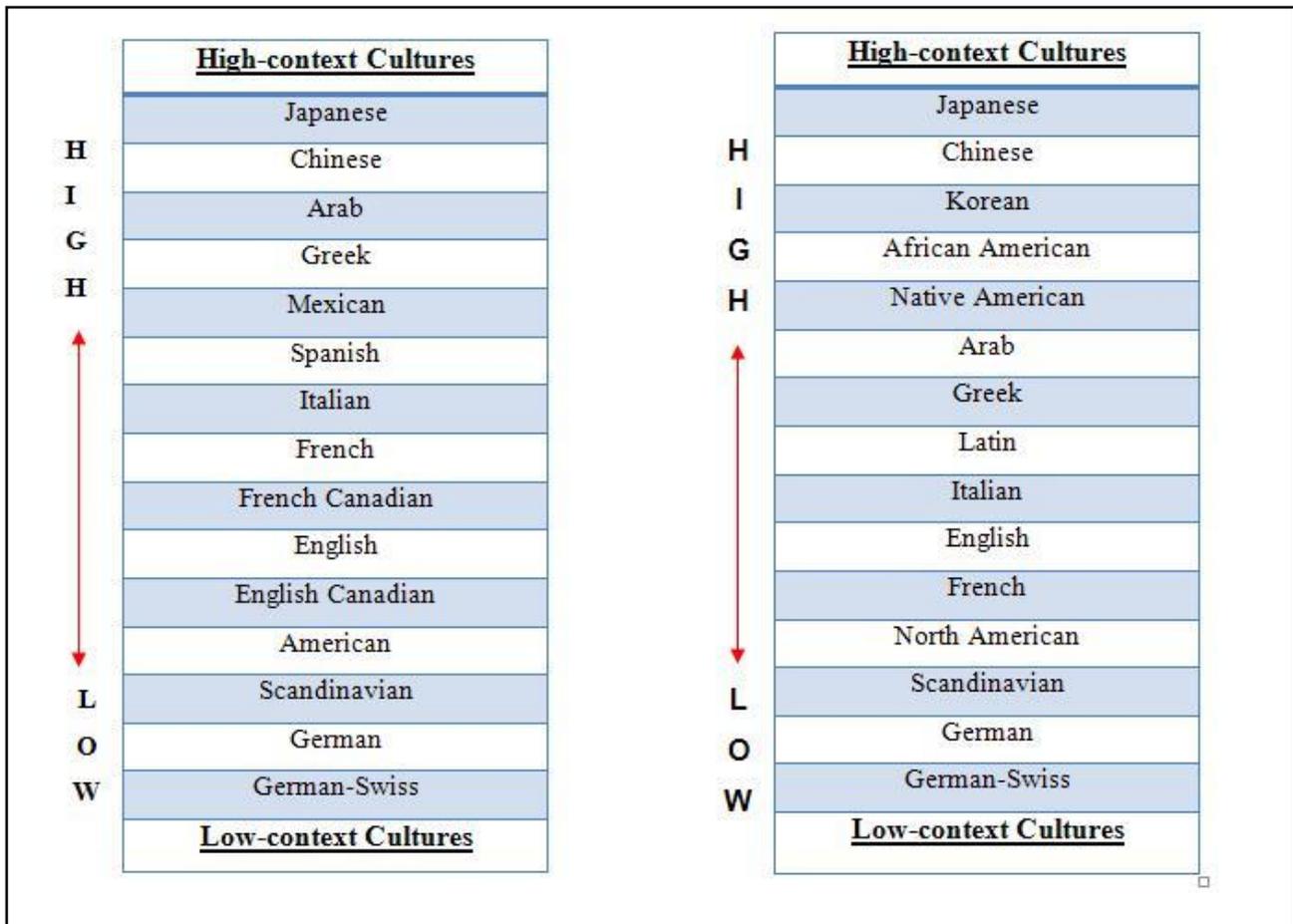


Figure 2.1: High- and low-context nationalities scale according to culture (Left diagram O'Hara-Devereaux et al., 2000; Right diagram Samovar et al., 2004)

Figure 2.2 displays the communication pattern that is followed by high- and low-context cultures. A message that is being transmitted needs to be explicitly explained in low-context cultures. The higher the cultural-context of a culture, the more implicit the transmitted message becomes.

In terms of Figure 2.2, Switzerland is the lowest cultural-context culture on the high- and low-context continuum. Thus, the transmitted message here will be in its most explicit form. On the other hand, Japan is the highest cultural-context culture on the high- and low-context continuum. Hence, the transmitted message there will be in its most implicit form.

If countries from Africa were to be positioned on the “Communication patterns” diagram, they would reside somewhere within the red circle. This conclusion was reached by a study of the relevant literature.

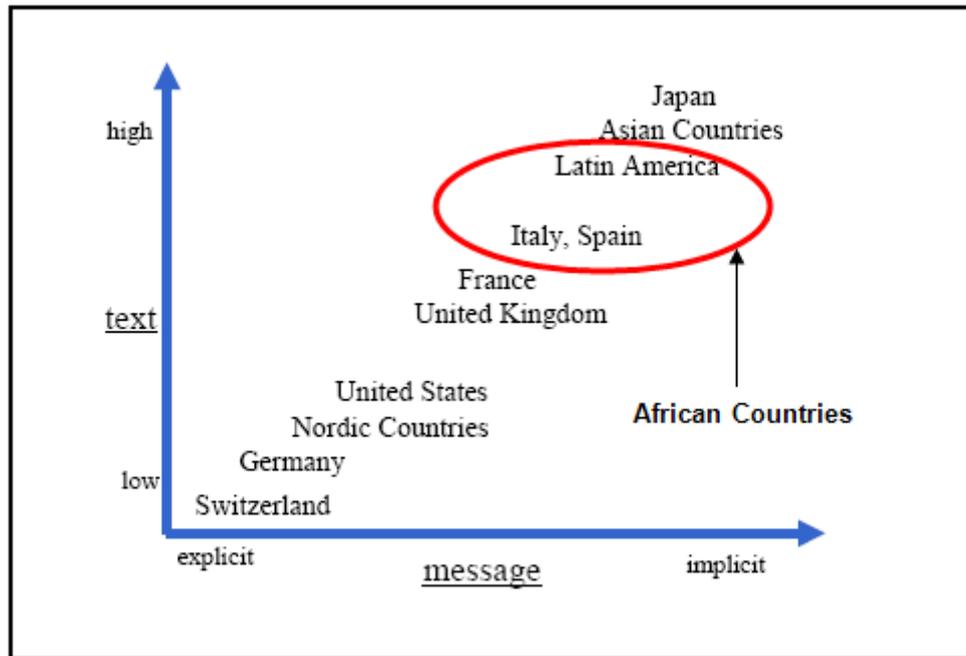
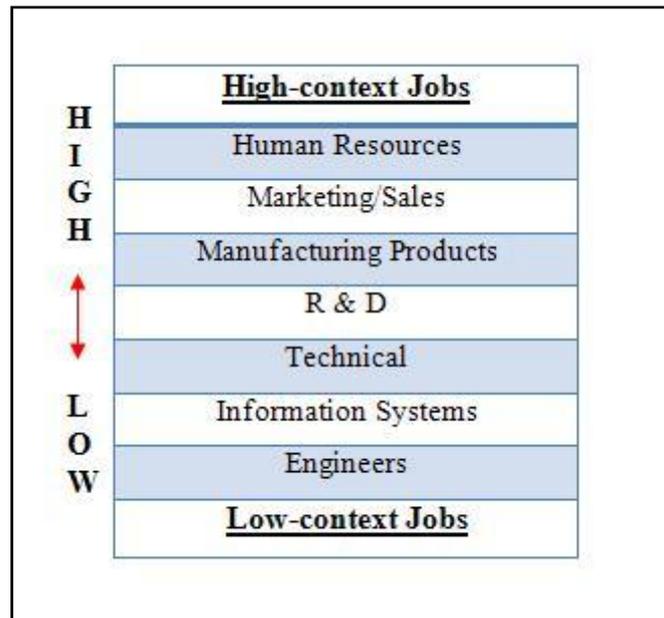


Figure 2.2: Communication patterns (Köszegi, Vetschera & Kersten, 2003)

South Africa, in particular, should fit somewhere in between Italy and Spain and below the Asian countries. This is because countries from Africa, in general, are regarded as high-context. South Africa, nonetheless, does have a fair amount of Westernised values and characteristics that influence its society accordingly, yet these should be less than those of France, Italy or Spain. However, its high-context values and characteristics are less than those of Asian countries, as these are regarded as the most high-context countries of all. It is debatable, however, whether South Africa is a higher-context culture than Latin America. A fair position for South Africa on the high- and low-context continuum should be somewhere within the red circle.

Figure 2.1 displays the way the countries are arranged in terms of the low- and high-context dimension. Figure 2.3 focuses on the different professions and then arranges them in terms of whether they are high- or low-context professions. This table shows that, in professions where people work more as a group and where people have to communicate with a lot more people, they will be of a more high-context nature. In professions where people tend to work more as individuals, they will be of a more low-context nature. If one were to compare marketing personnel with engineers, the marketing people would attach a higher value to relationships as they have to accommodate the views of their clients.



**Figure 2.3: High- and low-context profession scale (O'Hara-Devereaux et al., 2000)**

On the other hand, engineers tend to be more analytical thinkers. They value precision and scepticism. While marketing people will promise anything to their clients, even if they cannot deliver, the engineers will only promise what they can definitely deliver (O'Hara-Devereaux et al., 2000).

High- and low-context terms are useful in describing certain aspects of a society or culture. Yet, it is still difficult to say whether a country is of a high- or low-context nature. This is because there are both high- and low-context situations in all societies. In other words, there may be low-context situations in high-context societies and high-context situations in low-context societies (Beer, 1997–2003). Most people are able to function at both ends of this continuum. All people engage in both high-context and low-context communication. People generally tend to be somewhere close to the middle of the continuum. At certain times, people rely, to some extent, on context and at others on the literal meaning of words (LeBaron, 2003). However, at the end of the day, depending on the characteristics of the culture, it can be classified as either low or high-context.

### **2.3.6 The impact of cultural context**

The dimension of cultural context is not new, yet it is very important. It has much to offer and can prove to be a very efficient weapon in the battle for the proper use of technology across cultural barriers. It takes the culture of a society into consideration, which means that the locals who will be

using the technology will be able to understand and adhere to the technology better, making it more useful and relevant to their lives. There is much more to communication than just speaking or writing (Winters, 1996–2006).

### **2.3.6.1 Examples of high- and low-context situations**

Using the information from a combination of the earlier tables (which compared the values of low- and high-context cultures), a set of examples or situations will be provided of various scenarios that happen in the everyday life of people from either high- or low-context societies (ChangingMinds.org, 2002–2007):

- In a high-context culture, a contract will be short in length but not in time duration. This is because much of the information is available within the high-context culture. In a low-context culture though, contracts tend to be much longer. This is because the contract needs to be explained in detail. This relates to the low-context characteristic of valuing the words or rules highly.
- Low-context cultures are obsessed with time. Their members are strongly monochronic and tend to do one thing at a time. Members of high-context cultures have polychronic tendencies, so they tend to do many things at once. A person from a low-context culture will be on time for a meeting while a person from a high-context culture may turn up late and think nothing of it. If the meeting includes people from low-context societies they would be very annoyed by this behaviour.
- If there was a meeting in a high-context society, the participants would not get involved in the communication process. Rather, they would simply listen and accept what the authority figure has to say or present without any questioning. If, at the end of the meeting, a participant has some sort of question, he/she would ask the authority figure at a more private time. This is because in high-context societies, people are more concerned about the context of where and how opinions are heard than the comments themselves. Members from a low-context society, however, would have argued or questioned everything that bothered them during the meeting. Once everything was clear and agreed upon, then decisions would be made. So, when the meeting is over, all the participants know exactly what was discussed and what their objectives are.

### 2.3.6.2 Considerations for communication between high- and low-context people

It is very possible that misunderstandings may arise in circumstances where members from a high-context culture have to work or communicate with people from a low-context culture. It is very important, particularly when it comes to business, that the people from the two cultures understand a few aspects of one another's cultures. This is necessary for the business agreement to be successful. People from a low-context culture who are going to communicate with people from a high-context culture need to keep in mind the following (LeBaron, 2003):

- Nonverbal messages and gestures may be as important as what is said.
- Status and identity may be communicated nonverbally and require appropriate acknowledgment.
- Face-saving and tact may be important and need to be balanced with the desire to communicate fully and frankly.
- Building a good relationship can contribute to effectiveness over time.
- Indirect routes and creative thinking are important alternatives to problem solving when blocks are encountered.

On the other hand, people of a high-context culture who want to communicate with people from a low-context culture need to consider the following (LeBaron, 2003):

- Things can be taken at face value rather than as representative of layers of meaning.
- Roles and functions may be decoupled from status and identity.
- Efficiency and effectiveness may be served by a sustained focus on tasks.
- Direct questions and observations are not necessarily meant to offend, but to clarify and advance shared goals.
- Indirect cues may not be enough to get the others' attention.

## 2.4 Summary

This chapter presented an overview of culture. It was divided into two main sections: the first discussed culture in more general terms while the second focused on one of the cultural dimensions of culture. In this section, the emphasis was on the cultural-context dimension.

The first section started by defining the term “culture”. Cultural dimensions were then discussed and this was followed by an overview of the characteristics of a culture. The section ended by looking at the elements of a culture and the role that culture plays in the business environment.

The second section began by defining the dimension of cultural context and looked separately at low- and high-context cultures. These were discussed and their characteristics described and then compared in terms of their cultural values. Countries were classified in terms of their cultural-context background. This section concluded with a look at the impact of cultural context on life, examples of high and low-context situations, along with a discussion of what needs to be considered for successful communication between people from the two different cultural types. In chapter 3, the impact of the cultural-context dimension on Web design will be discussed.

## CHAPTER 3: THE CULTURAL-CONTEXT DIMENSION AND WEB DESIGN

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### 3.1 Introduction

In the technology-driven world of today, the Internet plays an immense role and has had a great impact on the way business is conducted. The Internet has become an important and major part of many people's lives and has contributed significantly to making the world a much smaller place. People use the Internet (especially the Web) for many different reasons, and in many countries it is the first place that people go to access information. Therefore, designing websites for the best possible operation by their intended users is absolutely essential.

This chapter will focus on the role that culture plays in the design of websites, its impact and why culture has become a highly recommended consideration when designing for an intended audience. The chapter will discuss various cultural considerations for improved Web design. The main focus, however, will be on the cultural-context dimension and how this relates to Web design, as well as how the characteristics of either a low- or high-context society are portrayed in the design of the websites used in specific countries. This chapter will include detailed discussions on the following aspects:

- the impact of the Internet today (section 3.2)
- software designed for local and global use (section 3.3)
- the impact of culture on Web design (section 3.4)
- the impact of the cultural-context dimension on Web design (section 3.5)

### 3.2 The impact of the Internet today

As with any technology, if used appropriately, the Internet is a wonderful invention. It helps people learn, educate themselves and find the information that they require, at any time and from any location (as long as they are connected to the Internet). On the other hand, it may also be used with malicious or negative intentions. In this case, the Internet can have devastating effects. Overall though, it is up to individuals to use this tool in a manner that suits their lives but does not harm anyone else. This section contains a brief overview of the way the Internet impacts on people's daily lives, no matter what their culture or race. This is used as argument to support the fact that one

has to consider culture and, in particular the cultural-context dimension, when designing websites for global and local use.

### **3.2.1 Activities over the Internet**

The Internet is used for multiple activities, such as e-mail, entertainment, chat rooms, and consumer and business transactions, as well as a public library for information searching. One of the most common uses of the Internet is the World Wide Web (discussed in detail in Appendix A).

The Internet has contributed significantly towards economic growth. Generally, its impact on business and commerce has been most valuable. In a combination with IT, the Internet has made a major impact on economy-wide measures for increasing productivity (Lucas, Smith, Sylla & Stern, 2000). There are more people online now than ever before, which has resulted in large numbers of people using the Web to shop online. This has greatly benefited retailers, who have seen tremendous increases in their online earning potential (Boswell, 2007).

The Internet's (or the Web's to be more specific) main contribution comes in the form of creating relationships. It has revolutionised the way people communicate and has made it possible to establish connections between groups, individuals and communities where it was not possible before. There are no particular boundaries or rules that govern the Web community. The Web not only offers one the ability to communicate with other individuals, but it also offers one the ability to communicate with the world in general. A person who seeks information and is connected to the Web only needs to surf the related sites to find what he/she is looking for. Other very popular features of the Web today include instant messaging and bulletin boards (Boswell, 2007).

For many people, life without the Web is something that they would not dare to imagine. Not having access to e-mail, or breaking news, or up-to-the-minute weather reports, and online shopping is unheard of for them. These are only a few of the applications on the Web that people use in their everyday lives. Whether or not one likes to admit it, to a certain extent, people have become dependent on these technologies and they have affected the way people live. It has to be said however, that the fact that there is no specific oversight (or rules) for the Web does give some users an unfair advantage. This directly affects access and Internet usage. Internet access is not distributed equally among the regions of the world (Boswell, 2007).

The Web is made up principally of personal relationships, business partnerships and global associations. These three entities guarantee the existence of the Web. There is no doubt that it will keep evolving, as long as there are skilled people around to keep on developing it (Boswell, 2007).

### 3.2.2 Internet usage

Internet usage has been progressing at a steady rate since the day it was introduced. This statement, however, can be debated to a certain extent. One can say that in many North American and Western European countries, the Internet has developed very rapidly and it is accessible to most of the population. In contrast, if one considers countries in Africa or Asia, for example, the Internet is not developing at a similar tempo. In fact, Internet accessibility and usage in these countries are sadly lacking, especially if one takes into account that this is now the 21st century.

The number of Internet users keeps on rising, year by year. Figure 3.1 shows how many millions of Internet users there are in each region of the world. The statistics below were gathered by the Internet World Stats.

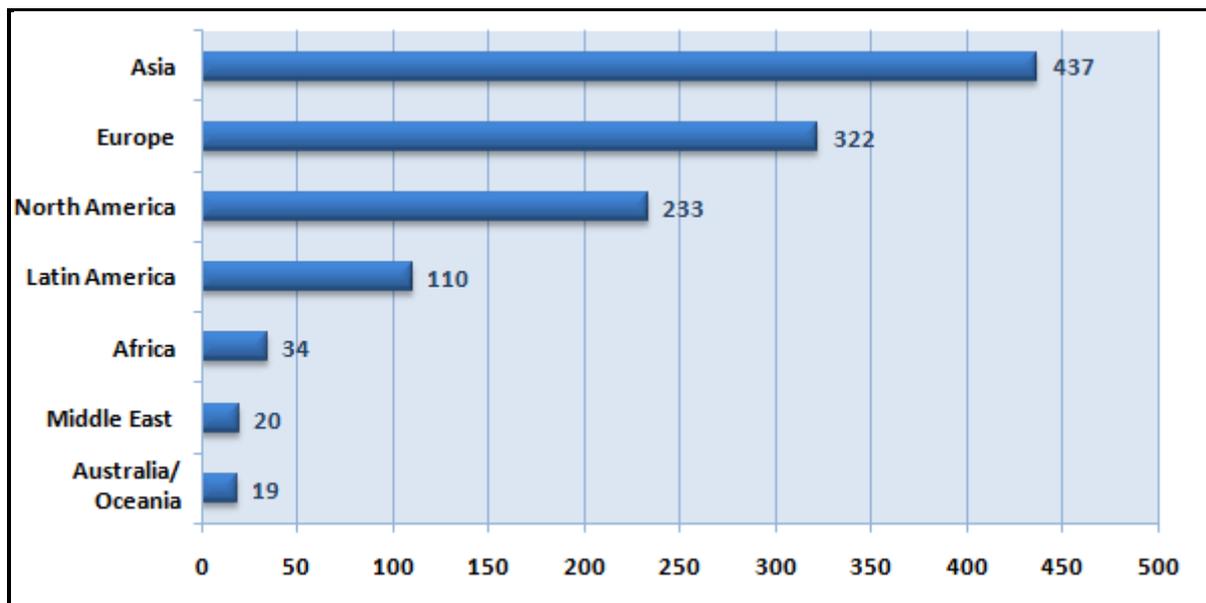


Figure 3.1: Internet usage by world region (Internet World Stats, 2007a)

The above statistics were published on 30 June 2007 and are shown in more detail in Table 3.1. The table looks at each region separately and then in comparison with the rest of the world: it is divided into the following columns:

- The first column, *World regions*, shows the part of the world being discussed.

- The second column, *Population (2007 est.)*, shows the population of specific regions.
- The third column, *Population % of world*, shows the percentage of the population that each region represents when compared to that of the world.
- The fourth column, *Internet usage, latest data*, shows the amount of people who have Internet access in a specific world region.
- The fifth column, *% Population (penetration)*, shows the general percentage of Internet users in a specific world region.
- The sixth column, *Usage % of world*, shows what the general percentage of Internet users is by comparing specific world region's Internet users with the rest of the world.
- The seventh column, *Usage Growth 2000–2007*, shows Internet growth in specific world regions since 2000.

<b>World regions</b>	<b>Population (2007 est.)</b>	<b>Population % of world</b>	<b>Internet usage, latest data</b>	<b>% Population (penetration)</b>	<b>Usage % of world</b>	<b>Usage growth 2000–2007</b>
Africa	933,448,292	14.2 %	33,545,600	3.6 %	2.9 %	643.1 %
Asia	3,712,527,624	56.5 %	436,758,162	11.8 %	37.2 %	282.1 %
Europe	809,624,686	12.3 %	321,853,477	39.8 %	27.4%	206.2 %
Middle East	193,452,727	2.9 %	19,539,300	10.1 %	1.7 %	494.8 %
North America	334,538,018	5.1 %	232,655,287	69.5 %	19.8%	115.2 %
Latin America/ Caribbean	556,606,627	8.5 %	109,961,609	19.8 %	9.4 %	508.6 %
Oceania/ Australia	34,468,443	0.5 %	18,796,490	54.5 %	1.6 %	146.7 %
<b>World Total</b>	6,574,666,417	100.0 %	1,173,109,925	17.8 %	100.0 %	225.0 %

**Table 3.1: World Internet and population statistics (Internet World Stats, 2007a)**

There are many issues that affect Internet usage around the world. Africa, for example, is one of the lowest Internet usage regions in the world. In terms of Africa's population, there should be a much higher Internet usage percentage.

In Africa's case, issues such as the digital divide and the cost of Internet access mean that the Internet is unattainable to many of its citizens and access may be considered more of a luxury than a necessity, as it would be in North America or Europe. Hopefully, these issues will be resolved in the near future, so that Internet access becomes a human right and part of all people's lives.

### **3.3 Software – local and global use**

When designing software for international use, there are certain aspects that need to be addressed, including the translation of language, formatting of time and calendars to match the intended users' lifestyles, conversion of currency, and so on. These are some of the main aspects that designers address when trying to convert software, usually American, for other markets in the world. Research has shown that although these aspects are essential, they are not completely accurate in translating the product, and indeed, there is much more to it. In order to do this translation successfully, the designer needs to know and understand the local culture in which the software will be used.

The role of culture in the field of IT has been thoroughly investigated. Some research has investigated the Internet in particular as an influence in globalisation (Brown & Buys, 2005). For many years, software was being designed with a global intention referred to as "globalisation". Globalisation creates a level of homogeneity among cultures and is the result of the influence of multinationals, mass media communication and information. Globalisation strives for culture compatibility, which denies, destroys and ignores culture identity (Shen, Woolley & Prior, 2006).

The reaction that has emerged to combat globalisation is referred to as "culturalisation" and is its exact opposite. Culturalisation strives to promote local identity and highlights cultural values and traditions when it comes to designing software. Another important term that has emerged from this is "culturability". Culturability is the blend of culture and usability for Web and software design. A similar concept to "culturalisation" is that of "localisation". "Localisation" refers to the process of adapting a software product for a specific international market or making a specific version of the software product for a target market (Shen et al., 2006).

### **3.4 The impact of culture on Web design**

It is becoming evident that the area of culture and computing needs to be addressed seriously by the computing community. As has been mentioned, the majority of software is created in the US, yet it

is marketed and used outside the US. What generally happens is that software gets used in countries other than where it was developed. Creating software for other countries goes far beyond mere translation: it requires great attention to and understanding of the culture where the software will eventually be used.

### 3.4.1 Cross-cultural differences

Cross-cultural differences that have an impact not only on Web design but also on the design of any software product may occur in the form of format, colour, symbols and icons, text, flow, habits, scripts, communication behaviour, time perception, locus of control, and so on. To be more specific, cross-cultural differences in terms of designing software can be explored through topics such as the following (Badre, 2000; Fernandes, 1995):

- *Non-verbal behaviour, communication, gestures, facial interactions* (relating to the cultural-context dimension)
- *Nationalism* is still a driving factor in the world. Designers need to consider what will be accepted by the intended culture in terms of the interface design and what will be perceived as a threat to it.
- *Thought patterns, recall, connotation and categorisation*
- *Colour, colour naming and preference* (this will be discussed later)
- *Geometry, depth-perception, style, units of measure*. Both the metric system and English units are used in the world.
- *Time and currency*. Dates, as well as calendars and time formats differ around the world as do symbols for money.
- *Icons, pictures, symbols*. Pictures of food, animals and everyday objects may have symbolic meanings that may convey unintentional messages to the user.
- *Visualisation, verbalisation, social context*. The designer needs to be very careful with the sound or video that is used on the interface because it is very easy to produce an insulting result.

- *Individual differences, cultural values.* Notions of quality, normality, cleanliness and propriety may differ greatly between cultures.
- *Language, scripts, writing systems, reading habits.* The language and its various dialects may easily cause problems.
- *National formats, standards*
- *Learning, information search*
- *Aesthetics.* Cultures generally have their own “look and feel”, which involves the symbolic use of colours, patterns, shapes and textures.

All of the above may have a role to play in the design of software for use by a particular target market. It is vital to design software with the intended culture in mind, as what might be regarded as user-friendly for one culture, might not be user-friendly for another. The intent should not be to design generic global interfaces, but rather to design software that takes into consideration the different cultural markers of each culture in isolation (Barber & Badre, 1998).

### 3.4.2 The colour cultural marker

Cultural markers consist of the different elements and features of interface design that are common and possibly preferred within a particular cultural group. These markers signify a cultural connection. Examples of such cultural markers are national symbols, colours or spatial organisation (Badre, 2000). When designing a website, one has to consider the colours that will be used on the Web pages. Different colours have different meanings from one culture to the next. This is shown in Table 3.2 (Badre, 2000).

Color	China	Japan	Egypt	France	US
Red	happiness	danger, anger	death	aristocracy	danger, stop
Blue	heavens, clouds	villainy	virtue, faith, truth	freedom, peace	masculinity
Green	Ming dynasty, heavens	future, youth, energy	fertility, strength	criminality	safety, go
Yellow	birth, wealth, power	grace, nobility	happiness, prosperity	temporariness	cowardice, temporariness
White	death, purity	death	joy	neutrality	purity

Table 3.2: Colour-culture chart (Badre, 2000)

The chart above clearly shows how different the meanings of the colours can be in the various cultures. If a designer uses the wrong colours on the Web pages, it may result in a different message being conveyed to the users to the one that the designer originally intended.

### 3.4.3 The metaphor

A metaphor is a commonly used feature in user-interface design. An interface metaphor can be defined as “a conceptual model that has been developed to be similar in some way to aspects of a physical entity (or entities) but that also has its own behaviours and properties” (Rogers, Sharp & Preece, 2002). Examples of metaphors are the mailboxes, garbage cans and folders that are used on the various interfaces. Most of these metaphors, however, are objects in the American real world, as they are the main developers of the software products (Fernandes, 1995).

In order to be regarded as a good metaphor, the metaphor itself needs to minimise any misunderstandings of visual representation and support metaphorical reasoning in cognition. Metaphors have a key role to play in user-interface design and can serve as powerful communication tools, if used correctly. The metaphors need to be culturally biased if they are to be worthy. To achieve this, the designer will need to take into account the cultural values, fundamental needs and preferences of the users (Shen et al., 2006). Shen et al. (2006) have defined certain criteria that need to be accounted for when selecting a metaphor for a particular culture:

- *Richness.* The metaphor has to provide a rich source of symbolism, language, meaning, values, morphology and historic and cultural references.
- *Suitability.* The metaphor needs to translate effectively and, at the same time, address every type of functionality and also accommodate possible future expansion.
- *Fun and interesting.* The metaphor must be pleasing and pleasurable. It should not annoy, distract or frustrate the users. It must rather be fun, entertaining and interesting to use.
- *Originality.* The metaphor may lead to a new way in which technology may be applied and represented that may influence the users’ behaviours and interactions.
- *Adaptability and transferability.* The metaphor should be flexible so it can adapt and be applied in different scenarios and circumstances.

### 3.4.4 A cultural website

The Minerva Working Group 5 focuses primarily on research on designing culturally-based Web applications for countries in Europe. This working group's objectives are described as the following (Minerva Editorial Board, 2005):

- to develop standard quality criteria and frameworks in order to provide a shared vision of European cultural and scientific e-content
- to preserve European cultural heritage by establishing criteria for internal and external sides of cultural websites
- to facilitate the distribution of cultural information
- to promote knowledge relating to multicultural issues
- to encourage training actions relating to cultural websites
- to encourage the use of a quality framework in cultural websites by implementing and disseminating the quality criteria

The Minerva Working Group 5 research focuses on European countries; however, its work may be applied to any country around the world. Through its research, it has identified ten quality principles for creating a good cultural website. These principles are the following (Minerva Working Group 5, 2005):

1. It must be transparent. The identity and purpose of the website must be clearly stated, as well as the organisation that is responsible for its management.
2. It needs to be an effective website. This can be accomplished by selecting digitised, current and valid content.
3. It needs to be updated and maintained at an appropriate level. This can be achieved by implementing policy guidelines for quality of service.
4. It must be accessible to all users irrespective of their disabilities or the technology they use with regards to navigation, interactive elements and content.
5. It must take the user's needs into account (user-centred) by ensuring relevance and ease of use via responding to feedback and evaluation.

6. It needs to be a responsive application. There must be a two-way communication process between users and the website. Where appropriate, users should be able to share information and have discussions with other users. It should also encourage questions.
7. It is essential to consider multilingualism where appropriate. In such cases, a minimum level of access in more than one language should be provided.
8. It must be committed to interoperability within cultural networks. This will assist the users in finding content and services that meet their needs and expectations.
9. It must be managed to respect legal issues (e.g. IPR, privacy, terms and conditions). Any legal considerations concerning the website and its content use need to be clearly stated.
10. Strategies and standards will need to be created and adopted that will ensure the long-term duration of the website and its content.

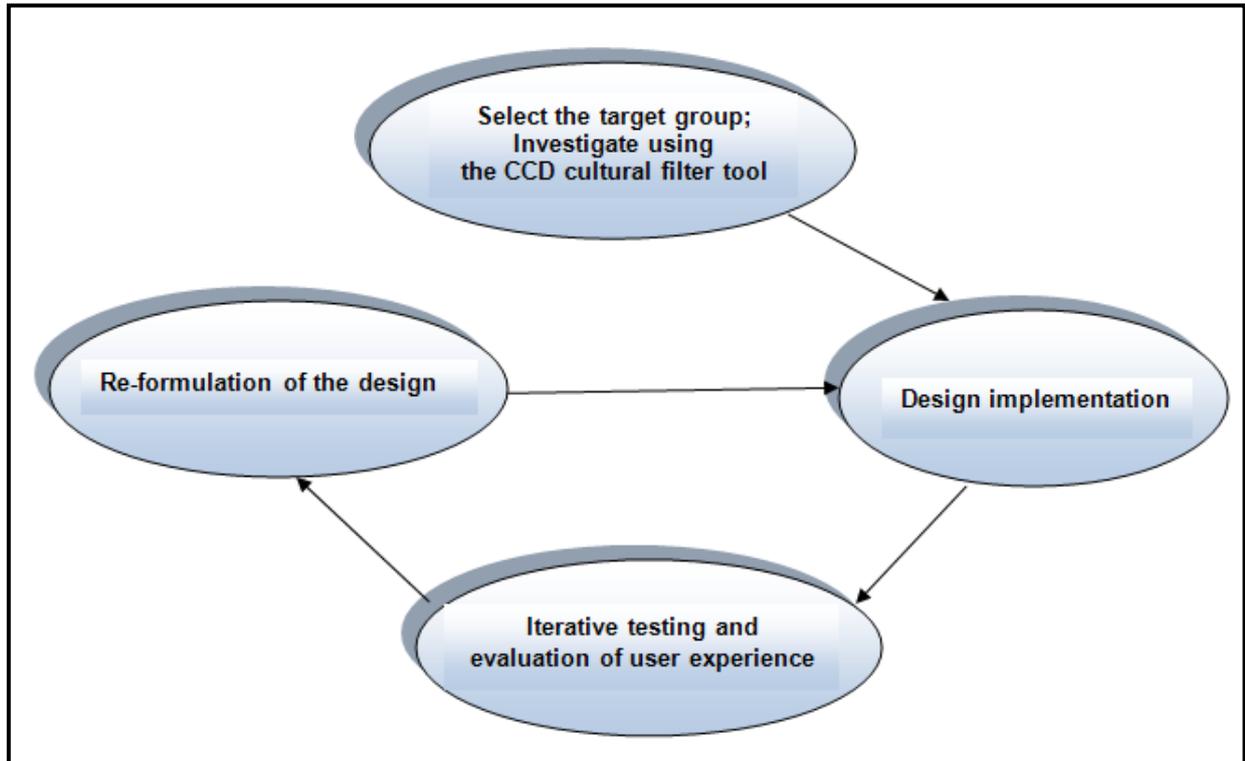
In summary, the words that can be used to describe the key points of a good cultural website, as discussed above, are transparent, effective, maintained, accessible, user-centred, responsive, multilingual, interoperable, managed and preserved (Minerva Working Group 5, 2005).

#### **3.4.5 The Culture Centre Design process (CCD)**

Researchers in the field of cross-culture interface design, such as Marcus, Rose and others, have contributed a great deal to this cause. Their research has led to the introduction of a new culturally oriented system, Culture Centred Design (CCD). To use this system to its full potential, the design process should be centred on the target user and his/hers particular cultural conditions. This system is also characterised by its iterative analyses (Shen et al., 2006). Figure 3.2 describes the CCD process.

From the diagram in Figure 3.2, one can see the similarities in the CCD process with other software design processes (e.g. SDLC, see Appendix B). The difference is in the first step, which focuses on the target group. This emphasis includes a series of issues, which include the conveyance of cultural identity, language and visual communication. Along with these cultural trait issues, the process also focuses on normal design issues, such as cognition and usability aspects (Shen et al., 2006). The next step is to design the implementation. Once that is completed, the testing and evaluation process begins. If there are still problems with the design, the required changes will be made. If the design

has met the level intended satisfactorily, then the CCD process ends. If not, it is back to the design implementation step again, as the CCD process is an iterative process.



**Figure 3.2: The simplified Culture-Centered Design process (Shen et al., 2006)**

Most of the cultural usability problems arise in the understanding of the intended meanings of the representations that are used within a system. This is also related to the users' interaction with the task, the environment and the tool itself. Problems generally arise when users find it difficult to understand the specific meaning of the representation as it is used in the particular context (Bourges-Waldegg & Scrivener, 2000). Such understanding or lack of understanding is the result of one's cultural upbringing in the world.

### **3.5 The impact of the cultural-context dimension**

The dimension of cultural context was discussed in Chapter 2. This dimension will now be discussed in terms of its role in the Web design process and will include examples of how high- and low-context dimension values are considered when designing websites. These examples are taken from work that was conducted by other researchers.

The cultural-context dimension states that cultures can be categorised in relation to the types of style they use when they communicate. In certain cultures, communication occurs in the form of explicit statements in text and speech (low-context), while in other cultures, messages are communicated in the form of cues, such as silence and body language (high-context) (Wurtz, 2006).

### 3.5.1 Wurtz's research on websites

Elizabeth Wurtz investigated and analysed McDonald's websites around the world. These fast-food restaurants can be found in over 100 countries. After extensive testing of the websites, it can be said that they have been customised to appeal to the user group of each target culture. One can observe the cultural differences that exist in the design of each McDonald's website. It is important to mention that the results discussed below have been gathered by investigating only McDonald's websites. These features may not be observable generally in all websites. It is assumed that McDonald's did extensive research and focus group testing in order to create more appealing websites that relate to the citizens of each culture. In terms of cultural influences on Web design, the differences can be observed in the following forms (Wurtz, 2006):

- *Animation.* Animation effects on websites are more prominent and elaborative in the websites of high-context cultures than in those of low-context cultures. The animation usually used in high-context societies is of young people dancing or jumping. In low-context societies, animation is limited and is only used when emphasising active links or bringing attention to logos. Such websites are completely static, animation is minimal and the images are of individuals in relaxed situations. The animation feature is displayed in Figures 3.3 and 3.4. These figures represent the introductory page of the McDonald's website in Japan, which is a high-context culture.

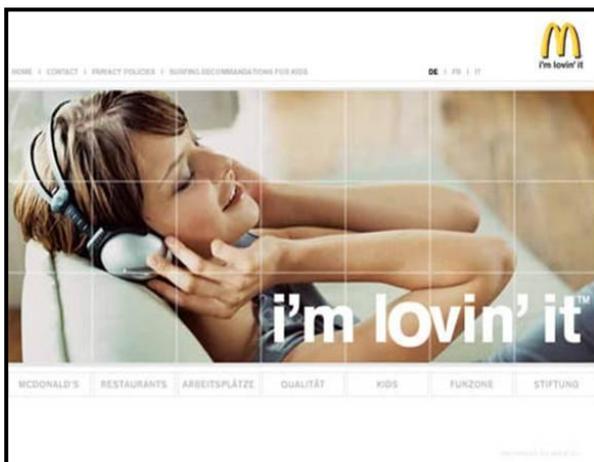


Figure 3.3: The animations displayed on the high-context Japanese website (Wurtz, 2006)



Figure 3.4: The animations displayed on the high-context Japanese website (Wurtz, 2006)

- *Promotion of collectivistic and individualistic values.* Collectivism is generally a feature of a high-context culture, while individualism is generally a value of a low-context culture. The collectivistic cultures tend to focus on values, such as being in good physical shape and spending time with family and friends. On the websites of high-context cultures, one will see images of individuals doing sport or dancing. In individualistic societies values such as personal time and freedom are portrayed. In the websites of low-context societies, individuals are portrayed as being in more relaxed situations, such as on holiday or listening to music. Both these collectivistic and individualistic values may be observed in the two figures below. Figure 3.5 represents the Swiss McDonald's website. The Swiss are regarded as a low-context culture and in the illustration one can see the individual enjoying her own quality time and listening to music by herself. Figure 3.6 shows the Indian McDonald's website. India is regarded as a high-context culture and in the photo one can see two people sharing a moment together.



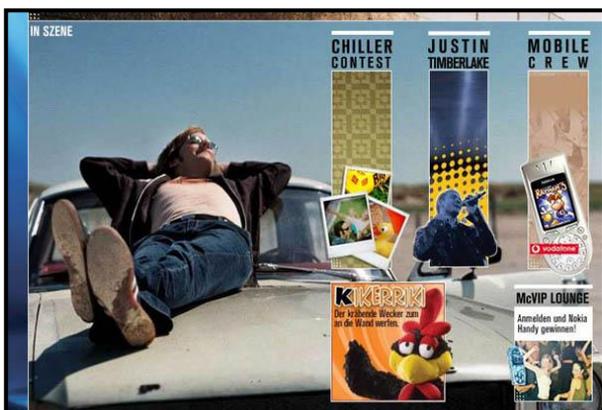
**Figure 3.5: The individualistic values displayed on the low-context Swiss website (Wurtz, 2006)**



**Figure 3.6: The collectivistic values displayed on the high-context Indian website (Wurtz, 2006)**

- *Images of individuals separate or together with the product.* In high-context cultures websites, one will notice that the McDonald's product is present in the images. On the other hand, in low-context culture websites, the McDonald's product is not apparent. This actually contradicts the values of both low- and high-context values. One would expect that the product would be a feature of low-context societies, as it is making a direct connection between the product and the individual, while on high-context websites, the designer would expect the user to understand the connection between the individual and the product. In

terms of high-context cultures, the fact that the product and the individual are displayed together may be explained as what the individual receives when enjoying the product. It is not common, however, to see the individual together with the product on high-context websites, just as it is not common to see individuals and products shown separately in low-context websites. The images of the individuals with or without the product are portrayed in the two figures below. Figure 3.7 was taken from the German McDonald's website. (The German culture is regarded as a low-context culture.) The Figure 3.8 was taken from the McDonald's website from China. (China is regarded as a high-context culture.)



**Figure 3.7: The individual without the product displayed on the low-context German website (Wurtz, 2006)**



**Figure 3.8: The individual with the product displayed on the high-context Chinese website (Wurtz, 2006)**

- *Transparency.* This refers to the extent of the effort that the user will make to find the information that they are seeking on the website. The website of a low-context culture is very transparent, has a detailed overview of the website on the home page and includes a large collection of links with clear descriptions making use of subheadings, headings and illustrations. This helps the user find what they are looking for immediately.

On the other hand, most high-context websites depend on links and information that is described by limited text and possibly some illustrations. This makes these websites less transparent and requires the users to explore the website to find what they need. These characteristics may be related to the idea that in low-context cultures, a designer needs to clarify the information in order to get the point across, while in high-context cultures, the user needs to work to find the information. The feature of transparency is displayed in the two figures below. Figure 3.9 was taken from the McDonald's website in Denmark and

shows that the website has been designed in such a way that it helps the users find what they are interested in immediately. (Denmark is regarded as a low-context culture.) Figure 3.10 was taken from the McDonald's website in Japan. This website has been designed in such a way that the users need to explore it to find what they require. Japan is regarded as a high-context culture.



**Figure 3.9: The immediate transparency design of information displayed on the low-context Denmark website (Wurtz, 2006)**



**Figure 3.10: The exploratory transparency design of information displayed on the high-context Japanese website (Wurtz, 2006)**

- Linear versus parallel navigation around the site.* Low-context websites tend to be more tabular and functional in their design in comparison with websites of high-context cultures where the designs tend to have a more montage/layer-upon-layer approach in their layout and use of many bright colours, fonts and shapes. These features are observable when the sites are in action. The high-context sites seem to be keener on illustrations and links that morph into new ones. Part of the information is hidden underneath other information on the same page. They also make use of pop-up windows. In low-context sites, the information is tiled side-by-side on the same page to prevent any information being covered and pop-up windows do not tend to be used. Low-context website links open up pages in the same window, while high-context websites open up pages in new browser windows. The navigation features of the websites are displayed in the two figures below. Figure 3.11 represents a collection of low-context websites. In these sites, information is displayed side by side so that no information is covered, pop-up windows are seldom used, and new pages are opened-up in the same browser window. In contrast, Figure 3.12 displays a collection of

high-context websites. These tend to make use of pop-up windows and new pages are opened up in new browser windows.



Figure 3.11: The navigation design displayed on the low-context McDonald's websites (Wurtz, 2006)



Figure 3.12: The navigation design displayed on the high-context McDonald's websites (Wurtz, 2006)

All of the above characteristics are summarised in Table 3.3.

Parameter	Tendency in high-context cultures	Tendency in low-context cultures
Animation	High use of animation, especially in connection with images of moving people	Lower use of animation, mainly reserved for highlighting effects e.g. of text
Promotion of values	Images promote values characteristic of collectivistic societies	Images promote values characteristic of individualistic societies
Individuals separate or together with the product	Featured images depict products and merchandise in use by individuals	Images portray lifestyles of individuals, with or without a direct emphasis on the use of products or merchandise
Level of transparency	Links promote an exploratory approach to navigation on the website; process oriented	Clear and redundant cues in connection with navigation on a website; goal oriented
Linear vs. parallel navigation on the website	Many sidebars and menus, opening of new browser windows for each new page	Few sidebars and menus, constant opening in same browser window

Table 3.3: Observations of the HC and LC McDonald's websites (Wurtz, 2006)

These were the results of the investigation of various McDonald's websites around the world. In particular, in terms of this research, the McDonald's websites that were investigated to gather these

results included Korea (HC), Taiwan (HC), Hong Kong (HC), Indonesia (HC), Finland (LC), Denmark (LC), Norway (LC), Sweden (LC), Germany (LC), China (HC), Switzerland (LC), India (HC), Japan (HC), Pakistan (HC), Chile (HC) and Brazil (HC). HC represents a high-context culture while LC represents a low-context culture.

### 3.5.2 Marcus and Gould's research on websites

Marcus and Gould investigated many websites in terms of Hofstede's five popular cultural dimensions. They then proposed certain elements for consideration when designing websites, which were extracted through these cultural dimensions. The results from two of the cultural dimensions may be of interest to this research. Hofstede's cultural dimensions of individualism vs. collectivism and long- vs. short-term orientation can possibly relate to Hall's cultural-context dimension. This is because individuals from high-context cultures value group sense and are cooperative, while individuals from low-context cultures are competitive and value individualism. High-context cultures also focus on long-lasting relationships and long-term goals rather than short-term goals and short relationships, which are more popular in low-context cultures (section 2.3.4). This also relates to the way people perceive time. Polychronic people are of a high-context nature and monochronic people tend to be of a low-context nature (section 2.2.2.2).

Figures 3.13 and 3.14 focus on the individualism vs collectivism culture dimension. Figure 3.13 depicts a website from the USA: the Glacier Bay National Park website. The emphasis on this website is on the visitors, on achieving their goals and possible activities they could undertake when visiting the park (Marcus & Gould, 2000). These features conform to those of low-context websites, as previously discussed by Wurtz.

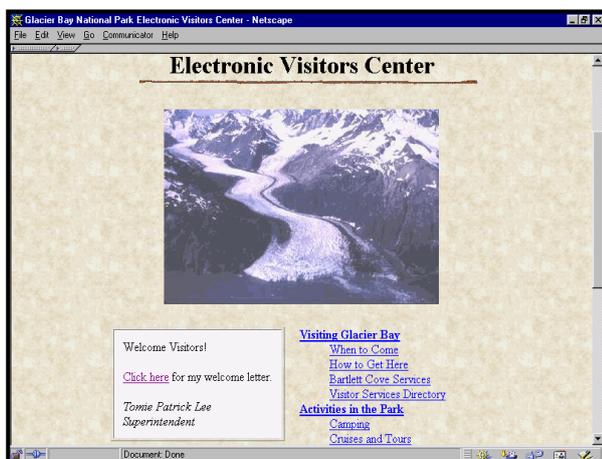


Figure 3.13: The individualistic values that are displayed in a USA Website (Marcus et al., 2000)

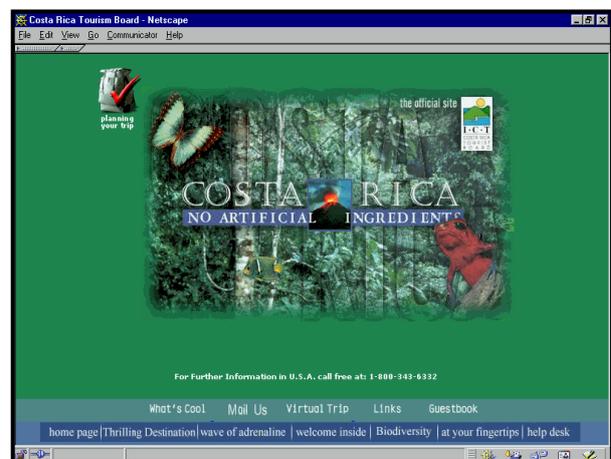
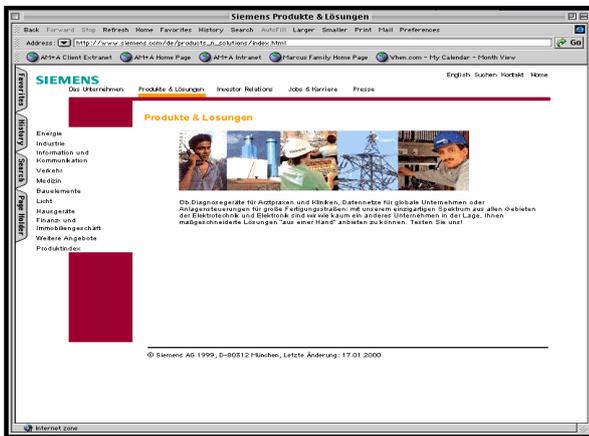


Figure 3.14: The collectivism values that are displayed in a Costa Rican Website (Marcus et al., 2000)

Figure 3.14 displays a website from a national park in Costa Rica. The emphasis on this website is on nature; it downplays the individual tourist and makes use of slogans to highlight national agendas (Marcus et al., 2000). These features are more commonly used in the design of high-context websites.

Figures 3.15 and 3.16 focus on the long- vs. short-term orientation culture dimension. Figure 3.15 depicts a website from Germany, that is, the German version of the Siemens website, and is typical of a Western corporate layout. The emphasis on this website is on a crisp layout and a clean functional design that will help users achieve their goals quicker (Marcus et al., 2000). These features conform to those of low-context websites, as previously discussed by Wurtz.



**Figure 3.15: Short-term orientation values are displayed on this German website (Marcus et al., 2000)**



**Figure 3.16: Long-term orientation values are displayed on this Chinese website (Marcus et al., 2000)**

Figure 3.16 depicts the Chinese version of the Siemens website. This website displays high-context traits in terms of the design and values portrayed; it requires users to be more patient in achieving their navigational and functional goals (Marcus et al., 2000).

Tables 3.4 and 3.5 display aspects of user-interface and Web design that need to be considered in terms of the individualism vs. collectivism and long- vs. short-term orientation culture dimensions respectively. These two dimensions will influence a number of aspects of design (Marcus et al., 2000).

<b>Individualism</b>	<b>Collectivism</b>
Motivations based on personal achievement	Motivations based on group achievement
Images of success portrayed through materialism	Images of success portrayed through sociopolitical agendas
Rhetorical style achieved through controversy and argument	Rhetorical style achieved through encouragement and tolerance
Prominence given to youth and action	Prominence given to age and experience
Importance of an individual being shown without the product	Groups shown with the product
Emphasis on truth	Emphasis on relationships
Emphasis on change and new developments	Emphasis on tradition and history
Willingness to provide personal information	Protection of personal information that differentiates the individual from the group

**Table 3.4: Comparison of values on the individualism vs. collectivism culture dimension (Marcus et al., 2000)**

<b>Short-term orientation</b>	<b>Long-term orientation</b>
Content focused on truth and certainty of beliefs	Content focused on practice and practical value
Rules as a source of information and credibility	Relationships as a source of information and credibility
Desire for immediate results and achievement of goals	Patience in achieving results and goals

**Table 3.5: Comparison of values on the short- vs. long-term orientation culture dimension (Marcus et al., 2000)**

One will notice how closely aligned the values of individualism and short-term orientation cultures and collectivism and long-term orientation cultures are, as discussed in the table above, with the characteristics observed in low- and high-context cultures respectively. It is very important to consider these aspects as well when designing websites for high-context and low-context cultures.

### 3.5.3 Other cultural-context features from various websites

In the previous chapter, various cultural models were discussed. Hall's cultural model refers to three dimensions: culture context, space and time. In terms of the time dimension, cultures are either classified as monochronic or polychronic. High-context cultures are polychronic and low-context cultures monochronic in their adoption of the time dimension. Monochronic people like to perform events in a sequential and linear fashion; they like having schedules and being prompt. Polychronic people like to do many things at once; they focus less on progress and the future than monochronic cultures (Gygi & Spyridakis, 2007).

Polychronic people may be attracted to Web design elements such as floating banners, content that scrolls, changes of colour, expansion, contraction, winks or bounces. These features require users to confront cognitive tasks that need to be processed simultaneously. On the other hand, monochronic people may find all these features disorienting (Zhao, Massey, Murphy & Fang, 2003). These are important aspects of the two cultures that a designer will have to consider and add to the design when designing websites for either culture.

Research has also shown that websites for high-context cultures contain multiple images, multiple links and a tendency for Flash features. There are usually plenty of external links on these websites that connect to other websites (or partners), which displays a trend of working together. This is a pattern that conforms to a high-context and collectivist culture (Gygi et al., 2007). In the design template of Gygi et al., these websites usually have a picture or banner across the top of the page. It is also common to have a left-hand navigation bar with a set of links (Gygi et al., 2007), however, these characteristics may also appear on low-context websites.

Sing and Matuso (2004) investigated many US (low-context) and Japanese (high-context) websites and have drawn their own conclusions. In high-context cultures, being polite is an important and highly rated value, which is why messages that tend to make direct and indirect comparisons are not regarded favourably. This may be observed in the advertisements that are used in these cultures; they tend to be very polite and try to create a friendly relationship with the customer instead of selling the product directly. By contrast, in low-context cultures communication is direct and even confrontational (e.g. aggressive selling) at times. People from such cultures are sales oriented, and will mention competitor products and emphasise selling their own (Sing & Matuso, 2004).

In high-context cultures, advertisements are gentler and use an emotional appeal. They have an implicit format rather than an explicit one; instead of using clear-cut, direct appeals, they make use of emotions, sentiments and entertainment themes. Low-context cultures will emphasise the company brand, and make direct comparisons to other companies' products to highlight the benefits of their own (Sing & Matuso., 2004).

To promote harmony in communication in high-context societies, effects such as art, design, beautiful scenery and nature are used and emphasised. In low-context societies, the emphasis is on clear background information and directness so that the customers (or users) get the explicit

information that they require. It is also common to use an aggressive communication style and superlatives in low-context communication (Sing & Matuso et al., 2004).

The features of high-context and low-context communication that may be used to design websites for the two types of society are summarised in Table 3.6.

<b>High-context features</b>	<b>Low-context features</b>
Polychronic aspects of time	Monochronic aspects of time
Multiple use of images and/or banners	Less use of images and/or banners
Multiple use of links (external links promote a collectivist nature, working together)	Less use of links
Use of Flash features	Little use of Flash features
Being polite and indirect	Being direct and even confrontational
Create a friendly relationship with the customer (soft-sell approach)	Sales orientation (hard-sell approach)
Use of aesthetics to elicit emotion (harmony, beauty, nature, art, designs)	Direct communication (focus on rank and prestige, superlatives, terms and conditions)

**Table 3.6: High- and Low-context features (Sing & Matuso et al., 2004; Gygi et al., 2007)**

Other research evaluated 50 American (low-context) and 50 Chinese (high-context) websites. Most of the findings of this research were similar to those of other researchers on the topic and have already been discussed in this chapter. The one aspect that has not been discussed yet is the fact that file sizes of the home pages of the American (low-context) websites were much smaller than those of the Chinese (high-context) websites: an average of 92 kilobytes as opposed to 152. This is unusual considering the fact that the Chinese Internet infrastructure is underdeveloped. Large files would take longer to download (Zhao et al., 2003).

Marc Hermeking investigated Hall's high-/low-context dimensions as they relate to website design. His research shows that there is an adoption of high-context preferences within high-context societies and low-context preferences within low-context societies. These cultural values may be observed in the design of websites advertising non-durable goods (e.g. fast food); however, it is more difficult to identify the high-/low-context cultural values on websites advertising durable goods and industrial goods (Ess & Sudweeks, 2005).

### **3.6 Summary**

This chapter presented an overview of culture and Web design. It first looked at the role of the Internet in the world today, which included a discussion on Internet usage and the population statistics of each world region. After discussing the Internet, the chapter focused on how the idea of Web design has shifted: websites used to be designed in terms of global use, nowadays attention tends to be on designing websites for local use.

The focus then turned to culture in terms of the role it portrays in the software design process, especially in Web design. The chapter looked at the types of cultural issue that a software developer needs to consider when designing software for markets in a specific culture. These include the colour-cultural marker, the metaphor and other general cross-cultural differences. Characteristics of a well-designed cultural website, as proposed by the Minerva Working Group 5 and the CCD process, were also mentioned. Once the CCD process had been discussed, the emphasis changed to the cultural-context dimension and how it impacts on Web design.

In order to investigate the cultural-context dimension, Wurtz's research on various McDonald's websites around the world was used to assess websites from both high- and low-context societies. Marcus and Gould's research on the individualistic vs. collectivistic and long vs. short time orientation culture dimensions of websites was also used. This chapter ended by looking at other common cultural-context features that are evident on various websites. In Chapter 4, the focus will be on e-Government.

## CHAPTER 4: E-GOVERNMENT

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### 4.1 Introduction

This chapter will focus on two main, related aspects of e-Government. The first will be a more general discussion on the topic and will be divided into the following sections:

- definition of e-Government (section 4.2.1)
- the goals and benefits of e-Government (section 4.2.2)
- the stages of e-Government (section 4.2.3)
- prerequisites for effective e-Government (section 4.2.4)
- the components of e-Government (section 4.2.5)
- e-Government website specifications (section 4.2.6).

The second part of this chapter will focus on e-Government in developing countries with an attempt to investigate whether they relate and adhere to the above key objectives and procedures. This will be divided into the following sections:

- the failure rates of e-Government projects (section 4.3.1)
- costs of e-Government failure (section 4.3.2)
- challenges (section 4.3.3)
- threats (section 4.3.4)

### 4.2 E-Government – general description and overview

E-Government is being embraced by many nations around the world but is still in its early stages in many places (Gichoya & Hepworth, 2007). E-Government is the term used for electronic government. It is also referred to as e-Gov, digital government, or online government (Kushchu & Kuscu, 2003; Anttiroiko & Mälkiä, n.d.; Wikipedia-B, 2007). It is also important to mention that e-Government is implemented through the use of ICT.

There are clear indications that e-Government creates economic development and research shows that there is a stable relationship between them. Many countries have noticed the benefits of e-Government and are placing a high priority on its development (Mwange, 2007). There are still many issues and obstacles however, which may prevent e-Government development, especially in developing countries. These obstacles are both technical and non-technical (Mwange, 2007).

### 4.2.1 Definition of e-Government

In this section, the term e-Government will be defined using various sources. Before defining e-Government however, it is necessary to look at what the term ICT means, as it has an influential and fundamental role in e-Government development.

#### 4.2.1.1 ICT

IT covers many fields today including data management, computer networking, software and database design, computer engineering, and system administration and management. Recently, it has become popular to include the field of electronic communication in IT. The term that is used to describe this is information and communications technology (ICT) (Adelman, 2000; Allen & Morton, 1994; Wikipedia-D, 2007). ICT is very important because e-Government is implemented by means of ICT, which is defined as follows (e-Government Project Website, 2005):

ICT refers to both computer and communication technology. Information technology (IT) is defined as any equipment or interconnected system (subsystem) of equipment that that includes all forms of technology used to create, store, manipulate, manage, move, display, switch, interchange, transmit or receive information in its various forms. Information can be in the form of business data, voice conversations, still images, motion pictures, multimedia presentations and many other forms. The meaning of communication refers to a system of shared symbols and meanings that binds people together into a group, a community or culture. The word communication was added to IT so as to make a network of the usage of information technology.

#### 4.2.1.2 Definitions

There are many definitions of e-Government, and the ones used here are not very complicated:

- “E-Government is the use of information and communication technologies (ICT) to exchange information and services with citizens, businesses, and between governments departments” (Mwange, 2007).
- “E-Government refers to the use by government agencies of information technologies (such as Wide Area Networks, the Internet, and mobile computing) that have the ability to transform relations with citizens, businesses, and other arms of Government” (World Bank Group, 2007).

- “E-Government is the use of information and communication technologies (ICTs), and particularly the Internet, as a tool to achieve better government” (e-Government Project Website, 2005).
- “E-Government is the use of information technologies to provide government information and services to citizens, and utilizes government Web sites to achieve its goals” (Bernardo, 2005).
- “E-Government is the adoption, by governments at local, provincial, state and national levels, of information and communications technology applications in the delivery of administrative products and services to the widest possible population and geographic spread” (Okpaku, 2003).

#### **4.2.2 Goals and benefits of e-Government**

In this section, the focus will be on the goals of e-Government. Goals are used as a benchmark to decide whether or not a project has been successful. When achieving these goals, there are many benefits that may be the outcome of a successful e-Government implementation. However, people do tend to forget that the benefits of such a project are long-term oriented rather than short-term. The benefits that may result from successful e-Government will also be discussed here.

##### **4.2.2.1 Goals**

The original aim of e-Government was to drastically reduce the amount of paper used in government. In 2002, the first act in the US concerning e-Government was passed: Public Law 107-347, also known as the “E-Government Act of 2002” (Okpaku, 2003). The purposes of this Act included the following (Okpaku, 2003):

- Federal governments must provide more effective leadership. They must also promote the efforts of e-Government development (services and processes of e-Government).
- Promoting the use of the Internet and all other information technologies. This will provide the citizens with better opportunities to participate in government.
- The reduction of costs and burdens for businesses and other government entities.
- The promotion of a more effective and better informed method for decision making by policy makers.

- To make the federal government more transparent and accountable.
- To offer an improved way for citizens to access government information and services in a method that is consistent with laws and regulations (privacy, national security, etc.).

Although the goals of the Act represent the purposes of e-Government from an American perspective, they commonly reflect the natural purposes of e-Government for other countries as well as its general goals. These goals may be summarised as follows (World Bank Group, 2007):

- better delivery of government services to citizens
- improved interactions with business and industry
- citizen empowerment through access to information
- more efficient government management

Figure 4.1 emphasises the fact that e-Government should include all ICTs in all its public-sector activities. The main innovation, however, comes through computer networking. The Internet and intranets provide a wealth of new digital connections. The figure shows the domains that e-Government initiatives tend to reach (the communities, citizens, businesses and all arms of government). By accomplishing this, the expected benefits and goals of e-Government will become realities.

If governments, communities, citizens, businesses and various agencies can reach the point where they can all communicate with one another effectively and efficiently (as portrayed in Figure 4.1), then a country is certainly on the right track to achieving e-Government development. Once this is achieved, service delivery, which is one of the main goals of e-Government, will also improve significantly.



- Reduction of administrative paperwork and the cost to the environment.
- Increase in efficiency. Citizens should be able to find what they need quickly and easily online. This will also enhance the knowledge of both the public and civil servants.
- Promote tourism and investment. Even cost-effective procurement is a possibility.
- Change the culture of the civil service from reactive to proactive. At the same time, it will also create a fit between technology and human capital.

The benefits discussed here are very impressive and may contribute positively to grand changes within a country. People will now know that they themselves have a role to play in governance and that it is their responsibility to contribute towards better governance within their own country. One should not forget that e-Government is a long-term plan, and it might take time before these benefits start to appear. E-Government also requires proper planning, commitment and patience in order to achieve the goals and benefits from such a large initiative.

### 4.2.3 Stages of e-Government

E-Government is a long-term, evolutionary process, which includes many stages of development. Three research entities, the United Nations, the World Bank and the Gartner Group have done major, highly rated analytical work on e-Government, and each have defined their own stages for e-Government implementation and development, which are discussed below.

#### 4.2.3.1 United Nation phases/stages

The United Nations identified five stages in e-Government development (AOEMA, n.d.):

- *Emerging.* A country commits to becoming involved with e-Government. It has a formal but very limited presence via a few separate government websites. They provide users with static organisational or political information and may also include contact information, such as telephone numbers and addresses of public officials. In some cases, rarely, there might even be special features, like FAQs, on these websites.
- *Enhanced.* The country's online presence starts to expand because the number of official websites increases and their contents become more dynamic and specialised. The information is frequently updated and there are Web links to other official pages. Government publications, newsletters and legislation are also available. Other features

include e-mail addresses and search features. There may also be a site for national government that links the users to ministries and departments.

- *Interactive.* There is now a more sophisticated level of interaction. Citizens may not only e-mail but post comments as well as search specialised databases and download forms and applications when required. They may also submit forms over the Internet. Content and information is regularly updated.
- *Transactional.* At this stage, complete and secure transactions can occur. Actions like obtaining visas, birth and death certificates, licences and permits can all be done online as well as the paying of parking fines, automobile registration fees, utility bills and taxes for example. There may also be the use of digital signatures to facilitate procurements and do business with government through secure sites with user passwords
- *Fully integrated or seamless.* This includes the ability to access any service in a “unified package”. Ministerial/departmental/agency lines of demarcation are removed in cyberspace. Services will be clustered according to common needs.

#### 4.2.3.2 Gartner Group phases/stages

The Gartner Group identified four stages in e-Government development (AOEMA, n.d.):

- *Presence.* This phase is solely based on having a presence on the Internet. The major goal is to post information, such as agency information, addresses, opening hours and perhaps some official documents that are relevant to the public.
- *Interaction.* This phase is characterised by a number of websites providing basic search capabilities, downloadable forms, official e-mail addresses and links to other relevant websites. This phase enables the public to access forms and critical information online rather than having to physically visit a government office.
- *Transaction.* This phase enables the public to conduct and complete entire tasks online. The main purpose of this phase is to build self-service applications for public access online, such as tax filing or payment, driver’s licence renewal, and payments of fines, permits and licences.
- *Transformation.* This is the long-term goal of all e-Government initiatives. It focuses on redefining the delivery of government services so that the government organisation is totally

transparent to the citizens. This phase relies on customer relationship tools and new methods of service delivery capabilities that will enhance relationships between government, citizens and businesses. This phase will also include the development of state-of-the-art intranets and extranets for government agencies.

#### 4.2.3.3 World Bank phases/stages

The World Bank has identified three stages in e-Government development (AOEMA, n.d.):

- *Publish.* Governments gather huge volumes of information (rules, regulations, forms) that are potentially useful for individuals and businesses and use the Internet on which to post this information for their citizens quickly and directly.
- *Interact.* In this phase, a two-way communication process evolves. It starts with basic functions such as e-mail, contact information for government offices and officials, and feedback forms for user comments on legislative or policy proposals. This phase can strengthen civic engagement and build trust between the public and government.
- *Transact.* This phase permits users to conduct transactions online.
- There is great potential for cost savings and accountability by reaching this phase.

#### 4.2.3.4 Comparison of the stages between the three entities

Table 4.1 compares the stages of e-Government development as identified by the United Nations, the Gartner Group and the World Bank. In each of the development stages certain goals must be achieved. The column headed “Characteristics, in the table represents these goals and specifies what should be occurring at each stage of e-Government development.

Characteristics	United Nations	Gartner Group	World Bank
<ul style="list-style-type: none"> <li>• The Government provides an official online presence.</li> <li>• Most of the content is static and does not necessarily meet citizens’ expectations.</li> <li>• Static information source</li> </ul>	Emerging	Presence	Publish
<ul style="list-style-type: none"> <li>• The government sites start to increase while the information becomes more dynamic.</li> <li>• Information is updated regularly.</li> </ul>	Enhanced		

<b>Characteristics</b>	<b>United Nations</b>	<b>Gartner Group</b>	<b>World Bank</b>
<ul style="list-style-type: none"> <li>• There are downloadable forms and documents; features like site search and e-mail are also available.</li> </ul>			
<ul style="list-style-type: none"> <li>• Users can download forms.</li> <li>• Users can e-mail officials and interact through the Web.</li> <li>• Portal with links to other related sites</li> <li>• Specialised databases</li> <li>• Online forms submission</li> <li>• User log-in</li> </ul>	Interactive	Interaction	Interact
<ul style="list-style-type: none"> <li>• Users can actually pay for services and other transactions online</li> <li>• Online payments are accessed securely online</li> <li>• E-mail conformation and acknowledgement receipt</li> </ul>	Transactional	Transaction	Transact
<ul style="list-style-type: none"> <li>• Full integration of e-services across administrative boundaries</li> <li>• All services and links accessed via a single central portal</li> <li>• All the transactional services are presented through a single integrated site</li> <li>• Customizable user pages</li> </ul>	Fully integrated or Seamless	Transformation	

**Table 4.1: Characteristics of the various e-Government development phases (AOEMA, Undated)**

Figure 4.2 represents the 5-stage model of e-government development. It is a trend that is followed by most of the countries, which are implementing e-Government development. However, it is not necessary for each country to go through each one of the stages step-by-step. Depending on the country's e-Government strategy and its current situation it may move, for example, from stage 1 to stage 3 (Siau & Long, 2005). Stage 1, which is referred to as Web Presence in Figure 4.2 is the

stage more commonly known as the Emerging stage (according to the UN stages of e-Government development). Stage 5, which is referred to as E-democracy in the Figure 4.2 represents the stage that is more commonly known as the Networked or the Fully Integrated stage (according to the UN stages of e-Government development).

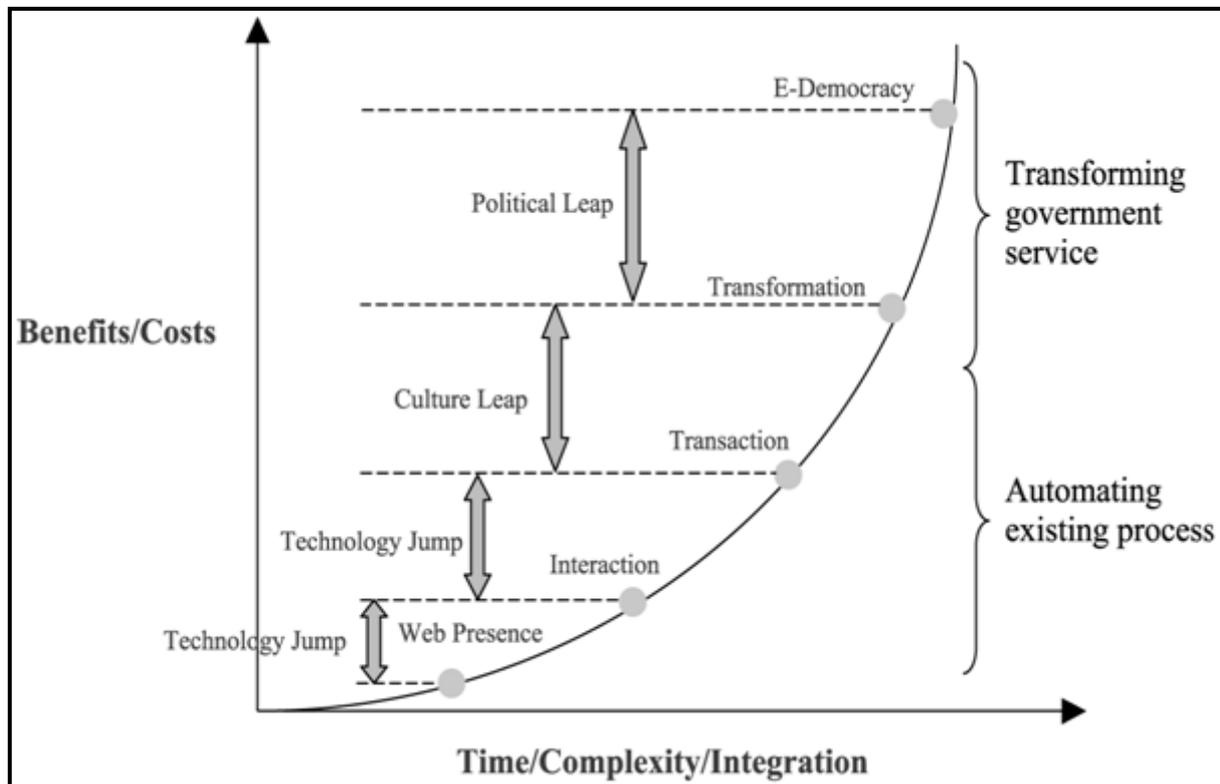


Figure 4.2: The 5-stage model of e-Government development (Siau & Long, 2005)

One will notice that the time spending, system complexity and integration increase with the advancement of the e-Government stages. At the same time, the benefits together with the costs also increase. Therefore, there is always a balance between e-Government investment (such as money, time, human resource and technology) and achievement (such as user satisfaction, governing efficiency and cost-saving) (Siau & Long, 2005). All these aspects will need to be considered by all countries which are implementing e-Government development.

#### 4.2.4 Prerequisites of effective e-Government

In order to take advantage of the opportunities and benefits that e-Government may offer to a country, certain issues, which have been considered beforehand, need to be in place. One may

characterize these issues as essential requirements or prerequisites for effective e-Government and include the following (Okpaku, 2003):

- *Genuine needs and demand.* It is essential that both government and the public recognize the need for e-Government services. If they do not, implementation will be a failure because of neglect and non-use.
- *Infrastructure.* It is required to have a reliable, suitable and robust infrastructure to accommodate the relevant applications. There must also be sufficient bandwidth and a reliable and continuous power supply throughout the country.
- *Appropriate software, applications and content.* The software should be locally developed, where possible, as the governance is of a local nature. In this case, e-Government may be a force to advance local ICT entrepreneurship that will create many more jobs.
- *Widespread and cheap availability of computers and workstations.* The public needs to have access to computers if they are to use e-Government services. There is a low PC penetration in African countries. It does not matter if the infrastructure is available, if people do not have access to computers the e-Government initiative may be regarded as a failure.
- *Local language computing and content.* It is critical that e-Government services are in a local language and have local content in order to be embraced by citizens.
- *Appropriate legal framework and legislation.* There are many issues and processes that are not covered in existing laws that concern e-Government. It will be required to create new laws, regulations and policies that are designed specifically for it, such as issues of privacy, security of data, validity of digital signatures, licensing when necessary, Public Key Identification (PKI), and many others.
- *Expert technical capacity.* There will be many technical aspects that will be necessary to manage and operate e-Government effectively, such as networks, portals, websites and interactive communication.
- *Widespread popular training in computer literacy and use.* If people are to embrace the e-Government initiative, they will need to learn how to use the systems. This may be achieved through training that should be offered by a government itself.

These points are vital and should be considered seriously before a country decides to implement an e-Government initiative. If these points are addressed, it will be a major boost for successful e-Government implementation in a country and will also ensure that the public are interested and understand the need to adopt e-Government.

#### **4.2.5 Components of e-Government**

In order to implement e-Government successfully, various components need to work together effectively and efficiently (Okpaku, 2003):

- Internal administrative networks linking all the different offices within a given ministry, agency or parastatal (also known as a “state-owned enterprise”).
- Inter-ministerial networks that link the various ministries and arms of government.
- National networks, which link national, state, provincial and local government offices to one another.
- Government websites and portals that will provide information to the public online. These services will interact with the goal of providing the public with the time and cost-saving services mentioned previously.
- A number of databases that will provide the relevant information that the public requires quickly and efficiently, as well as the resources and expertise to support governance and social and economic development.
- Websites that will be operated by the government or for the government. These will be aimed at promoting domestic and foreign tourism and investment.
- Special networks and databases. These will be designed for restricted services, such as defence, intelligence and national security.

These are the most prominent, basic components involved in implementing an e-Government system. It is, however, up to each country to decide for itself which of these it will embrace. This will greatly depend on country-specific conditions, needs and demands.

## **4.2.6 E-Government Website specifications**

The proper design of the e-Government websites is extremely important and, by following certain guidelines and principles, they become more usable, transparent and can be used to their full potential. In order to design successful e-Government websites, there are certain mandatory frameworks (which include their own guidelines and procedures) that will need to be followed in combination with the more generally used website design guidelines. General guidelines have a more descriptive approach in an attempt to state general features that are desired for a well-designed interactive system. On the other hand, patterns are used in a constructive manner in order to suggest a solution to a problem (Kotze, Renaud, Koukouletsos, Khazaei & Dearden, 2006)

### **4.2.6.1 General considerations**

The field of interaction design (discussed in detail in Appendix E) needs to be closely considered and understood because it focuses on dynamic interaction between users. In the case of e-Government, this would include interactions between users (citizens and businesses) and the organisation (arm of government) providing the service. Interaction design is not the only Web design skill that needs to be considered: interface design, information design and information architecture also contribute to appropriate design solutions (Macdonald, 2003).

In order to create good e-Government services, it is vital to understand the people that will be using them. This includes aspects such as how they understand computers and the Internet, how they think when carrying out tasks and the context in which they will be performing these tasks. People also tend to make “mental models” of all the systems with which they interact, so designers will need to consider this as well. A service may be useful to a citizen, but if it does not consider where the service is being used, the constraints on time and attention, the level of technical ability, and the related tasks that need to be performed, it is most probable that the service will not be used (Macdonald, 2003).

It is not only the people who will be using the services that need to be considered. Designers also need to take into account the needs of the people who will be administering the services from the back office. They will have to ensure that their design solutions deliver appropriate support. In terms of the administrators, some of the issues that are important and need to be included in the design process are learning about the context in which the administrators will be operating, investigating how they are currently working, and mapping the flow of tasks and approval

processes. Considering the tools for government staff in the design process aids productivity and improves the quality of work. Another secondary aspect, which is just as important, is for designers to understand the specifications of the project. Specifications may include matters such as what constitutes success in a project and how that will be measured and determined, who the stakeholders are, who makes the final decisions and the state of the relationships that exist between the designers and the stakeholders (Macdonald, 2003).

At the same time, designers need to be very careful that they do not limit innovation. The fact that e-Government focuses on usability and accessibility may lead to solutions that satisfy the lowest common denominator of user needs. The designers need to follow a path that leads to a future vision and incremental improvements towards innovation. One of the biggest challenges that face designers is to overcome the citizens' trust issues with government. Within the design of e-Government projects, the focus should be on facilitating collaboration and communication into the design process, which will help deliver better services (Macdonald, 2003).

#### 4.2.6.2 Guidelines

There are many guidelines that are available to assist in the design of e-Government websites. To an extent, many of them adhere to the more general website design guidelines. There are certain differences in some of the guidelines, which directly focus and relate to e-Government websites. Overall, the e-Government website design guidelines should be used in a combination with the more general website design guidelines. Some of e-Government website design guidelines courtesy of the British Government, which has published a number of articles and guidelines concerning the design of e-Government websites, and is also regarded as one of the leaders in e-Government maturity and development (Bernardo, 2005), will now be discussed. They include the following (Cabinet Office, 2004):

- Government websites should focus on their users. They need to be engaging, provide users with the information and services they need, keep on evolving in order to meet the users' demands, and generally be accessible and usable. The *World Wide Web Consortium (W3C)* has already published guidelines for website accessibility. It is recommended following the *Web Accessibility Initiative (WAI)* guidelines to achieve accessibility.

- All government websites need to work together so that they are all connected as a single organism. In order to achieve this, it is compulsory to follow the *e-Government Interoperability Framework* (e-GIF) and work with the *Government Gateway* to provide online services.
- Government organisations must be working to produce all of their services online. Once again, the *e-Government Interoperability Framework* (e-GIF) will help to achieve this goal.
- The users should have reasonable expectations about the quality, accuracy and uniformity of the government content. They have the right to expect current and up-to-date content on the government websites.
- Government websites should follow legal procedures and explain their terms and conditions explicitly to citizens, as this may raise user confidence in the system. They should also follow the *Trust Charter for Electronic Service Delivery* (e-Trust Charter) guidelines. This will ensure the rights citizens have and what they will need to respect in terms of the information that is held by government. This will protect government and also help in building user trust.
- Government websites are expected to be two-way with regard to communication. It should be possible for the users to contact government officials, express their views and opinions, and make enquiries (the *Freedom of Information Act* needs to be considered when answering the users' enquiries).
- Government websites should be able to operate through a full range of channels, including digital interactive TV and mobile devices. The *Modernising Government White Paper* commits government to keep up with technological changes.
- Government websites need to have the tools in place that will evaluate the success of the e-Government system and whether it meets users' needs. Where it is required, improvement should be made. This will ensure that there are means of verifying the value and effectiveness of the system (e.g., number of users and/or visits, successful/unsuccessful requests, most/least frequently visited pages).
- Government websites should provide metadata about their documents. This will help in the procedures of document archiving and retrieval. To achieve this it is mandatory to follow

the *e-Government Metadata Framework* (e-GMF). It is also managers' responsibility to promote the site and register it with search engines.

- As stated earlier government websites need to be properly managed. Maintenance and updating are great challenges and should include sufficient resources such as aims and strategies of the government, provide the users with all the relevant information about business procedures and discuss strategies for future development (e.g. moving towards dynamic databases or other digital media).

A more detailed discussion on the above guidelines can be located on the Website: <http://archive.cabinetoffice.gov.uk/e-Government/resources/handbook/> (Cabinet Office, 2004). It is also important to mention the type of minimum content and information that should be available to the users on the government Websites (Cabinet Office, 2004):

- details of the management boards and ministers
- information discussing the organisation's goals and objectives
- full contact information
- information on the procedures to follow to report complaints
- command and consultation papers and published forms and documents, along with press notices
- government should publish research reports and statistical information
- recruitment policies and details of advisory groups should also be present on websites

#### **4.3 E-Government in developing countries – general description and overview**

The World Bank is the organisation that classifies economies. According to the World Bank, a country with a gross national income (GNI) of \$755 or less is a low-income economy, a country with a GNI between \$756 and \$9,265 is regarded as a middle-income economy and a country that has a GNI of \$9266 or more is a high-income economy. The countries that have low-income and middle-income economies are the ones that are referred to as developing countries (SustainAbility Tomorrow's Value, n.d.).

In developing countries, the majority of the population have far less income, have significantly weaker social indicators and are without many of the most basic public services than the

populations of high-income countries. Of the six billion of the world's population, 83% live in developing countries. Their income is under \$2 a day and some live on less than \$1 a day (Mwange, 2007).

The e-Government initiative is being embraced by many developing countries; yet these have much more serious issues to attend to first; issues which directly affect many of the local citizen's chances of survival. The fact that these people are battling to survive leads to the failure of many e-Government projects in such countries.

This section will focus on many issues that concern e-Government in developing countries and will discuss the reasons behind the high failure rates of e-Government projects in them. It will then look at the challenges that developing countries face if they are to succeed in implementing e-Government, along with the threats facing e-Government if it is not properly controlled.

Once these topics have been discussed, it will be obvious that e-Government development in these countries is an immense challenge. However, this does not prevent many of these countries investing in e-Government and being committed to it. Nonetheless, commitment and investment are not enough to guarantee the success of such a huge project. Many other factors than those experienced in developed countries need to be addressed for e-Government to advance.

#### **4.3.1 Failure rates of e-Government projects**

There is much talk about the potential for e-Government in developing countries. The reality, however, is that most of these projects fail. Research that was conducted in 2003 by Richard Heeks showed that 35% of e-Government projects in developing countries were classified as total failures, while 50% of them were classified as partial failures. Only 15% of these projects are regarded as successful. These figures are quite staggering and very disappointing, if one considers that developing countries are limited in resources and cannot waste such large amounts of money (Dada, 2006).

In terms of Heeks's research, when an e-Government project is classified as a total failure it means that the initiative was never implemented or was abandoned immediately after it was implemented. If the project was classified as a partial failure, this means that the main goals of the initiative were not achieved and/or there were undesirable outcomes from the project. In cases where the project

was regarded as a success, most of the major goals were attained and there were no undesirable outcomes from the project (Heeks, 2003).

#### 4.3.1.1 Design-reality gaps

According to Heeks, the main problem in developing countries is that there are large gaps in the physical, cultural, economic and various other contexts between the software developers and the place where the system will be eventually implemented. This causes a mismatch between the current and future systems. This has lead Heeks to identify three archetypes of situations where design-reality gaps are common. The existence of these gaps is likely to contribute to the failure of an e-Government project. These are (Heeks, 2003; Dada, 2006):

- *Hard-soft gaps.* These focus on the actual technology and the reality of the social context (which includes people, culture, emotions, politics, etc.) of the country where the system will operate. ICT is basically reflected in terms of engineering and machinery. While e-Government systems are designed with these concepts in mind, the reality is that government organisations do not follow these ideas, as they tend to be dominated by other factors. So, when the e-Government system meets the reality, the gap is too large and will most likely contribute to the failure of the project.
- *Private-public gaps.* These focus on the various differences that exist between the public and private sectors. This often means that a system that is designed to work in the private sector does not always work in the public sector, or vice versa. This is credited to the fact that there are many gaps in a system that is designed for the private sector when it is transferred to the public sector. This usually occurs when IT firms pick up an information system that was designed for the private sector and try making the analogous changes so that it will fit into the public sector. This hardly ever produces the required results and usually ends up a failure. This decision is usually made by the IT firms along with consultants and government officials.
- *Country-context gaps.* These arise when trying to use an e-Government system for both developing and developed countries. This usually happens when governments, donors and consultants are impatient and try to search for fast fixes for development by pulling off-the-shelf solutions from other countries. This occurs because an e-Government system, designed specifically for a developed country, does not match the reality of the developing country where the system will be transferred to.

There are ways in which the reality gaps may be reduced. These recommendations will assist in reducing these and, as a result, will also reduce the risk of failure. Some of these recommendations are displayed in Table 4.2. They are divided according to the reality group which they address (Dada, 2006).

<b>Reality Gaps</b>	<b>Recommendations</b>
Hard-soft	<ul style="list-style-type: none"> <li>● The e-Government projects need to be designed with the information and service needs of the community in mind.</li> <li>● The technologies should be developed in collaboration with the local staff.</li> <li>● The people also need to be closely involved in the project. There should be local awareness of the project through promotional campaigns.</li> <li>● The government needs to attack the problem of lack of skills and training. They need to educate citizens about the value of e-Government. Citizens will also need the technology to access the information and services.</li> <li>● The issue of change needs to be considered. This focuses on the realignment of working practices and government functions.</li> </ul>
Private-public	<ul style="list-style-type: none"> <li>● There are uncompetitive rates of pay in the public sector in comparison with the private sector. This leads to a lack of public skills and e-Government projects being outsourced to the private sector (creates a clash of culture and values).</li> <li>● E-Government projects in developing countries are mostly driven by individual government departments that depend on aid from donors. Once the financing stops, there is a lack of sufficient funding to continue the project. In the private sector IT investments hardly run out of funding.</li> <li>● In developing countries, large projects are preferred by governments because they are seen as evidence of political action to respond to a specific problem. This attitude usually results in the failure of the projects because the risks were not properly assessed.</li> <li>● Systems in the private sector are designed so that the recipients are viewed as customers. This is a big shift in terms of the concept behind the e-Government applications, where the recipients are viewed as citizens. E-Government will also need to provide equal services to all its citizens.</li> </ul>
Country-context (country context gaps are closely related to the hard-soft gaps)	<ul style="list-style-type: none"> <li>● The infrastructure of the developing country needs to be assessed in comparison with the infrastructure of the developed country from where the system was taken.</li> <li>● In developed countries, the cost of transferring information and making online transactions is relatively low. In developing countries these costs seem to be much higher.</li> </ul>

Reality Gaps	Recommendations
	<ul style="list-style-type: none"> <li>• The Digital Divide problem is very apparent in developing countries. Even if the infrastructure is available, numerous people do not have the means to access information and communications technologies.</li> </ul>

**Table 4.2: Recommendations to reduce the design-reality gaps (Dada, 2006)**

#### 4.3.1.2 Seven dimensions (ITPOSMO)

An analysis of e-Government projects showed that there are seven dimensions that are necessary in order to understand the design-reality gaps that contribute to the failure of e-Government projects in developing countries. The acronym that is used for the seven dimensions is ITPOSMO. This stands for Information, Technology, Processes, Objectives and values, Staffing and skills, Management systems and structures, and Other resources: time and money (Heeks, 2003). Each of these dimensions focus on the following (Heeks, 2002):

- *Information.* Information which is formal and quantitative and that is stored outside the human mind is valued much less in African countries than Western ones.
- *Technology.* The technological infrastructure is limited and/or older in Africa. This includes telecommunications, networks, and electricity.
- *Processes.* The work and decision making processes in African governments are more contingent and conditional. This is due to the more politicised and uncertain environment that exists in these countries.
- *Objectives and values.* Culture has an important role to play in African public-sector organisations. This includes values like kin, loyalty, authority, patron-client relations, holism, secrecy, and risk aversion.
- *Staffing and skills.* There is a limited local skills base within a wide range of skills in African governments. These limitations extend to information systems skills, system analysis and design skills, implementation skills, and operation-related skills (this may also includes literacy and familiarity with Western languages). In a broader sense, these limited skills are in the planning, implementation and management of e-Government initiatives.
- *Management systems and structures.* African public-sector organisations tend to have more hierarchical and centralised structures.

- *Other resources.* African countries have less money to experiment with. The cost of ICTs is higher than in industrialised countries although labour costs are much less.

Before an e-Government initiative begins, a developing country would have to evaluate and determine the risks in terms of the ITPOSMO checklist. African countries differ in various contexts from Western countries so it is very important to consider the ITPOSMO model. The model that was designed to display the gaps of these dimensions is displayed in Figure 4.3.

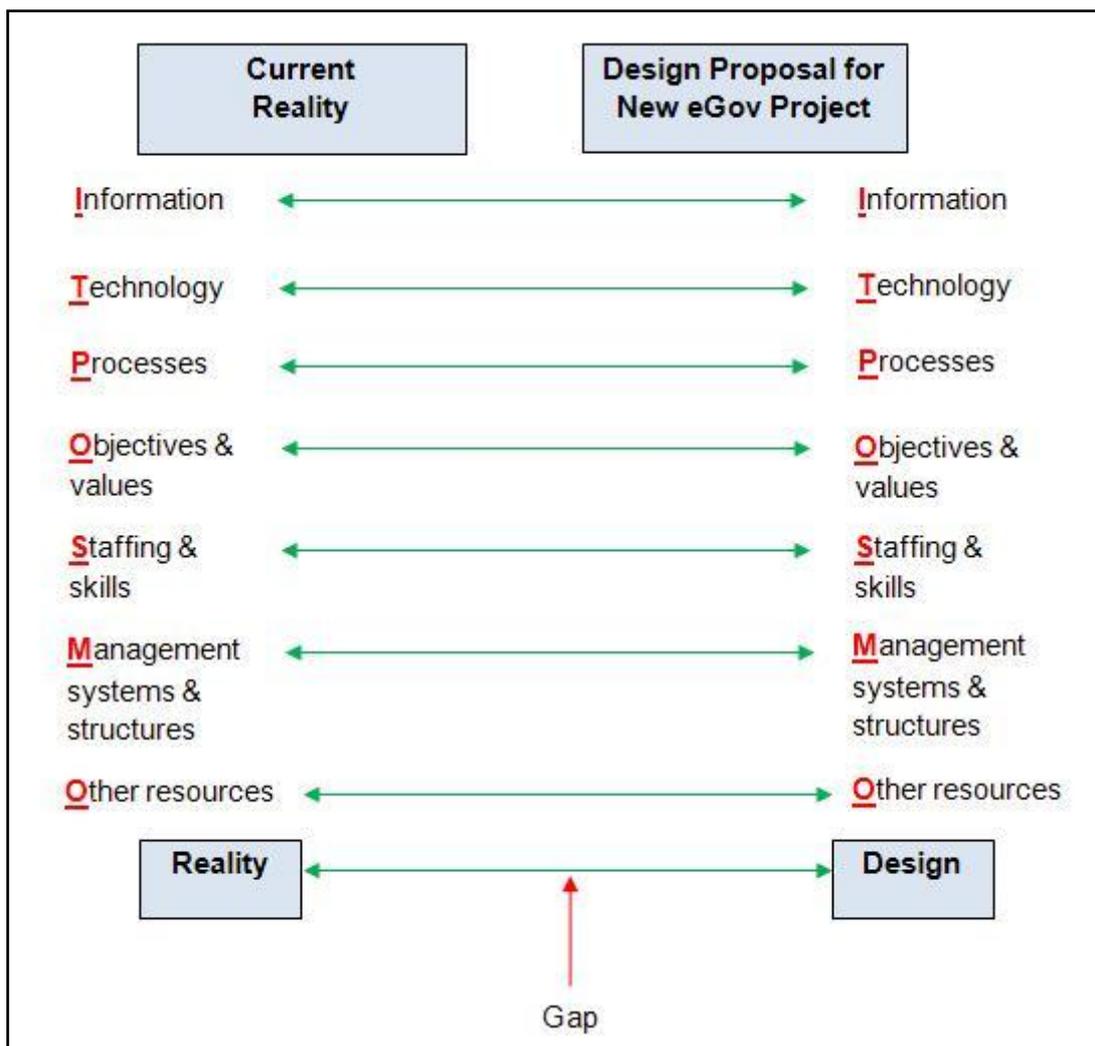


Figure 4.3 Design-reality gaps in e-governance projects (Heeks, 2003)

When an e-Government project begins, there is great gap in where the country currently is (the reality and current situation) and where it wants to get by implementing e-Government. This is what the figure above portrays and this is the main criterion that determines the failure or success of an e-Government project. The larger the design-reality gap, the more likely the project will fail: on the other hand, the smaller the gap the greater the chances of success (Heeks, 2003).

There are ways in which the dimension gaps (ITPOSMO) may be reduced and these will also reduce the risk of failure of an e-Government project. These techniques are discussed in Appendix N.

#### 4.3.2 Costs of e-Government failure

The failure rates of e-Government projects in developing countries come at a very high price and are divided into six main categories (Heeks, 2003):

- *Direct financial costs.* These are determined by the money that was invested in aspects such as new facilities, training programmes, equipment, consultants, etc.
- *Indirect financial costs.* These are determined by the money that was invested in the time and effort put in by public servants involved in the project.
- *Opportunity costs.* These focus on other and better alternatives on which all that money could have been spent if it had not been spent on an e-Government failure.
- *Political costs.* The failure of an e-Government project will tarnish the image of the individuals, organisations and nations that were involved in the project. Basically, a loss of “face” for all parties involved will be the result of a failure.
- *Beneficiary costs.* This relates to a loss of all the benefits that would have resulted from a successful e-Government project.
- *Future costs.* If an e-Government initiative fails, it reduces the chance of any future or potential e-Government projects. This happens because stakeholders lack morale and because there will be a loss of credibility and trust towards e-Government as an approach to change.

The costs that are involved in e-Government failure in developing countries can have devastating consequences as many people in these countries struggle to survive or live in poverty. Although the Government wants to help the citizens of a country by implementing e-Government, proper planning and management needs to be done so all that money is not lost. It would be disgraceful to waste so much money on a failed project, when so many people are struggling to survive and this could result in the public turning against the government. A government needs to be properly prepared on all the various levels and in all departments before implementing e-Government.

### 4.3.3 Challenges

There are many challenges that prevent the success of e-Government projects in developing countries. In combination with the prerequisites for effective e-Government (which were discussed earlier), a country needs to consider a number of other challenges. A country that is about to embark on the implementation of e-Government needs to plan very carefully. If planning is inadequate, the project will result in the failure of a very expensive venture. If it succeeds however, the opportunities and benefits could be most promising. Some of the most intimidating obstacles that a country, especially a developing one, may face include the following (Okpaku, 2003; Mwangi, 2007):

- The country will need an adequate energy and telecommunications infrastructure. The costs that are involved in funding such a proposition are of mega proportions, even at the best of financial times. This not only concerns the working of the Internet; other sub-issues are also vital including e-readiness and literacy (these were mentioned in the prerequisites as well).
- The costs that are involved with maintaining, upgrading and managing e-Government networks and platforms will also be very high. In cases where external funding is provided, costs will need to be carefully and accurately calculated before the project begins.
- Each country will need to review and evaluate the value, significance and necessity of implementing e-Government and assess it in terms of their country's other pressing and important priorities.
- The networks will be vulnerable to internal shortcomings and power failures from the technologies themselves. Other concerns would be hackers and virus developers. The damages in cost that may arise from such threats could be worth billions of dollars and need to be taken seriously.
- It is important to overcome language barriers. If language is restricted to English it will vastly reduce the percentage of locals that will actually be able to use these e-Government services and will make e-Government yet another scheme to support the richer classes. This aspect is closely related to sociocultural issues. It is still relatively difficult to accommodate traditional cultures with modern electronic media.

- The public needs to be assured that their personal details will be protected and will not be exploited by anyone, which could be difficult.

#### 4.3.4 Threats

There are many threats involved in e-Government generally. The threats that are discussed here focus on the dangers that may be the result of an unbridled and uncontrolled adoption of e-Government. It is not enough merely to implement e-Government; it needs to be properly and carefully conducted constantly. The threats that may result from an uncontrollable adoption of e-Government include the following (Okpaku, 2003):

- There is a great risk that leaders and civil servants may hide behind the e-Government initiative. They may use e-Government as a mean for avoiding responsibilities and accountability when it comes to the efficient delivery of services to the public.
- There may be confusion between technology, good leadership and public service. Governments should not merely rely on e-Government to deliver content, knowledge, perspective, judgement, insight, strategy and perspicacity. All these aspects are part of human intelligence, feeling and judgement.
- There is a great risk of a breach of the privacy rights of citizens. This could be through deliberate misuse of information that is provided in good faith or through reckless handling of such information.
- On a larger scale, there is danger to the personal security and safety of the citizens if secret information is compromised. This information may be accessed by foreign governments, or organisations, or even be shared illegally by governments with malicious intent.
- The risks of breaching national security become much easier and protecting citizens more challenging when using electronic forms of storage and dissemination. Even the top nations of the world, which have the best of technologies, struggle to combat attacks on their electronic data. This will be a very difficult challenge for African countries.

Threats are involved in any project and the threats facing e-Government in developing countries are of great magnitude. A government has to consider these threats as, if they are not appropriately addressed, there could be negative consequences for the country itself and for the public in general.

#### **4.4 Summary**

This chapter presented a detailed overview of e-Government and was divided into two main sections. The first section discussed e-Government in more general terms while the second section focused on e-Government in developing countries.

The first section included a definition of e-Government, along with a quick reference to ICT and then discussed the goals of e-Government and the potential benefits of its proper implementation. The stages of e-Government implementation then followed as well as the prerequisites that need to be in place in a country in order to implement e-Government. Following was a discussion on the components of e-Government. This section ended with a discussion on certain e-Government website design guidelines and specifications.

The second section of this chapter started by discussing the reasons behind the high failure rates of e-Government projects in developing countries. These failures are due to design reality gaps that exist in these countries. The seven dimensions (ITPOSMO) that will help understand these design reality gaps were then discussed. The chapter then focused on the costs that are involved in failed e-Government projects in the developing countries. The chapter ended by discussing the challenges and threats that developing countries face in proper and successful e-Government implementation. In chapter 5, South Africa's e-Government status will be discussed. It will also include a description of the South African e-Government website.

## CHAPTER 5: THE SOUTH AFRICAN CONTEXT

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### 5.1 Introduction

In Chapter 4, e-Government from a more general perspective and in developing countries was discussed. This chapter will focus solely on e-Government in South Africa and is divided into two main sections. The first section will look at different aspects of e-Government in South Africa and includes:

- the Internet in South Africa (section 5.2.1)
- previous evaluation of South Africa government online (section 5.2.2)
- challenges facing South Africa (section 5.2.3)
- concerns about the electronic model (section 5.2.4)
- re-booting e-Government in South Africa (section 5.2.5).

The second part will discuss the South African e-Government website and will look at the various options that the users have on each of the main pages. This part of the chapter will be discussed in terms of four main aspects:

- the home page (section 5.3.1)
- the services category (section 5.3.2)
- the information category (section 5.3.3)
- other pages and links (section 5.3.4).

### 5.2 E-Government in South Africa – general description and overview

A UN Global e-Government survey, which was released in 2004, showed that the United States is the world leader when it comes to e-Government. Other countries that are also advanced include Denmark, the United Kingdom, Canada and Sweden. On the other hand, the worst are in developing countries, mostly in South-Central Asia and Africa (Mwange, 2007).

South Africa is one of the few developing countries that have made great strides in its e-Government initiative. The report shows that most developing countries are either at phase 1 (*Emerging stage*) or at phase 2 (*Enhanced stage*). Along with South Africa, India and Mauritius are a few of the developing countries that have entered into phase 4 (*Transactional stage*) (Mwange, 2007).

The importance to and commitment of the South African government to improving service delivery in South Africa was acknowledged in 1995 by the then Deputy President and former President of South Africa, Thabo Mbeki. He stated at the G8 meeting on the information society in Brussels that each citizen (no matter what his/her station in life) should participate equally in the making of national decisions.. In addition, in 2001, the Minister of Communication also stated that the South African government believes that every citizen (no matter their social class) would benefit from access to the information economy. In the budget vote speech of 2002, the South African Minister of the Department of Public Service and Administration announced his support and commitment to e-Government by announcing that there would be walk-in community centres and kiosks, where citizens would be able to access government services (Huang, Siau, & Wei, 2005).

The South African e-Government website, *South Africa Government Online*, was officially launched on 28 January 1999 at [www.gov.za](http://www.gov.za). Since then, there has been a rapid development of the website in terms of functionality and content. When it was launched, there were no direct policies or guidelines related to Web publishing, but much research has since been done in order to improve information dissemination and to ensure that the website conforms to the SA government's communication strategies (Korsten & Bothma, 2005). In South Africa, e-Government is divided into three distinct levels (Singh & Pieterse, 2005) and the focus of this section will be the national level:

- *National government.* This is the first tier of Government and is the ruling body of the country. It includes the legislative (parliament), executive (the executive council) and judicial (the courts) branches, whose responsibility it is to implement and enforce the law. The information that is available online is related to all the departments of the country, for example Department of Communications ([www.doc.gov.za](http://www.doc.gov.za)). *Provincial government.* This is the second tier of government and is related to and represents each province separately, for example the Provincial Government of the Western Cape ([www.westerncape.gov.za](http://www.westerncape.gov.za)).
- *Local government.* This is the third tier of government. Each municipality or district have been established in accordance to the Constitution and their powers and functions have been set out in the Constitution. *Basically, each city or metropolitan represents itself online, for example the City of Cape Town* ([www.capetown.gov.za](http://www.capetown.gov.za)).

### 5.2.1 The Internet in South Africa

Internet access in South Africa is growing each year but is still very slow. South Africa is estimated to have just over three million Internet users, which leaves it far behind the rest of the world. This will not change until the local telecommunication issues improve (Huang et al., 2005).

*The Goldstuck Report: Internet Access in South Africa* (2002) showed that only one in 15 South Africans had Internet access at that time. The forecasts were that there would be very marginal improvement over the following years. These results were closely related to the fact that there was a delay in licensing a second network operator and Telkom's own uncompromising attitude towards Internet service providers (Huang et al., 2005). Some of the most important findings from the report were the following (Huang et al., 2005):

- By the end of 2001 there was only one out of every 15 South Africans with Internet access while in countries such as the USA, Canada, South Korea, Singapore and Hong Kong, one out of every two people had Internet access. According to the growth rates, it was estimated that one in 10 South Africans would have Internet access by 2006.
- The Internet growth rate from the end of 2001 to the end of 2002 was less than 10% (from 2.89 million users in 2001 to 3.1 million users in 2002). This was the lowest growth rate since the Internet became available to the public in 1994.
- The goal of bringing Internet access to a proportion of people in disadvantaged areas and townships via community centres, resource centres and digital villages will continue to be underachieved.
- Although the industry at that time was facing numerous challenges, it remained steady. Only a very small number of ISPs have gone out of business through bankruptcy.

Although this survey was done in 2002, it contained significant facts that should have been (or possibly were) considered as they were closely related to the success or failure of implementing e-Government in the country.

Table 5.1 is courtesy of the *Internet Usage and Population Statistics* website and shows South Africa's Internet usage growth from the year 2000 onwards. One will notice that the penetration percentage has almost doubled from 2000 to 2006. This can be considered as one of the most significant points of the table.

Year	Users	Population	Penetration (%)	Usage source
2000	2,400,000	43,690,000	5.5 %	ITU
2001	2,750,000	44,409,700	6.2 %	IWS
2002	3,100,000	45,129,400	6.8 %	ITU
2003	3,283,000	45,919,200	7.1 %	Wide World Worx
2004	3,523,000	47,556,900	7.4 %	Wide World Worx
2005	3,600,000	48,861,805	7.4 %	Wide World Worx
2006	5,100,000	49,660,502	10.3 %	ITU

**Table 5.1: Internet usage and marketing report: South Africa (Internet World Stats, 2007b)**

### 5.2.2 Previous evaluation of South Africa Government Online

An evaluation of the South African government website was conducted between the period 14 August 2000 and March 2001. This evaluation was composed of three different research techniques: It included a heuristic evaluation of the website (evaluators examine the interface and judged it in terms of recognised usability principles); user testing (users tested the interface by using the application and this gave direct information about the exact problems encountered when using the application); and an online survey (an 18-item questionnaire was made live online between 14 August and 16 September 2000). The results of this evaluation were a combination of the results from all three methods (Korsten & Bothma 2005).

Some of the most important findings of this evaluation will now be discussed. Although it took place six years ago and some of the issues that were discovered then might have already been addressed by now, it is still interesting to see the results. It is also worth mentioning that literature, especially statistics, concerning e-Government in South Africa is still quite limited and scarce. The most significant findings from the 2001 evaluation of the government website were the following (Korsten & Bothma, 2005):

- The website did not conform to a variety of usability criteria and to the expectations of Government websites.
- The website did not adequately provide users with mechanisms that would optimally help them find the information they were seeking. This was attributed to the fact that information was badly organised, the presentation of information was fragmented, and that the website did not consider the “mental models” of the users.

- The difficulty of accessing required information also contributed negatively to the overall navigation structure of the website.
- Information was not comprehensive or current and therefore did not meet users' expectations.
- The *What's New* feature on the website was heavily criticised.
- Although design aspects were generally regarded as satisfactory, the results suggested that attention should be on the development of a clear simple interface.
- The respondents generally had a negative perception of the standard of government Web publishing, and this negatively influenced the perception of the government website.

These were the main findings of the evaluation. The conclusion was that the government website should have a more standardised approach in terms of content, navigation and design, and options for seeking information. Overall though, many aspects of the website were regarded as satisfactory and the website fulfilled its purpose (Korsten & Bothma, 2005). Once again, it is important to remember that this evaluation was conducted six years ago, and that these issues should have been considered, and the changes required should have been implemented by now.

### **5.2.3 Challenges facing South Africa**

Although South Africa has reached the transactional stage of e-Government development, there are still many obstacles that prevent it from transforming conventional government into electronic government (Huang et al., 2005).

In summary, some of these obstacles include the low number of Internet users, government departments and businesses' general fear of technology, organisations' unwillingness to spend a lot of money on the Internet, the lack of a human element in this approach, and the fear of conducting business transactions over the Internet because of a lack of a predictable legal environment governing these transactions. Another important factor is the underachieving websites themselves. They do not tend to understand or consider their customers' needs. These websites might look as if they are electronically enabled, yet generally they are not (Huang et al., 2005). In order to achieve the respected electronic model that will improve e-Government in the country, the South African government will also have to consider other challenges such as the following (Huang et al., 2005):

- determining effective methods that will ensure the protection of users' privacy when using the Internet
- legal barriers that will need to be identified, in terms of the development of the electronic model
- the required training and education of citizens in using the electronic model
- addressing the fact that government institutions, consumers, companies and SMMEs are generally unprepared for e-Government
- managing the negative socioeconomic impacts properly (e.g. job losses and other risks)

All of these obstacles have made government departments, businesses, and consumers very cautious about the adoption of e-Government. The South African government needs to support and expand the electronic model in government and industry. By addressing these issues, South Africa will be positively impacted on in the area of international and national global trading legislation (this includes global trading over the Internet). The South African government is currently in the process of addressing various issues that will improve e-government in the country. These issues are to be addressed over a ten-year period (that began around 2001) and concern the following (Huang et al., 2005):

- ICT infrastructure is very limited in the geographical areas where most of the citizens tend to live. This is a result of apartheid's separate development legacy.
- It is the suppliers (most are foreign companies) that determine the terms of ICT-related goods and services. The fact that there is low per capita purchasing power does not allow the markets to mature.
- The general education level is lower and ICT-related degrees are hard to obtain. This is one of the reasons that the country depends on imported ICT goods and services instead of developing local solutions.
- Organisations generally have little experience of using ICT. The consequence is that it takes longer to offer organisations a range of services that leverage ICT capabilities.
- It is not common for information to be shared among organisations, or even within organisations. The idea of seamless services is usually made vulnerable by the fragmented

information systems available. Some time will be required to integrate these fragmented systems.

- E-Government readiness varies considerably between national government departments, provinces and local authorities.
- There are other more pressing demands on the public service. This makes ICT development a lower priority in budget terms. The fact is that there is a large gap between the ICT development scenario and the reality, and this requires financial prioritisation.
- It is necessary to recruit and retain competent ICT professionals, yet they are in limited supply. E-Government requires these professionals to undertake planning and supervise developments.

#### **5.2.4 Concerns about the electronic model**

Electronic technology has a great influence on the way business is conducted today. This has resulted in a new marketplace in which governments need to function. This is true especially for first-world countries. In South Africa, however (and many other developing countries), there are still many concerns that prevent this type of business evolution. This can be regarded as an arena (or field) that has no conventional rules that will challenge the current practices. In order to progress and create a well-run environment for the electronic model, the South African government will need to consider all the implications related to the public sector, society and business carefully. It is also vital that all parties that will be affected by the electronic model are involved in addressing the various issues and help and support government to progress (Huang et al., 2005).

To achieve the expected benefits from e-Government, it is important to follow and implement all the functional steps. For e-Government to succeed in South Africa it has to be planned properly and there has to be total commitment to the cause. It is also essential that the government creates a coherent policy strategy for the electronic model. Some of the main concerns the South African government faces in terms of the electronic model include the following (Huang et al., 2005):

- Decisions need to be made on the governing philosophy, which guides nationwide decisions on priorities and options related to the electronic model of service delivery.
- It is necessary to determine how the electronic model will be coordinated and what organisational structure will coordinate it.

- Policies will need to be formulated that will protect businesses and consumers from the perceived risks that are involved in electronic transactions.
- Policies will need to be formulated that establish ground rules that apply to electronically based businesses at a national and international level.
- Policies will need to be formulated that will enhance the information, telecommunication and financial services' technologies and facilities. This will create a platform for participation in global e-commerce.
- Policies that will focus on promoting new business opportunities and on easing changes in the economy are also required.

To successfully tackle these key concerns, there must be a well coordinated process in place. It is also critical to have a great number of stakeholders involved from both the public and private sectors. Other secondary issues that are also of great concern are the following (Huang et al., 2005):

- *Consumer protection, privacy and security.* The South African government will need to be responsible for securing networks, access points and business-critical applications from theft, fraud, electronic abuse and mistreatment.
- *Taxation.* This will be a very complicated issue to overcome. As the electronic model grows, the question of taxation arises when it comes to electronic transactions and import duties when the transactions cross international boundaries. These new taxes are referred to as “bit taxes” and are separate from ordinary taxes.
- *Intellectual property rights and domain names.* In order to progress, the electronic model depends on the protection of copyrights and other related rights. This also includes the protection and reasonable allocation of trademarks and domain names.
- *Enhancing infrastructure.* There is a lack of infrastructure in both the public and private sectors. This has negatively impacted on the progress of the electronic model. Most of the population, who live in rural areas, have very limited or no infrastructure at all.
- *Telecommunications market and pricing policy.* It is vital that proper regulations are in place in the telecommunications industry. There needs to be fair pricing and competition for the public to benefit. The price for accessing services is an important factor for the effectiveness

and affordability of the electronic model. If this is not properly monitored, it can have a negative impact on the development of the electronic model.

The South African government will have to deal with all these issues if the electronic model of governance is to be successful. It is clear that these are very complex issues, and that it will take time to resolve them. The real benefits of e-Government will start to flourish once these issues have been addressed. Taking into account the time that is required to address these issues, the true benefits of e-Government might still be far in the future. Yet, South Africa has been making progress with its e-Government implementation and should be encouraged by the fact that it is one of the few developing countries to be in the transactional stage of e-Government development.

### **5.2.5 Re-booting e-Government in South Africa**

What can certainly be concluded is that there is no lack in terms of willingness and vision of the South African government to implement effective e-Government. Yet, the fact that the service delivery strategy at present is under evaluation by the country's governance and administrative cluster shows that the country has drifted slightly into despair. The main problem lies in the reality that there is no individual or department with the sole responsibility for implementing or overseeing strategy. Currently, the transformation of service delivery remains completely under individuals at political, administrative and technical levels alike. This needs to be addressed and government is now in the early steps for leadership in customer service. This will offer room for improvement in both e-Government and overall customer service maturity (Singh & Pieterse, 2005).

In 2005, global research conducted by Accenture's Government Executive Series on *Leadership in Customer Service for e-Government* ranked South Africa 21st out of the 22 countries that were studied. The focus of the study was on aspects, such as service breadth, depth and customer service maturity. It is clear that these are areas that require a great deal of improvement, and customer relationship management (CRM) needs to develop the strategies that will improve on this. CRM is highly involved in citizen-centric government relationships; hence it should also have an important role in the strategy for e-Government as this is closely related to e-Government service delivery. In order to progress properly into the remaining phases of e-Government implementation, it is essential to look at the current processes of citizen-delivery and transform them accordingly (Singh & Pieterse, 2005). Four key steps that will help in successfully implementing CRM in government include the following (Singh & Pieterse, 2005):

- *Begin at the top.* Projects in the business world will never succeed without proper executive sponsorship. Gartner’s research has shown that the lack of support and drive from the top is one of the main reasons for CRM failure.
- *Early adopters make the best guinea pigs.* The managerial staff who are most enthusiastic about the project and improving service should be involved in piloting any implementation. If they can demonstrate the benefits of the implementation, this will encourage stakeholders involved in the project.
- *All aboard.* It is very important that all the staff, from top to bottom, are totally committed to the concept of customer service.
- *Ask the citizen.* The goal of the overall project is to improve the service for the citizens. It is important to get them involved and let them be the “guides” of the project.

### **5.3 Description of the South African e-Government website**

In this section South Africa’s e-Government website will be described. It will focus on specific pages and the options that the users have in using them. For certain (and very limited) cases the user has the option to use one of eleven different languages on the website. The languages available on the Website are English, Afrikaans, Xhosa, Zulu, Sepedi, Sesotho, Setswana, Ndebele, SiSwati, Tsonga, and Venda.

In terms of this section, the following procedure will be followed for describing the website, which will be discussed from three aspects. The first is the “home page”; the second is “services”, while the third is the “information” category. Within the “services” and “information” categories there are other subcategories, which will also be discussed. The options (links) available to the user on a specific subcategory page will be mentioned briefly, although the link will not be followed to describe the subsequent pages. In other words, the website description may be considered to be a two-level one in terms of depth. There will also be a brief mention of other links and pages on the website that do not fall into any particular category.

#### **5.3.1 The home page**

The URL that is required to access the South African e-Government website is [www.gov.za](http://www.gov.za). Once the user has been directed to the website, he/she will be confronted with the home page. On each page of the website, there is a link called “home”, which directs users back to the home page. The

home page is divided into two main parts. In terms of this description, these two parts will be called categories from now on. The two categories are “services” and “information”. The home page is displayed in the Figure 5.1.



Figure 5.1: The home page (South Africa Government Online, 2000)

At the top right-hand corner of the home page there are four other available links. They are

- *2007 Programme of Action: 27 – 31 August*. This link is a shortcut to the “*Government’s programme of action*” page, which is a subcategory of the “*information*” category.
- *South Africa 2010*. This link directs the user to an official government website containing information on the 2010 soccer World Cup.
- *Development Indicators, June 07*. This link directs the user to a page where various indicators are discussed, including the development of the various indicators (e.g. economic growth and transformation, employment, education, poverty and inequality).
- *Crime Statistics*. This link directs the user to a page containing all types of information in crime in the country.

These four links were present at the time that the case study was conducted. It is possible that they may not be permanently displayed on the website, although it is safe to assume that the “South

Africa 2010” and “Crime Statistics” links will be available currently, but the “2007 Programme of Action: 27 – 31 August” and “Development Indicators, June 07” links will change, or at the least be updated.

### **5.3.2 The services category**

The “services” category has three distinct subcategories. Information for each service is arranged according to seven key areas: a description, steps to follow, legal framework, service standard, costs, forms to complete, and contact details (South Africa Government Online, 2000). The “services” category is divided into three subcategories: services for people, services for organisations and services for foreign nationals.

In discussing each of these, it is worth mentioning that within each subcategory there are many other links available.

#### **5.3.2.1 Services for people**

The “services for people” subcategory falls into the “services” category. As the name implies, it focuses on the various services that government offers to South African citizens and is organised according to life events, for example birth, education and training, death, transport, citizenship, youth, social benefits and so forth.

The user has to select the link that relates to the service required (e.g. death); then they will be directed to a new page containing all the relevant services and information concerning “Death”.

#### **5.3.2.2 Services for organisations**

The “services for organizations” subcategory also falls into the “services” category. As the name implies, it focuses on the various services that government offers to SA businesses and organisations. Services on this page relate to business and organisation issues. A few examples include tax, import and export, labour issues, permits and licences, starting an organisation or business and so on.

#### **5.3.2.3 Services for foreign nationals**

Again, the “services for foreign nationals” subcategory falls into the “services” category. As the name implies, it focuses on the various services that the government offers to foreign nationals. The

services and information on this page relate to the following issues: moving to SA, working in SA and entering SA.

### **5.3.3 The information category**

The “information” category has 12 subcategories. They are what’s new?, documents, about government, government departments, contact information, FAQs (frequently asked questions), events, speeches and statements, government’s programme of action, key issues, about South Africa, and search for information.

Each of the subcategories will now be discussed individually. As mentioned earlier in the “services” category, there are many other links that are available to the user in each subcategory of the “information” category. The user has to select the correct link in the subcategory to find the required information.

#### **5.3.3.1 What’s new?**

The “what’s new?” subcategory falls under the “information” category. It discusses the latest government activities and events and also includes information about tenders that are available and a listing of the latest information available on the website. Information is organised according to the main information categories available on the website, while new website features are also announced when relevant. Only the most important items are displayed on the page. If users want to read about other items that are not displayed, they must click on the “more new items” link. This page is updated regularly (one will notice the date and time that it was updated at the top of the page).

#### **5.3.3.2 Events**

The “events” subcategory falls into the “*information*” category. It discusses government events: past, present and future. These events may be viewed according to the date, category, the organisation responsible or the region in which the event was held.

#### **5.3.3.3 Documents**

The “documents” subcategory falls into the “information” category. This page contains all the various official government documents. The user can either do a search for the documents or view them according to their subject. Documents on this page relate to various aspects, such as acts, bills, the Constitution, statistics, forms, annual reports, white papers, tenders and so on.

The documents are mainly available in HTML format, although some are available in PDF format (e.g. Acts, and forms). The use of a PDF format is to preserve the original layout of the documents. In terms of Bills and Acts, those that are available on the government websites date from 1993 and onwards (South Africa Government Online, 2000).

#### **5.3.3.4 Speeches and statements**

The “speeches and statements” subcategory falls into the “information” category. As the name implies, it contains information relating to official speeches or statements presented by government, such as: State of the Nation addresses, national budgets, parliamentary media briefings (GCIS), and statements on cabinet meetings.

The user may search for this information either by year, or by the name of the government official who delivered the speech or statement. The user may also do a simple search on speeches and documents. Some are available in the form of audio files.

#### **5.3.3.5 About government**

The “about government” subcategory also falls into the “information” category. It contains general information on government, such as programme of action, vacancies, contact information, elections, national symbols and so on.

Basically, the “programme of action” and the “contact information” options are shortcuts. As mentioned earlier, these two options are subcategories of the “information” category. It is a feature of the website to find the same links on multiple pages. This can be confusing at times when searching for specific information and may cause frustration for users.

#### **5.3.3.6 Government’s programme of action**

The “Government’s programme of action” subcategory falls into the “information” category. This page discusses government’s main actions for each year and includes items such as the President’s state of the nation address, parliamentary briefings, and budget speeches. There are two links on the “home page” that direct the user to this page. The first is the “Government’s programme of action” and the second is the “2007 Programme of Action: 27 – 31 August”, which is situated at the top right-hand corner of the home page.

### **5.3.3.7 Government departments**

The “government departments” subcategory falls into the “information” category. On this page the user can find all the information needed to contact each government department. This page has a link to the website of every government department, and contains its contact information and information on the Ministry concerned.

### **5.3.3.8 Key issues**

The “key issues” subcategory falls into the “information” category. This page highlights some of the major issues of government, for example Accelerated and Shared Growth Initiative for South Africa, New Partnership for Africa’s Development, Towards Ten Years of Freedom, Partnership Against HIV and AIDS, Implementation of anti-crime initiatives, Community Development Workers and so on. Once again, there is a link to the “Government’s programme of action” page.

### **5.3.3.9 Contact information**

The “contact information” subcategory falls into the “information” category. As the name of the page implies, it contains all the contact information of all the various entities of government, for example ministries, national departments, municipalities, provincial governments and so on.

### **5.3.3.10 About South Africa**

The “About South Africa” subcategory falls into the “information” category. This page contains information on South Africa and may be considered a guide for both locals and tourists. Some of the links that are available relating specifically to South Africa include history, economy, education, tourism, transport, health, finance and so on.

### **5.3.3.11 FAQs**

The “FAQs” subcategory falls into the “information” category. This page attempts to answer the questions users ask most often. The questions are organised according to specific categories, for example, education, HIV/AIDS, travel and tourism, holidays and special days, employment, wills - trusts and the distribution of the states of deceased persons and so forth.

### **5.3.3.12 Search for information**

The “search for information” subcategory falls into the “information” category. This page helps users to find the information faster and more easily. There are three types of search option available: The first is a “simple search”, the second is an “advanced search” (this search functionality searches information on other government websites) and the third is a “VQL” search.

For a “simple search”, the user fills in the required fields, and then clicks on the “search” button and the related results are returned to the user.

In addition to these search features, there is a search box available on most of the pages on the website. When entering a search term, the complete website will be searched for any matches to the words the user typed in.

#### **5.3.4 Other pages and links**

The main pages and links of the South African government website have been discussed and summarised above. Other links and features that are generally also available on each page, and are situated either at the top of a page in the form of a menu or at the bottom of a page. These links and pages are the following:

- “*About us*”. This link directs the user to a page where the main features of the website are discussed, including information on the purpose and aim of the website, the scope of information available, the languages available, other website features, frequency of updating, ownership of information and the document formats. There is also a link for users who need help with problems that they have experienced on the website.
- “*Contact us*”. This link directs the user to a page where they can contact government to comment or enquire about the government services website. This includes an e-mail address and a toll-free telephone number. The e-mail address can be used to make recommendations and suggestions for improving the level of service on the website.
- “*Terms & conditions*”. This link directs the user to a page of terms and conditions that users need to adhere to when using the website. The information available on this page is divided into different groups and includes information in terms of usage and copyright, intellectual property rights, disclaimer, security, privacy, severability, updating of the terms and conditions, and information on the website and the owner.
- “*Sitemap*”. This link directs the user to a page where the design of the website is explained better and visual representation is given of the website structure. Available pages are listed in a hierarchical format, breaking down the site’s information into increasingly specific subject areas. This enables you to orientate yourself regarding the website’s content structure, as the user is able to see each page and all the links available on that specific page

and it helps the user to understand the website better. The user may also access any of the links on the “*sitemap*” page.

- “*Feedback*”. This link directs the user to a page where he/she may post their own comments or recommendations. The user has two options (links) on this page: the first relates to feedback concerning government information and is called “Further information on government information”, and the second relates to feedback concerning the Government Website and is called “Feedback on the website”. The user can also request additional government information that is not available on this Website.
- “*Subscribe to mailing lists*”. Some government departments' websites offer subscription services, which enable you to request specific information to be e-mailed to you on a regular basis. This page lists the services that are available on national government departments' websites.

#### **5.4 Summary**

This chapter presented a detailed overview of e-Government in South Africa. The chapter was divided into two main sections: the first discussed e-Government in South Africa in more general terms while the second focused on describing the South African e-Government website.

The first section started off by looking at SA's Internet status. A previous evaluation conducted on the South African e-Government website was then discussed, followed by a focus on the various challenges that South Africa is facing in terms of e-Government. This was followed by a discussion on the different concerns of the current electronic model and ended with a look at the different options that are available to help re-boot e-Government in SA.

The second section of this chapter described some of the South African e-Government websites categories and subcategories: “home page”, “services” and “information”. This chapter ended by discussing other pages and links available that do not fall into any particular category. Following in chapter 6, is a case study that will be conducted on the South African e-Government website.

## CHAPTER 6: CASE STUDY – THE SOUTH AFRICAN E-GOVERNMENT WEBSITE

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### 6.1 Introduction

In the previous chapter, chapter 5, e-Government in South Africa was discussed in detail by focusing on the current e-Government situation in South Africa from a more general perspective. The second part of the chapter described the main features and structure of the South African government website.

This chapter will discuss the research design process that will be used to test and evaluate the South African government website. The aim of the research is to first establish if the South African government website has elements in its design that conform to a website designed for a high-context culture or a website designed for a low-context culture. Among other countries, countries in Africa are classified as high-context cultures (section 2.3.5). According to the relative research (Timbrook, 2001; LeBaron, 2003), South Africa should be considered a high-context culture. Although South Africa does have a very diverse culture, it does tend to relate more to the values and characteristics of high-context societies rather than those of low-context ones (section 2.3.4). A survey will be conducted in this chapter to try to establish whether this statement (or argument) is accurate or not.

The evaluation of the website will also provide us with an opportunity to identify aspects on the website from a design and user understanding perspective that may need to be improved upon. This will then be discussed in results of the evaluation and proposed recommendations will be made in order to improve the South African government website in chapter 7. This chapter, however, will be divided into the following main sections:

- research hypotheses (section 6.2)
- research methods (section 6.3)
- data analysis techniques (section 6.4)
- data triangulation (section 6.5)
- South African culture (section 6.6)
- experimental design (section 6.7).

## **6.2 Research hypotheses**

Before the case study is conducted, certain research questions or hypotheses need to be formulated. These will direct the case study, as it is designed on the basis of these hypotheses. A research hypothesis can be defined as the following:

- “The hypothesis is seen as a testable statement that will account for a given set of observations. From this will emerge a theory that is a well-supported and tested hypothesis” (Van Greunen, 2002).

### **6.2.1 The formulated research hypotheses**

The research hypotheses that are listed below were derived from the anticipated goal that is of this research. The main goal of this research is to propose design recommendations that will improve the South African government website by considering Hall’s cultural-context dimension and how it relates to website design and development. The research hypotheses are the following:

- H0: Most of the elements and features in the design of the South African government website are representative of a high-context culture.
- H1: Despite the cultural differences, all South Africans have the same user-interaction approach.
- H2: The user preferences are towards a website containing design elements representative of a high-context culture.
- H3: The South African government website is designed according to government website design principles to provide efficient and satisfactory service delivery.

### **6.2.2 Techniques used to verify the formulated research hypotheses**

By investigating and determining the relevance of the formulated hypotheses, this research will be able to achieve its main objective. Table 6.1 displays the techniques that will be used in order to determine if these research hypotheses are true or false. These techniques will be implemented as part of the overall case study.

Hypothesis	Techniques
H0	Use literature that discusses elements of website design for high- and low-context cultures as a guide. Determine if these elements are apparent on the South African government website and if these elements are representative of a low- or high-context culture, in terms of website design.
H1	Use South Africans that are representative of most of the cultural groups that are available in South Africa. There should be similar results, in terms of the questions that the participants will need to answer, no matter which cultural group they represent.
H2	Use a questionnaire to get the participants' preferences in terms of design features and elements used in websites. The questionnaire will also help determine if South Africa tends to be a high-context culture or not.
H3	The UK guidelines for e-Government website development can be used as a guide to evaluate the South African government website (section 4.2.7.2).

**Table 6.1: The hypotheses with the techniques that will be used to assist in validating them**

### 6.3 Research methods

There are a number of research methods and tools that are used for IT research (Olivier, 2004). Selecting the appropriate method or tool is a decision that the researcher needs to make himself/herself and it also depends on the type of research project being conducted. It is common practice, however, for the researcher to use a combination of the various tools and methods to complete his/her research. Some of the most common tools used in IT research include literature surveys, experiments, user-centred design methods, surveys, case studies, arguments and prototypes or models (Olivier, 2004).

Thus far in this research, the literature survey method has been used. In this chapter other research methods will be used with the main research method being that of a case study in a combination with user-centred design methods such as a heuristic evaluation and ethnography. Each of the research methods that will be used to conduct this research, apart from the literature survey method, will be discussed in more detail in the following sections.

#### 6.3.1 The case study

A case study is a very useful technique for extracting a lot of information about a specific member or subject (Olivier, 2004). In this case, the subject will be the South African government website. This method offers the researcher the possibility to study the subject in much more detail than most other research methods.

Case studies also offer a holistic portrayal of clients' (or users') experiences and results when using a certain program. They help in evaluating the effectiveness of a program by identifying its strengths and weaknesses. The program's successes and failures will provide a wide range of constructive information, which will then be analysed and the trends and patterns in the data will most likely be acknowledged. Once all this data has been collected further analysis will be conducted. The results of the case study should improve the overall system, once the appropriate changes have been recommended and implemented (Mcnamara, 1997–2007).

In order to extract the information that is required, user-centred designed methods will be used as an integral part of the case study. These design methods consist of techniques, processes, methods and procedures that have as their aim the design of usable products and systems (Van Greunen, 2002). These methods focus on the users of the product(s) or system(s) by placing them at the centre of the process (Van Greunen, 2002) as indicated in Figure 6.1.

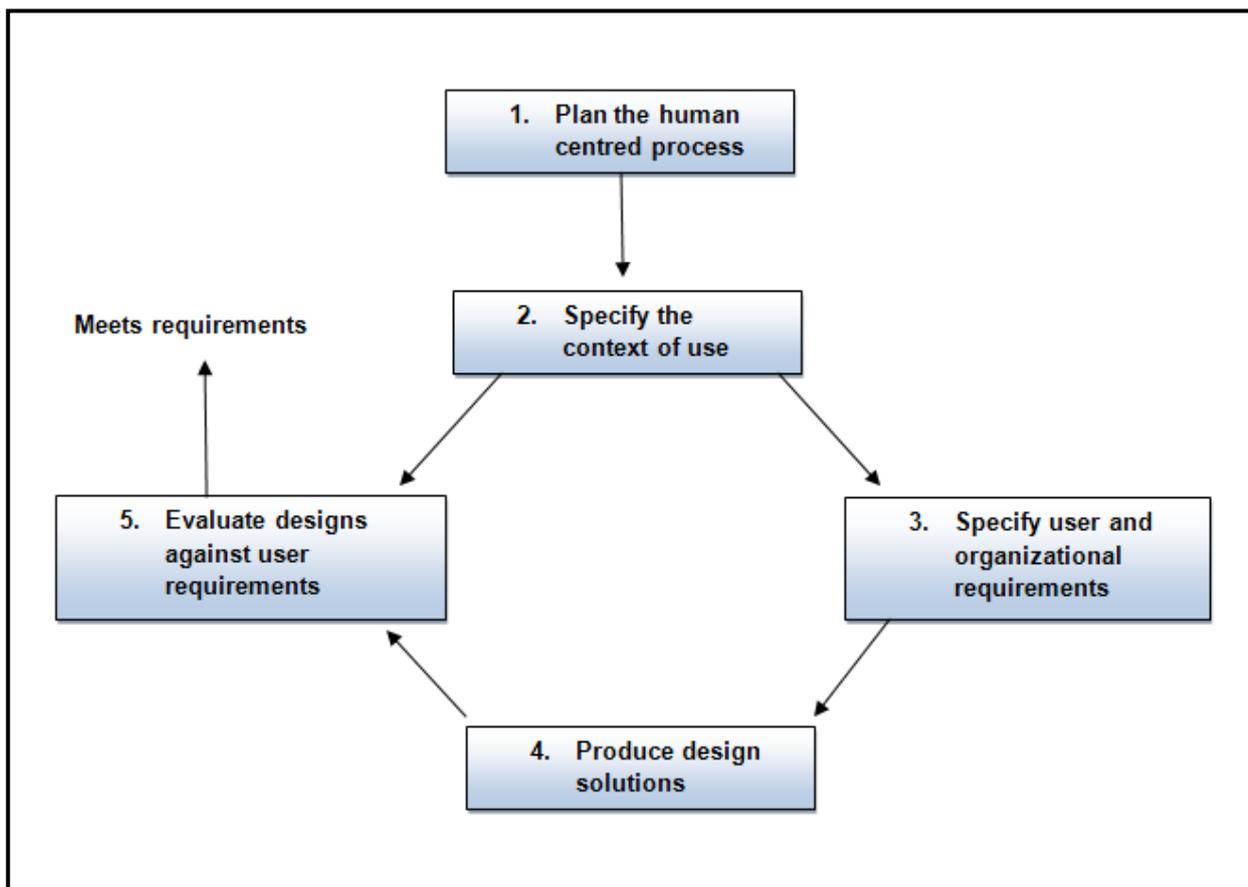


Figure 6.1: The five steps of the user-centred design process (Van Greunen, 2002)

The system that will be evaluated in this case study, the South African government website, has already been developed. Instead of using the user-centred design process to develop a system, user-centred design methods (or techniques) will be used that will evaluate an interactive system to ensure that the system has a good user-centred design. The evaluation techniques used include the following:

- heuristic evaluation
- ethnography

The combination of heuristic evaluation and ethnography will assist in collecting both quantitative and qualitative data. Both these types of data are crucial for the success of this research.

Specifically, the heuristic evaluation will produce the qualitative data. This will come in the form of the expert reviewers' satisfaction in terms of how thoroughly the South African e-Government website adheres to the e-Government design guidelines proposed by the UK Government. Qualitative data will also be collected by examining whether the South African e-Government website has elements in its design that conform to a website designed for a more high-context culture.

Quantitative data will be gathered by means of the background information provided by the participants themselves. This data will be extracted through a survey. The survey, in the form of an online questionnaire, will help determine whether the South African population has a high-context culture in terms of the cultural-context dimension, and whether they prefer more high-context design styles, elements and features in the development of a software product. Logically, if South Africa is proved to be a high-context culture this should be the case.

### **6.3.2 Heuristic evaluation**

This user-centred designed method is regarded as an analytical evaluation method. It is undertaken by usability experts, who use a specific set of heuristics or principles to evaluate the usability of a product. This method is widely used because it is a very good method of diagnostic and perspective analysis for finding individual problems (Bernardo, 2005; Wikipedia-C, 2007).

To be more specific, the purpose of the heuristic evaluation is to identify problems that are associated with the design of the user interfaces. This method was developed by usability

consultant, Jacob Nielsen. By making use of an expert review, an immediate analysis of the website or Web application is provided, which helps to correct confusing elements in the current design and leads to enhanced user experience (Straub, 1996–2007). Table 6.2 displays some features, along with their benefits, that are part of the expert review process.

<b>Features</b>	<b>Benefits</b>
A structured walkthrough of typical tasks by the expert reviewer(s)	Quick identification of ergonomic issues
Analysis of interface architecture and page flow efficiency (e.g. navigation bottlenecks)	Consistency in task flows and a match between the task flow and the screen flow
Critique of detailed design issues (e.g. page layout, controls selection, colour and wording)	Organisation of content so that users will comprehend the message and complete their task quickly
Prioritised list of selected and specific design changes	Suggestions, when implemented, will reduce errors, improve navigation, decrease training, and improve overall customer satisfaction

**Table 6.2: The features and benefits of an expert review (Straub, 1996–2007).**

### 6.3.2.1 The heuristics

For this particular research, the expert review that will be conducted has two potential goals. In order to achieve these goals the expert review will be divided into three sections:

- Section 1: Biographical information. This section of the questionnaire focuses on the expert reviewer's biographical details. The section includes 6 items.
- Section 2: Cultural-context heuristics. This section focuses on the design aspects and styles of the South African e-Government website, which will help determine if it is designed for a high- or low-context culture. This section includes 8 core section items. There are a number of sub-items within each core section item.
- Section 3: e-Government heuristics. This section's main focus is to determine if the South African e-Government website has followed the UK Government's key guidelines and recommendations for e-Government website development, for its own development. As with Section 2, this section also includes 8 core section items. There are a number of sub-items within each core section item.
- In addition, there are three items in Section 2 (3.2, 8.4 and 8.8) that have no direct relation to either culture-context or e-Government. However, they are still critical for the usability and proper design of any website. These items test whether the site takes into consideration the

different skill levels of the users, whether the site uses understandable and simple language, and whether it is multilingual – a very important heuristic in the design of a cultural website (Minerva Working Group 5, 2005). These items are important for the overall improvement of the site and are certainly worth evaluating.

The first goal of this expert review, which will be testing hypothesis H0, has the aim of investigating whether the South African government website has characteristics in its design that conform to those of a high- or low-context culture. The elements that will be used to test this hypothesis are mainly in the form of Wurtz's parameters for high- and low-context design in websites. Other elements of high- and low-context website design, as proposed by other researchers, will also be included. However, the heuristics created for this evaluation, will be largely based on Wurtz's parameters which are displayed in Table 6.3.

Number	Parameter
1	Animation
2	Promotion of values
3	Level of transparency
4	Linear vs parallel navigation on the website

**Table 6.3: The parameters used to distinguish high- and low-context websites (Wurtz, 2006)**

The second goal, which will be testing hypothesis H3, has the aim of investigating whether the South African government website has been designed according to e-Government website design guidelines. The heuristics that will be used to evaluate this hypothesis have been drafted from the UK guidelines for e-Government website development. Table 6.4 displays these summarised guidelines.

Number	Guideline
1	Government websites should focus on their users. It is recommended that they follow the guidelines for website accessibility by the World Wide Web Consortium (W3C) and the Web Accessibility Initiative (WAI) guidelines, to achieve accessibility.
2	The various Government websites need to be connected as one entity. It is compulsory to follow the e-Government Interoperability Framework (e-GIF) and work with the Government Gateway to provide the online services.
3	Government organisations should be working to produce all of their services online
4	The users should have reasonable expectations about the quality, accuracy and uniformity of the government content.
5	The government websites should follow legal procedures and explain their terms and conditions explicitly to the citizens, as this may raise user confidence in the system.

Number	Guideline
	Websites should also follow the Trust Charter for Electronic Service Delivery (e-Trust Charter) guidelines.
6	Government websites are expected to be two way with regards to communication.
7	Government websites should be able to operate through a full range of channels (including digital interactive TV and mobile devices)
8	Government websites should have the tools in place that evaluate the system (to check whether it meets users' needs).
9	Government websites should provide metadata on their documents. This will help in document archiving and retrieval. It is essential to follow the e-Government Metadata Framework (e-GMF).
10	Government websites need to be properly managed. Maintenance and updating are also necessary.

**Table 6.4: The UK e-Government website development guidelines (Cabinet Office, 2004)**

In conclusion, the overall purpose of the expert review will be to firstly verify whether the South African e-Government website conforms to a design for a high- or low-context culture, and secondly, to discover if the South African government website has followed e-Government website design guidelines. The results of this should be that the expert review will help to confirm or reject hypotheses H0 and H3.

#### **6.3.2.2 Expert reviewers' selection**

The competence of the expert reviewer(s), who will be conducting the heuristic evaluation, is vital, as the results of the heuristic evaluation are greatly influenced by the knowledge of the expert reviewer(s). It is recommended that about five evaluators, and certainly a minimum of three, should be used. It is definitely beneficial to use as many evaluators as possible, but this obviously depends on the cost-benefit analysis (Nielsen, 1993).

For the purpose of this expert review, a total of six expert reviewers were selected to examine the South African e-Government website. These expert reviewers are usability practitioners and user-interface design experts representing both academia and industry. They are also based in different parts of South Africa.

#### **6.3.2.3 Limitations of heuristic evaluation**

The expert review was an attempt to determine two important facts about the South African e-Government website: is it designed for high- or low-context users and did it follow the proper guidelines for its development? This required a wide range of research and knowledge extending

mainly to the fields of the cultural-context dimension with regards to Web design and e-Government.

However, despite the attempt to make the expert review as accurate, clear and understandable as possible, there may be a number of factors that could have influenced the results of the test. These factors were essentially pointed out by the expert reviewers themselves in the form of comments. These are discussed briefly according to their section in the expert review and include the following:

#### Section 2 - CULTURAL-CONTEXT HEURISTICS:

- The items focusing on the home page (4.1 and 4.2) of the South African site caused uncertainty and minor confusion. The experts pointed out that in essence, there are actually three home pages on the site (Government Portal, Government Information and Government Services). It was necessary to clarify which home page is being evaluated. Here the questions focused on the Government Portal home page.
- The items focusing on the colours (5.1 and 5.2) of the South African site also caused confusion. The intent was to discover whether the site is designed firstly with bright colours and secondly with a combination of multiple colours (which need not be bright). For low-context styles, bright colours would be avoided. In addition, the use of multiple colours (which are not bright) would also be avoided. The results show that these items needed to be rephrased and explained more thoroughly.
- For item 7.3, none of the reviewers actually attempted a task that would efficiently evaluate this heuristic. They evaluated this heuristic according to the privacy and disclosure statements available on the site.
- For item 8.2, language needed to be better phrased and clearer (specifically, it would be better to use the words “too large” than “too heavy” in relation to the sizes of the files). Certain reviewers were not able to test this heuristic adequately owing to bandwidth limitations.
- For item 8.4, language needed to be better phrased and clearer (e.g. the phrase “formal language”).

- There was minor confusion with items 2.1 and 2.2 owing to the fact that gathering information can also be regarded as accomplishing a task from the user's perspective.

#### Section 3 - e-GOVERNMENT HEURISTICS:

- It may have been more practical and helpful to add the Yes/No/NA options as well, in addition to the severity rating scales for each item.
- For item 3.3, language needed to be better explained and clearer (e.g. the word "metadata").
- The items focusing on the analysis (4.1 and 4.2) of the South African site required more explanation. The reviewers were interested to know how the site would be improved by determining and evaluating these items.

In conclusion, the expert reviewers were very helpful and informative. They spent a lot of time and effort evaluating the South African e-Government website. In addition, they provided plenty of useful and constructive comments relating to all items of the expert review. Their feedback was remarkable and very significant in the attempt to improve the overall site.

#### **6.3.3 Ethnography**

Ethnography is derived from the anthropological practice of immersion in other cultures with the intent to understand and express social reality about the tested culture (Van Biljon, 2006). Ethnography is also commonly known as participant observation and is used when the emphasis of the study is on a certain culture, rather than just on testing an application, as is the case with user testing.

In ethnography, the research participants are treated as a "foreign tribe", while the researcher acts as an anthropologist who is studying the culture of this "tribe" (Van Biljon, 2006). These research participants are studied in their natural settings or fields (Olivier, 2004), despite the fact this can result in a biased understanding of the activities conducted from the informants' perspective (Van Biljon, 2006).

In order to conduct ethnography, it is important that the researcher is part of the community that is being studied. One can only understand how a community operates if the researcher himself/herself experiences that culture as a member (Olivier, 2004). In this research, the South African culture will

be examined, which conforms to fact that the researcher needs to be part of that culture in order to understand it. The ethnography research method will be applied in the form of a survey.

A questionnaire will be developed as part of this method. The main goal of this questionnaire will be to determine whether South Africa is essentially a high- or low-context culture. The questionnaire will include biographical information on the participants and will contain a number of questions, which will test the high- and low-context dimension in terms of society and Web design.

To test the cultural-context dimension for Section 4, questions that assess the polychronic vs. monochronic, collectivism vs. individualism and time-orientation culture dimensions were taken from an existing survey (Ford, 2005). Questions were also drafted from the literature survey conducted in chapters 2 and 3, relating to the values and characteristics of high- and low-context cultures (section 2.3.4). Richardson and Smith's (2007) questionnaire, which tests the cultural-context dimension, was also used as part of Section 4. This questionnaire will help determine whether hypothesis H1 is accurate or not.

The questionnaire serves two objectives, namely to determine the cultural-context behaviour and to discover the type of design features preferred by South African users. As a result, design recommendations may be provided not only for software design in South Africa but for other cultures as well. To clarify this, the questionnaire should show, firstly, whether South Africa is a high-context culture or not. It will then determine the design features that better suit the local population. If South Africa is proven to be a high-context culture and its users do prefer high-context design styles in their software products, the opposite types of design style will apply to cultures of a more low-context nature. This will also help determine if hypothesis H2 is accurate or not.

#### **6.3.3.1 The online questionnaire**

As mentioned previously, the questionnaire is used as part of the ethnography method. It is important, however, to take into account the following two aspects when designing a questionnaire, as these factors may impact on the user results. These aspects are the following (Bernardo, 2005):

- Do not make the questionnaire too long because the response rate will be very low.

- Questionnaires can be time consuming because pilot studies will have to be conducted first to eliminate any potential misunderstandings that may arise.

On the other hand, there are also advantages of using a questionnaire. Some of these advantages include the following (Bernardo, 2005):

- There are few costs involved when it comes to copying and issuing questionnaires to people. One can also use the Internet to distribute them at low cost and at the same time get a large response (the Internet will be used in this research).
- Questionnaires are versatile because they may be used at any stage of the design process.
- It is possible to make use of anonymous questionnaires. These can prevent investigator bias when getting the results from the participants.
- Questionnaires may be used repeatedly and can also be used to collect information concerning subjective user preferences.

The questionnaire that was created for the purpose of this research was titled “The cultural-context dimension and user-interface design”. The questions have been drafted by studying the cultural-context dimension and its relation to Web design. The questionnaire has four main questions (or parts):

- Question 1: Biographical information. This section of the questionnaire focuses on the South African participants’ biographical details. The section includes 7 items.
- Question 2: Culture-related behaviour in Internet usage. In this section, the focus is on the South African participants’ cultural behaviour when using the Internet in general. This includes the use of any type of website (e.g. sports, commercial, etc.) except government ones. These will be referred to as “all purpose websites” from here on. The section includes 23 items.
- Question 3: Culture-related behaviour: government websites. In this section, the focus is on the South African participants’ cultural behaviour when using the government website in particular ([www.gov.za](http://www.gov.za)). The section includes 17 items.
- Question 4: General culture-related behaviour. The focus in this section is on the South African participants’ cultural behaviour in everyday situations. This section has no relation

to IT and typically describes the way South Africans live and understand life (via the use of other cultural dimensions). However, all the items are connected and aligned to the cultural-context dimension. Items that analyse the participants' perceptions of three different aspects of life are used here. This includes their preferences in terms of the culture dimensions which assess monochronic vs. polychronic time, individualism vs. collectivism, and long- vs short-term orientation. There are also a number of items that focus distinctively on the cultural-context dimension. As mentioned earlier, the work of Ford, and Richardson and Smith was mainly used in this section and proved to be most valuable. The section includes 24 items.

It is important to explain that Question 2 and Question 3 contain very similar items (not all the items from Question 2 relate to Question 3, however, which is why there are fewer items in Question 3). In Question 2, the items focus on all purpose websites but in Question 3 they focus specifically on those of government. The reason for this is that although it may be proven that South Africa is a high-context culture and that South African users generally prefer websites that are designed with more high-context features, for government websites this might not be the case. When using government websites, South Africans may favour a low-context design. Some of the most important facts, among others, that will be distinguished through this questionnaire are:

- Is South Africa a high- or low-context culture?
- Do South Africans prefer high- or low-context designs for all purpose websites?
- If South Africans generally prefer high-context design websites, does this apply to the South African government website as well (or to government websites in general)?

The questionnaire is discussed in more detail in the Appendixes. Appendix H displays the actual questionnaire, as it was presented online. Appendix I describes the raw data of the questionnaire. Appendix J provides a brief summary of the overall results. For a more extensive overview of the results a CD has also been provided. The CD contains all the answers provided by each participant for each item of the online questionnaire.

### **6.3.3.2 Designing the online questionnaire**

The objective here is to explain the procedures that were followed in order to verify how well designed and structured the overall questionnaire was. It was a constant trial-and-tested based method that eventually led to the design of the final online questionnaire.

At first, it was decided that two different questionnaires would be implemented. The first questionnaire was an existing questionnaire designed by Aaron Marcus and Baumgartner, called “The 29 culture dimensions” (Baumgartner, 2003). This questionnaire focuses on all 29 culture dimensions and how important they are in the field of user-interface design.

In this research, the participants who were selected to complete the questionnaire were individuals working in the field of user-interface design. They were given a definition for each of the 29 culture dimensions and they had to rate these dimensions in terms of how important they thought the dimensions were in the field of user-interface design. The aim of the questionnaire was to determine which cultural dimensions are the most important in the field of user-interface design. This questionnaire worked well for them and the results showed that the cultural-context dimension was the most important culture dimension in the field of user-interface design.

The initial idea was to use “The 29 culture dimensions” questionnaire as part of the overall survey and apply it the South African context (however, there had been a small percentage of South African participants in the original survey). The reason for this was to establish whether the participants’ from the field of user-interface design in South Africa would also rate the cultural-context dimension as one of the most important culture dimensions in the field of user-interface design.

This questionnaire was then distributed to three different individuals from the field of user-interface design, each from three different provinces. The feedback from the three participants on the whole was not good. One of the participants managed to complete the questionnaire but was not able to answer five of the questions. The other two participants were not able to complete the questionnaire.

The immediate reaction to this problem was to try and modify the questions from the original questionnaire, which could be accomplished by making the questions clearer and simpler. This turned out to be a daunting task, however. By trying to make the culture-dimensions definitions simpler the actual meaning of the dimension was also modified and it seemed too much of a risk to

tweak these definitions, as this might possibly have produced inaccurate results. Eventually, it was decided that “The 29 culture dimensions” questionnaire would be dropped from the overall survey.

The second questionnaire (discussed in section 6.3.3.1) would now be the only questionnaire. This questionnaire had to be designed by studying the cultural-context dimension thoroughly, including studying the cultural-context dimension from two different perspectives: anthropological and ICT.

Other work relating to culture and user-interface design in general proved most valuable, as there was a paucity of work available relating to the cultural-context dimension and user-interface design in particular. The work on Hofstede’s culture dimensions in relation to user-interface design was especially important. Hofstede’s two dimensions, individualism vs collectivism and short- vs long-term orientation specifically, had a crucial role to play in this research. A fair amount of work had already been done on these two dimensions in terms of their relation to Web design and the two also relate heavily to the cultural-context dimension. These two culture dimensions served as a guide throughout the research.

The initial questionnaire included sections on participants’ biographical details, general cultural behaviour in terms of Internet usage and general cultural behaviour in life. All these sections were related to the cultural-context dimension. The questionnaire was then sent to a person with the relevant experience in the field of user-interface design. The overall impression was satisfactory. However, it was then proposed that an extra section would need to be added that would focus specifically on the participants’ cultural-behaviour when using the government website (discussed in section 6.3.3.1).

### **6.3.3.3 Participants’ selection**

It is always very important to select appropriate participants in order to obtain appropriate results. In most such cases, especially the field of user-interface design, the intended participants will be the individuals who will be using the program on a regular basis. The users have the most important role in the design of a software product and it is essential for software designers and eventual users of the software to work together.

In the case of this questionnaire, it was imperative to get the involvement of as many different cultural participants as possible, with the only main requirement being that they were all South

African citizens and at least 18 years of age (age eligible to vote). The questionnaire went online and was accessible to any South African citizen. Two secondary requirements were that the participant had a computer and an Internet connection. There were no questions regarding the users' previous experience with computers or the Internet, as it was assumed that the participant would have had a certain degree of experience in both areas in order to complete the online questionnaire.

The questionnaire does take into consideration other demographic variables. The individuals who participated in the survey were filtered on the basis described in Table 6.5 (the "Item numbers" column gives the actual item numbers as presented in the online questionnaire).

<b>Demographic variable</b>	<b>Item number</b>
Gender	1.1
Home language(s)	1.2
Education level	1.3
Age group	1.4
Occupation	1.5
Province of residence	1.6
Frequency of access of SA government website	1.7

**Table 6.5: Demographic variables assessed in the online questionnaire**

The intention was to get a general indication of the South African culture (in terms of the cultural-context dimension), considering its great diversity. It is anticipated that despite this diversity, a general South African culture should have been adopted and this will be portrayed through the questionnaire results, which should follow a common trend for each and every question.

#### **6.3.3.4 Limitations of online questionnaire**

The online questionnaire was a valiant attempt to justify the South African cultural profile in terms of the cultural-context dimension. It required a broad horizon of research and knowledge to create this questionnaire, as the relevant literature was very limited and even non-existent at times. In order to create this questionnaire a thorough study of the relevant literature (cultural-context dimension) was conducted, as well as a study of other cultural dimensions (Hofstede's in particular).

These dimensions were investigated from the perspective of their role within a society (anthropological perspective) and in terms of their impact on Web design (ICT perspective). A combination of this work assisted in the conception and formation of the online questionnaire.

However, despite the attempt to make the questionnaire as precise and comprehensible as possible, there may have been a number of aspects that could have influenced the results of the experiment.

In brief, these include

- educational and socioeconomic background of the participant
- the online questionnaire should have focused on a more specified sample group (e.g. IT students in the Eastern Cape), as this would have improved the credibility of the overall survey. However, the intention was to get a general sample of South Africans.
- jargon language (ICT terms). This may have made certain items unclear to the typical participant. There was a major attempt to avoid this as much as possible (e.g. process- vs. goal-oriented website when comparing Q2-8 and Q3-7).
- total numbers of responses were less than generally anticipated. The expectation was to get around 100 participants. This is the main reason why an online questionnaire was implemented.
- length of the questionnaire. It was mentioned earlier that one needs to take into account the length of the questionnaire. The online questionnaire included a total of 71 items, which is fairly long. However, these items all had to be included in order to get concise accurate results on all the perspectives that were being examined. It was difficult to eliminate any items.
- the items, especially from Question 4 (General culture-related behaviour), may have caused some confusion and hesitation. In relation to this, certain items throughout the questionnaire were rephrased, yet focused on the same key points. This was an attempt to confirm that the participant had understood the related items. If they did, the responses would have been similar for all the associated items. On the other hand, this may have also misled them at times.
- as mentioned previously, items from sections 2 and 3 were very similar. However, section 2 focused on all purpose websites while section 3 focused on government ones, which is an exceptionally significant difference. This could have also caused confusion for the participants. It might have been better to inform them about this with a small notification beforehand, as well as what the purpose of each section was.
- more examples may have been required for each item so that the participant could understand the exact intention and purpose. However, the questionnaire was already long

enough and adding more to it may have had a negative impact on the participants' intentions to answer all the items.

- the results showed that close to half of the participants had not used the SA e-Government website before. In essence, one may assume that they answered the related section's items on the way they would prefer the site to look and be designed – even if they had used it before. In reality, all the questionnaires of participants who had not used the site before would probably have been dropped from the overall survey. They were all used in this research however because their preferences and opinions are regarded as useful and valuable, even though they had not used the site.
- although the participants must have had some IT and Internet experience in order to access the online questionnaire, this may not have been enough for them to understand the design elements and features that were being examined in certain items

#### **6.4 Data analysis techniques**

The data analysis techniques used will assist the research investigation in terms of the analysis of the results. This analysis will determine whether usability problems do exist on the South African government website in relation to the cultural-context and e-Government development heuristics. When these issues have been resolved, one may then provide recommendations for addressing the identified problems (Barnum, 2002).

At the same time, the analysis techniques will also determine whether South Africa is a high-context culture and if South African users require a different design approach when using government websites in comparison to all purpose ones. The data analysis techniques that were used for the online questionnaire and the heuristic evaluation will now each be discussed individually.

##### **6.4.1 Online questionnaire data analysis techniques**

The questionnaire was designed mainly using the Likert scale method. Question 1 of the questionnaire (Biographical information) had “choice” questions. All the items from Question 2 (Culture-related behaviour in Internet usage), Question 3 (Culture-related behaviour: government websites) and Question 4 (General culture-related behaviour) followed the Likert scale approach.

Most of the items from Questions 2, 3, and 4 were quantified on a five-point scale. There were two items from Question 2 and two items from Question 3 that used the “options” approach. Each participant had to evaluate each question according to their own opinions using the following quantitative measures from the five-point scale: Strongly Agree, Agree, Not Sure, Disagree, and Strongly Disagree. Figure 6.2 displays an example of an item from Question 2 that uses the Likert scale approach.

2.1 I do not like browsing through a menu on a Web site: I want to go directly to the link containing the information I want to read or the task I need to do.

Strongly Agree  Agree  Not Sure  Disagree  Strongly Disagree

**Figure 6.2: Example of item Q2-1 from the online questionnaire**

It is already assumed that South Africa is a high-context culture. Therefore, in order for the answer to a specific question to fit the high-context profile, the participants’ answers are anticipated and the majority of answers should lean towards one side of the scale (either “Agree” and “Strongly Agree” or “Disagree” and “Strongly Disagree”).

An example of this will help to make it clearer. If one looks at Question 2.1 (in Figure 6.2), in order to fit the high-context profile the anticipated answers for this question specifically would be either “Disagree” or “Strongly Disagree”. In the case of the example, the selected answer is “Strongly Agree”, which matches the low-context profile and, as a result, contradicts the high-context profile. If the participant selected “Agree” it would still match the low-context profile.

In terms of the results, descriptive and inferential statistics will be used as the main sources of analysis. Descriptive statistics assist the researcher to understand more about the research data. In short, they help the researcher to organise and summarise the data (McHugh & Villarruel, 2003). This can be accomplished by means of tables and graphical displays (Trochim, 2006).

Descriptive statistics are commonly used in two ways: firstly, in the form of an end point in the data analysis, which occurs in purely descriptive studies or, secondly, in the form of a starting point in

the data analysis, which occurs before testing certain hypotheses with inferential statistics in the experimental research (McHugh & Villarruel, 2003). The difference between the two is that with inferential statistics one's efforts attempt to reach conclusions that extend beyond the direct data alone, namely to the population from which the sample was drawn; while in descriptive statistics one is simply describing what the data portrays. Both of these techniques are recognised as quantitative methods for analysing data (Trochim, 2006).

For the purpose of this research both statistical methods, descriptive and inferential, will be used in combination so that the one complements the other. In other words, the descriptive statistics are used to summarise and explain the data, while the inferential statistics will draw conclusions from the results and at the same time be used to prove that what is discussed from a descriptive perspective is accurate and verifiable. In addition, the inferential statistics will test the validity of the formulated hypotheses.

The techniques that will be used for the descriptive statistics include

- graphs
- frequency tables
- means, standard deviations
- factor analysis
- reliabilities

The graphs that will be used are in the form of bar charts. They will represent the data for the "Biographical information" section (Question 1) of the questionnaire. The frequency tables will be used to summarise the responses as frequency counts and percentages, while the means and standard deviations will provide summary measures of location and spread.

Factor analysis is a technique used to explain the interdependencies among observed variables by means of fewer unobserved variables, which are called factors. Once this information is obtained, it can be used to reduce the set of variables in the dataset. This is used in both the behavioural and the applied sciences when dealing with large quantities of data (Wikipedia-J). For the purpose of this research, factor analysis is used to reduce a large number of related items to a much smaller number

of themes or factors measured by the items. The items subjected to factor analysis are items 4-11 to 4-24.

Reliabilities are used to determine the consistency of a set of measurements or a measuring instrument, which is often used to describe a test. It is important to remember that it is used to measure whether something is consistent, but at the same time this does not imply that it is valid (Wikipedia-K).

Cronbach's coefficient alpha is the statistic that will be used to measure the reliability of certain questionnaire items. This statistic will be close to the value of 1 when the correlations between items are high and close to the value of 0 when there is no or a low correlation. This coefficient is also referred to as the internal consistency reliability of the test (Wikipedia-L). It is widely accepted that values greater than 0.7 are acceptable while in descriptive studies this value can be lowered to 0.6.

The techniques that will be used for the inferential statistics include

- single sample t-tests
- pairwise t-tests
- effect sizes

T-tests are basically used to determine if a difference is statistically significant or not. In addition to single sample t-tests there are also independent and two sample t-tests available (Wikipedia-M). In this research study, the single sample t-test will be used to compare the mean of a sample to a fixed estimate, which will be the number 3. If the mean is close to 3 it iterates that on average there is no tendency for the respondents to lean towards any side of the scale (whatever the case that item may be measuring). If the mean differs from the fixed value (the number 3), a significant result has been established (Wikipedia-M).

The side the tendency leans towards will determine the result (e.g. high- or low-context, polychronic or monochronic time, individualism or collectivism, short- or long-term orientation). This test will be used to measure the items from the "General culture-related behaviour" section (Question 4) of the questionnaire which focuses on the individualism vs. collectivism and short- vs.

long-term orientation culture dimensions. These include the items 4-1 to 4-10. In addition, it will be used to measure the mean of each item from the “Culture-related behaviour in Internet usage” section (Question 2) and the “Culture-related behaviour: government website” section (Question 3) of the questionnaire. This will determine whether South African users prefer a high- or low-context design for their general Internet usage and for their government website usage respectively.

The pairwise t-tests will also be used to determine if a difference is statistically significant or not; however, in a pairwise t-test, two variables will be compared for a single sample. In terms of this research, the sample group is the same (conforms to a single sample) and it is being evaluated from two different perspectives: all purpose and government websites (conforms to two variables being compared).

The pairwise t-tests will be conducted to verify if South African users perceive government and all purpose websites in the same way. In these tests, two corresponding items from government and all purpose websites are compared. The five-point Likert scale will then be treated as an interval scale, which will assist in identifying any significant differences between the two items.

The effect sizes are used in conjunction with the single sample and pairwise t-tests. Their purpose is to measure the size of the difference that exists between the means of two variables. In addition, in knowing the statistical significance of an effect it is useful to have a measure – the effect size – that will inform one whether a statistically significant difference is also one of practical concern, which in turn will establish whether the observed difference is one that actually matters (Wikipedia-N).

There are different measures that may be used to calculate the effect size. An appropriate measure that is used in the context of a t-test on means is Cohen’s d (Wikipedia-N). The guidelines that are used for the interpretation of Cohen’s d are the following (Cohen, 1969):

- values in the region of 0.2 –small effect size
- values in the region of 0.5 – medium effect size
- values in the region of 0.8 – large effect size

In conclusion, from an inferential statistics perspective, the single sample and pairwise t-tests will verify whether there is a statistically significant difference in the tested item(s), while the effect size will determine whether there is also a practically significant difference in the tested item(s). One will need to keep in mind that, although a statistically significant difference may be observed, this does not indicate that the difference will also be of a practically significant magnitude. When the difference is determined as being practically significant, it may have an impact on the results and require more immediate attention. In other words, the statistical difference will determine whether the participants' answers match the criteria of high- or low-context individuals, but it is the practical significance that will determine how effective this classification actually is: it will make clearly evident the high- or low-context evaluation (e.g. the participants' responses for a selected item may suggest a slight/tentative/strong tendency towards a high- or low-context culture). The practical significance may be regarded as the scale of the backup and the importance of the statistical significance of a specific item.

#### **6.4.2 Heuristic evaluation data analysis techniques**

Severity ratings are used as a guide for allocating resources to fix the most serious problems of a software product. They also determine whether additional usability efforts are still required before a software product is released (Nielsen, 1995). If, for example, the severity ratings show that the product has certain disastrous usability problems, it would be advisable not to release it. On the other hand, if the usability problems are considered to be of a cosmetic nature, one might decide to still go ahead with the release (Nielsen, 1995).

Nielsen (1995) has identified a combination of three factors that determine the severity of a usability problem: the frequency with which a problem appears (common or rare), the impact of the problem if it occurs (easy or difficult for a user to overcome) and the persistence of the problem (one-time problem or will users repeatedly be bothered by it). However, Nielsen also makes reference to the market impact of a problem. He claims that it may have an overwhelming impact on the popularity of a software product, even if the usability problems are very limited. One should nonetheless, take all four aspects into consideration for the severity rating scale, as this will prioritise decision making for each usability problem.

In terms of the cultural-context heuristics for the South African government website, the Xerox Heuristic Evaluation method will be followed. The objective of this expert review is to determine whether the design elements of the site are of a high- or low-context nature. This is mainly achieved by applying appropriate ideas from the literature that was studied to develop the heuristics, which will test the cultural-context status of the site. By identifying whether or not the examining design elements are apparent on the site the expert reviewers will determine the site's cultural-context nature. The following three-point method will be used to analyze each one of these heuristics (Barnum, 2002):

- **Yes:** if one agrees with the question/statement in relation to the South African government website.
- **No:** If one disagrees with the question/statement in relation to the South African government website.
- **N/A:** If one believes that the question/statement is not applicable to the South African government website.

The reviewers are also able to enter any optional comments relating to each specific heuristic being examined. At the same time, the expert reviewers have an opportunity to make any suggestions that may help improve the site.

Nielsen's market impact factor provides the essential basis for this section of the expert review. It is used as a method to analyse the website from the perspective of cultural-context heuristics in order to make it more fitting for South African users. As a result, it attempts to make the product more popular with its intended users.

In terms of the e-Government development guidelines section of the expert review, Nielsen's five-point severity rating scale that will be used to evaluate the heuristics for the South African government website. The objective of this expert review is to determine whether the recommended e-Government website development guidelines, as proposed by the UK Government, were followed during the development of the South African e-Government website. In this section of the expert review the focus is on all the factors that contribute to the severity of a usability problem. Nielsen's severity rating scale is as follows (Nielsen, 1995):

**0** = I don't agree that this is a usability problem at all

**1** = Cosmetic problem only: need not be fixed unless extra time is available on project

**2** = Minor usability problem: fixing this should be given low priority

**3** = Major usability problem: important to fix, so should be given high priority

**4** = Usability catastrophe: imperative to fix this before product can be released

## 6.5 Data triangulation

Data triangulation is defined as the combination of methodologies in the study of the same phenomenon (Jick, 1979). This will ensure that the variance reflected is due to the trait rather than the research method. The results will then be valid and not the outcome of a methodological artefact (Jick, 1979).

In essence, when combining primary with secondary data the outcome is data triangulation. This provides one with the opportunity to verify one's findings (e.g. a piece of data, a generalisation) using several different research methods. This will in turn add more credibility and value to one's findings (Driscoll, 2006). The primary data is that which is collected by the researcher himself/herself. Data that originates from other sources, other from the researcher himself/herself is referred to as secondary data (Livesey, n.d.).

As mentioned in Chapter 1, this study will use a combination of quantitative and qualitative research methods. The purpose of the quantitative methods is to measure (quantify) the relationship between two or more things and then attempt to present this in a statistical or numerical format. On the other hand, with qualitative data the intention is to identify the quality of the relationship that exists between two or more things. It relates directly to the researcher's intention to make sense of the interpretations, as well as to assign meaning to the way people do and understand things (Livesey, n.d.). Many share the view that quantitative and qualitative methods should be used together in order to complement one another, rather than to rival each other (Jick, 1979).

Research method	Quantitative method	Qualitative method
Literature survey		<input checked="" type="checkbox"/>
Case study		<input checked="" type="checkbox"/>
Ethnography	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Heuristic evaluation	<input checked="" type="checkbox"/>	

**Table 6.6: The qualitative and quantitative research methods used in this study**

Table 6.6 displays the research methods used in this study and then attempts to categorise them as a quantitative or qualitative. A literature survey is a source of secondary data and is therefore regarded as a qualitative method (Livesey, n.d.). A case study is widely accepted as a form of qualitative research as well (Myers, 1997). Ethnography it is strongly regarded as a qualitative research method (Myers, 1997); however, within this method, a survey (questionnaire) was conducted. A survey is considered to be a quantitative research method. The combination of ethnography and the survey have led to the decision to perceive ethnography as both a qualitative and quantitative research method in this particular research. On the other hand, the heuristic evaluation can be classified as a form of quantitative research, as it will yield statistically or numerically measurable results (Livesey, n.d.).

Two concepts that are equally important with regards to the success of the research are those of the reliability and validity of the data. If the data collected is not reliable, the conclusions derived will be fairly useless. In order to be regarded as reliable, the data must be consistent, precise and repeatable. If the data is not valid, the data collected does not provide a true measurement or description of the social reality. Thus, it does not show what is actually happening in society. Therefore, one should always try and apply the concepts of reliability and validity to their data (Livesey, n.d.).

Each research method has its own advantages and disadvantages. It therefore makes more sense to use a number of different methods for research. This is the core idea behind data triangulation, as it is possible to eliminate the weakness of one research method by using another research method that is stronger in the area where the first research method is weak. In essence, data triangulation offers one the opportunity to use the strong points of the various research methods and then combine them to collect the data (Livesey, n.d.).

Data triangulation is mainly applied in two ways: by using a number of different methods in the research process or by combining a number of various theoretical perspectives in the research. Theoretical triangulation is the far less common approach and is used very rarely. It focuses on studying the behaviour of a social group from a structuralist and interactionist theoretical perspective. Methodological triangulation is the most common approach and the one that is used in this research. There are three basic types of methodological triangulation (Livesey, n.d.):

- i. one researcher using two or more research techniques
- ii. two or more researchers using the same research technique
- iii. two or more researchers using two or more research techniques

In this case the first type was used. A total of four different research methods were used: literature survey, case study, ethnography and a heuristic evaluation. Some of the main purposes of methodological triangulation include the following (Livesey, n.d.):

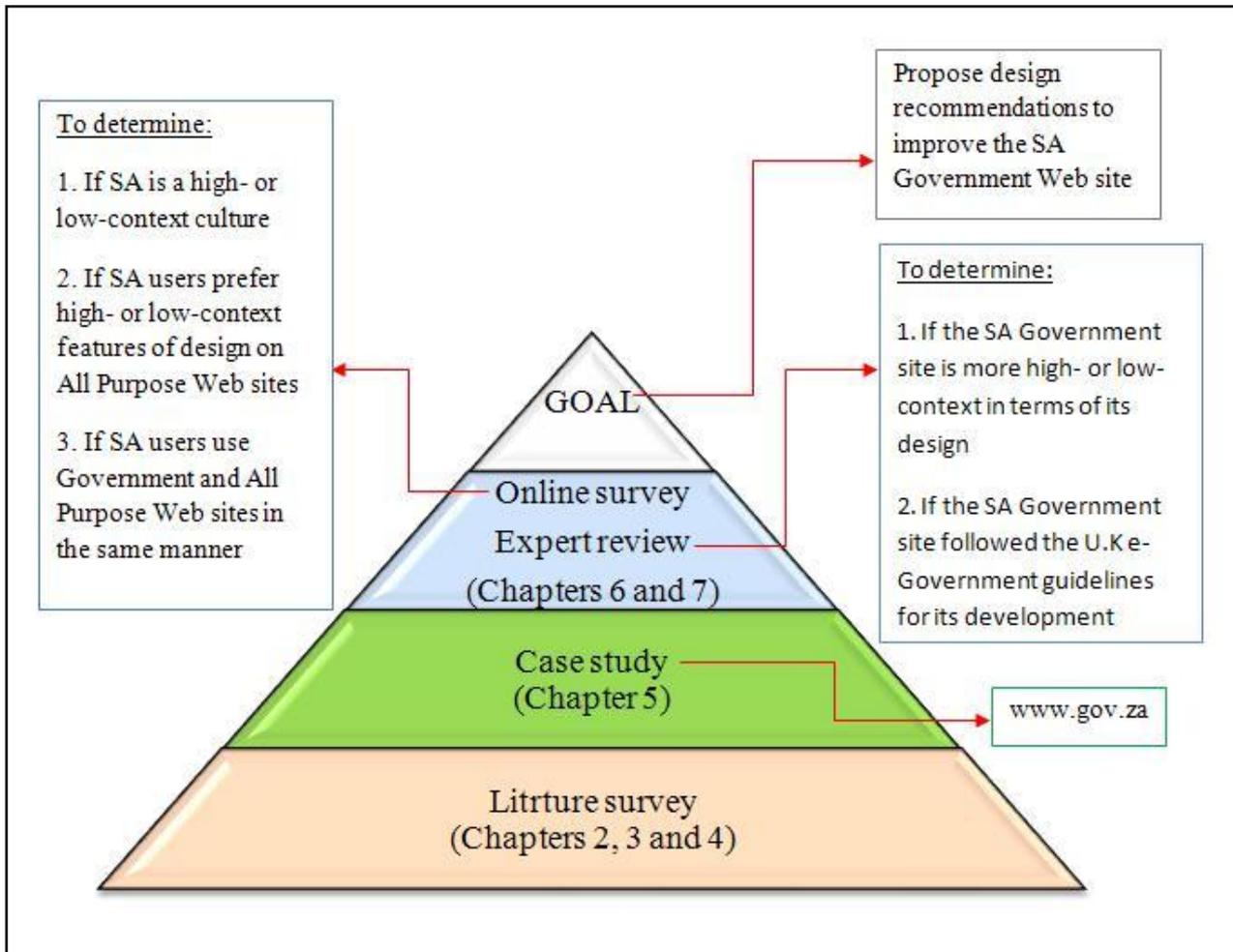
- to collect different types of information (e.g. quantitative and qualitative, primary and secondary etc.)
- to compare results where two or more researchers are using the same method
- to verify that data collected by one research method is reliable and valid
- to confirm that any data collected is accurate

The data triangulation chart for this research is displayed in Table 6.7. The table shows the four sources (research methods) that will be used to collect the data and discusses each briefly. The purpose of each source is clearly stated in the table.

Source number	1	2	3	4
Research method	Literature survey	Case study	Questionnaire	Expert review
Objective	Gather the required knowledge in various fields (e.g. culture, culture-context, e-Government, Web design, HCI, research design).	Become familiar with the SA e-Government website and its services.	Gather results on various aspects concerning the SA users' preferences.	Evaluate the SA e-Government website according to existing and personally created standards.
Interpretation (results)	<ul style="list-style-type: none"> <li>• Understand the cultural-context dimension and Web design relationship (Source 1).</li> <li>• Understand the core principles of e-Government development (Source 1).</li> <li>• Select the appropriate research methods for the study (Source 1).</li> <li>• Determine the services and goals of the SA e-Government website (Source 2).</li> <li>• Determine the stage of e-Government in South Africa (Source 2).</li> <li>• The culture-context perceptions of SA users for all purpose websites (Source 3).</li> <li>• The culture-context perceptions of SA users for the SA e-Government Website (Source 3).</li> <li>• The culture-context perceptions of SA citizens within society (Source 3).</li> <li>• Evaluate the SA e-Government website – according to e-Government development guidelines and heuristics (Source 4).</li> <li>• Evaluate the SA e-Government website – according to cultural-context heuristics (Source 4).</li> </ul>			

**Table 6.7: The data triangulation chart for this study**

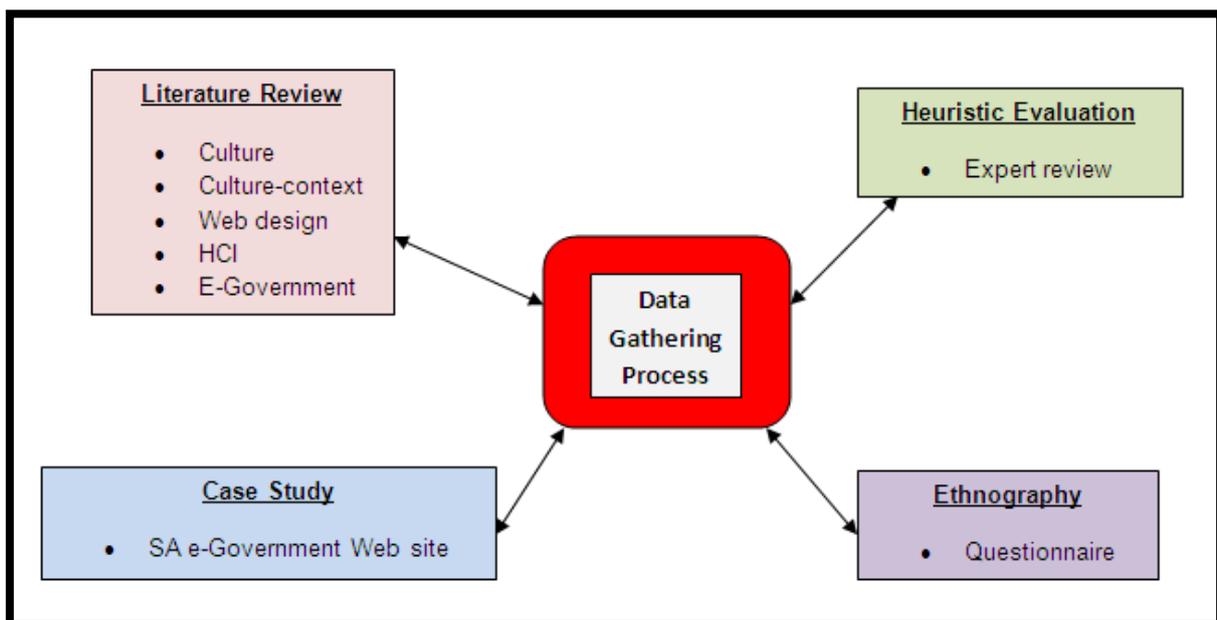
Although the use of numerous research methods, especially in the social sciences, is well supported, it still requires great preparation and thought. It is important to select the appropriate methods and then combine them effectively. If this is done effectively, the convergence and interpretation of the data become clearer and more credible (Jick, 1979).

**Figure 6.3: The pyramid structure of the research methods**

In order to demonstrate how the various methods were used in this research, as well as what the key objectives of the most fundamental methods were, Figure 6.3 is provided. This figure portrays this research in the form of a pyramid. In an attempt to reach the main goal of this research (top of the pyramid) with a literature survey (bottom of pyramid) had first to be carried out. Once the literature survey was conducted (included chapters' 2, 3 and 4), it was then possible to get to the second level of the pyramid. At the second level of the pyramid, a case study was conducted on the South

African e-Government website (included chapter 5). It was only then possible, at the third layer of the pyramid, to begin the fundamental research to gather the data required. This was achieved in the form of an online questionnaire and an expert review (included chapters' 6 and 7). Only once all these steps were completed was it possible to reach the top of the pyramid and achieve the main goal of the research (included in chapter 8).

In addition, Figure 6.4 displays the various research methods that were used to collect the data in more detail. These methods were combined in an attempt to produce data triangulation and are used in conjunction to complement one another (e.g. in order to create the expert review the literature review method was used as a basis). In this research study, it is impossible in practice not to relate all the methods throughout, as they are highly dependent on one another for the further advancement and progress of the overall study.



**Figure 6.4: The research methods used to form the data triangulation approach**

In research, by incorporating a variety of methods as is required in data triangulation, a continuum is created that ranges from simple to complex designs. If one looks at scaling in Figure 6.5, it focuses on qualitative measures so it is placed at the simple end of design. However, in order to complement the results collected, strategies that evaluate reliability will need to be included. By means of convergent validation, the data will consequently lead to more valid results. Other than scaling, reliability and convergent validation, triangulation can also provide a more complete (holistic) representation of the overall study. As a result, unique inconsistencies that may have not

been observed through the use of a single research method are now revealed, thus conclusions are being derived from the elicited data that a single method would be blind to.

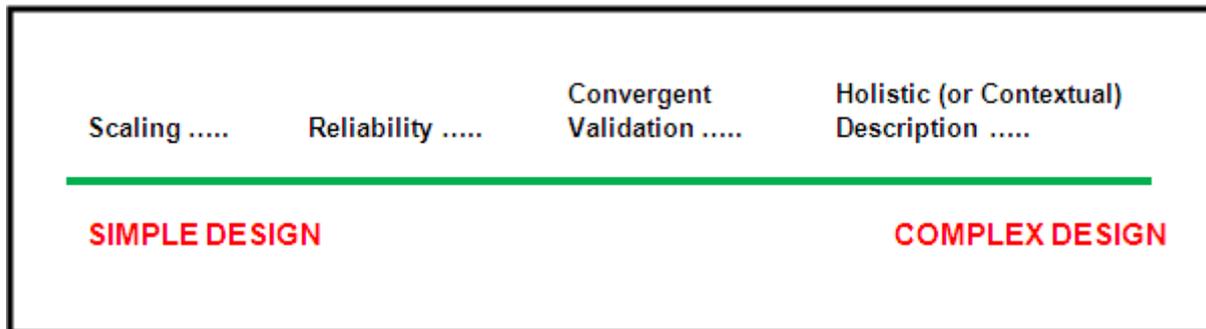


Figure 6.5: The continuum scale of data triangulation design (Jick, 1979)

It cannot be guaranteed that the data triangulation strategy will be suitable for all research purposes. There are a number of constraints that may limit its usefulness (e.g. time, cost). However, this approach has great advantages and promotes productive research. In terms of this research, data triangulation has a vital and substantial role to play, as it is a suitable approach for collecting the data required and attempting to present it in its most reliable, valid and accurate form.

## 6.6 South African culture

This section will briefly discuss the South African culture, as it is the research subject (or “foreign tribe” that will be researched) for the ethnography method.

### 6.6.1 Population

The South African culture is regarded as one of the most diverse and complex cultures in the world. It is also referred to as the “rainbow nation”, which epitomises the country’s cultural diversity. South Africa is composed of four different racial groups. They are blacks (around 31 million), whites (around 5 million), coloureds (around 3 million) and Asians (around 1 million). The overall estimated population of South Africa is in the region of above 45 million (South Africa Explored, n.d.; Wikipedia-I, 2006).

### 6.6.2 Province preferences

The majority of the Afrikaner population is situated in the Gauteng and Free State provinces. Most of the English-speaking whites are situated in the Eastern and Western Cape and the KwaZulu-Natal provinces. Most of the Indian population is situated in KwaZulu-Natal province, while the

coloured population is more frequently situated in the Northern and Western Cape Provinces (South Africa Explored, Undated).

### **6.6.3 Religion**

In terms of religion, most blacks are Christian, with membership of the Anglican and Roman Catholic churches being strong. Membership of the predominately black Zion Christian church is also very strong, while many still follow traditional beliefs (Wikipedia-I, 2006).

The whites' religious beliefs are also very strong. Most of the Afrikaners are members of the Dutch Reformed Church, while most English-speaking whites are members of the Anglican or Roman Catholic churches. There are also an estimated 90 000 whites that are Jewish and a similar number of Portuguese. There are also some Greeks and Christian Lebanese (Wikipedia-I, 2006).

The coloureds are very similar to the whites, and especially to the Afrikaners. They share very similar religious beliefs and speak Afrikaans. There is a small minority of coloureds who are known as the Cape Malays and are Muslim (Wikipedia-I, 2006).

The Asians are predominately of Indian origin. They tend to keep their own cultural heritage, religious beliefs and languages, being either Hindu or Muslim, although they speak English more frequently than their Indian languages. There is also a minority of Chinese people, most from Taiwan. The Taiwanese were classified as whites by the apartheid regime (Wikipedia-I, 2006).

### **6.6.4 Languages**

There are a total of eleven official languages in South Africa: English, Afrikaans, Xhosa, Zulu, Sepedi, Sesotho, Setswana, Ndebele, SiSwati, Tsonga and Venda (South Africa Government Online, 2000).

This was just a brief overview of the South African culture to illustrate how culturally diverse South Africa is. The ethnography method will assist in determining whether it is a high or low-context culture, even though South Africa is basically classified as a high-context culture because it is situated in Africa.

## **6.7 Experimental design**

This section will briefly discuss the reasons why the South African e-Government website was chosen for this case study. It will also explain how the website is structured, in terms of its design, as well as discuss the goals of the website. The South African e-Government context was discussed in detail in chapter 5.

### **6.7.1 Website selection**

The website that was chosen for this evaluation is the South Africa e-Government website. There are three important reasons for this, which are the following:

- As a South African citizen, the aim of this research is to produce a piece of work that is useful and that can contribute in some way to a better South Africa. E-Government is being implemented in most countries around the world. A better designed e-Government system could provide more efficient and improved service delivery of government information and services to its citizens. Section 4.2.2 discusses the goals and benefits of e-Government.
- The UK guidelines for e-Government website development will be of assistance to help evaluate whether the South African e-Government website followed proper planning and design steps when designing the overall website. These are specific guidelines that relate to e-Government website design (even though, they are designed in parallel with the more common Web design guidelines).
  - To determine whether South Africa should be more generally considered a high-context culture. When this has been determined, high- or low-context design elements of website design may be recommended for the overall improvement of the South African e-Government website.

### **6.7.2 Website structure**

The URL that is used to connect to the website is [www.gov.za](http://www.gov.za). The South African Government Website is currently in stage 4 of e-Government development. This is referred to as the transactional stage (Mwange, 2007) during which complete and secure transactions can occur. Actions like obtaining visas, birth and death certificates, licences and permits can all be done online as well as the paying of, for example, parking fines, vehicle registration fees, utility bills and taxes. There may also be the use of digital signatures to facilitate procurement and do business with government through secure sites with user passwords. It is important to remember that South Africa

has only recently entered this stage and it will take some time before all the functionalities are available. The home page of the South African Government website is displayed in Figure 6.6.



**Figure 6.6: The home page of the South African Government Website (South Africa Government Online, 2000)**

The design structure of the website is up to four layers (or levels) in depth. Figure 6.7 displays Layer-1 of the site map. The number that is written next to the Layer-1 item represents the number of items that the specific Layer-1 item has in its Layer-2 structure. Those items fall under that specific Layer-1 item. The item in Figure 6.7 that is named MAIN is the actual home page of the website (It is also referred to as Home in the detailed layout of the site map). A site map of the South African Government website, which includes a detailed layout of all the layers and their items, is presented in Appendix F.

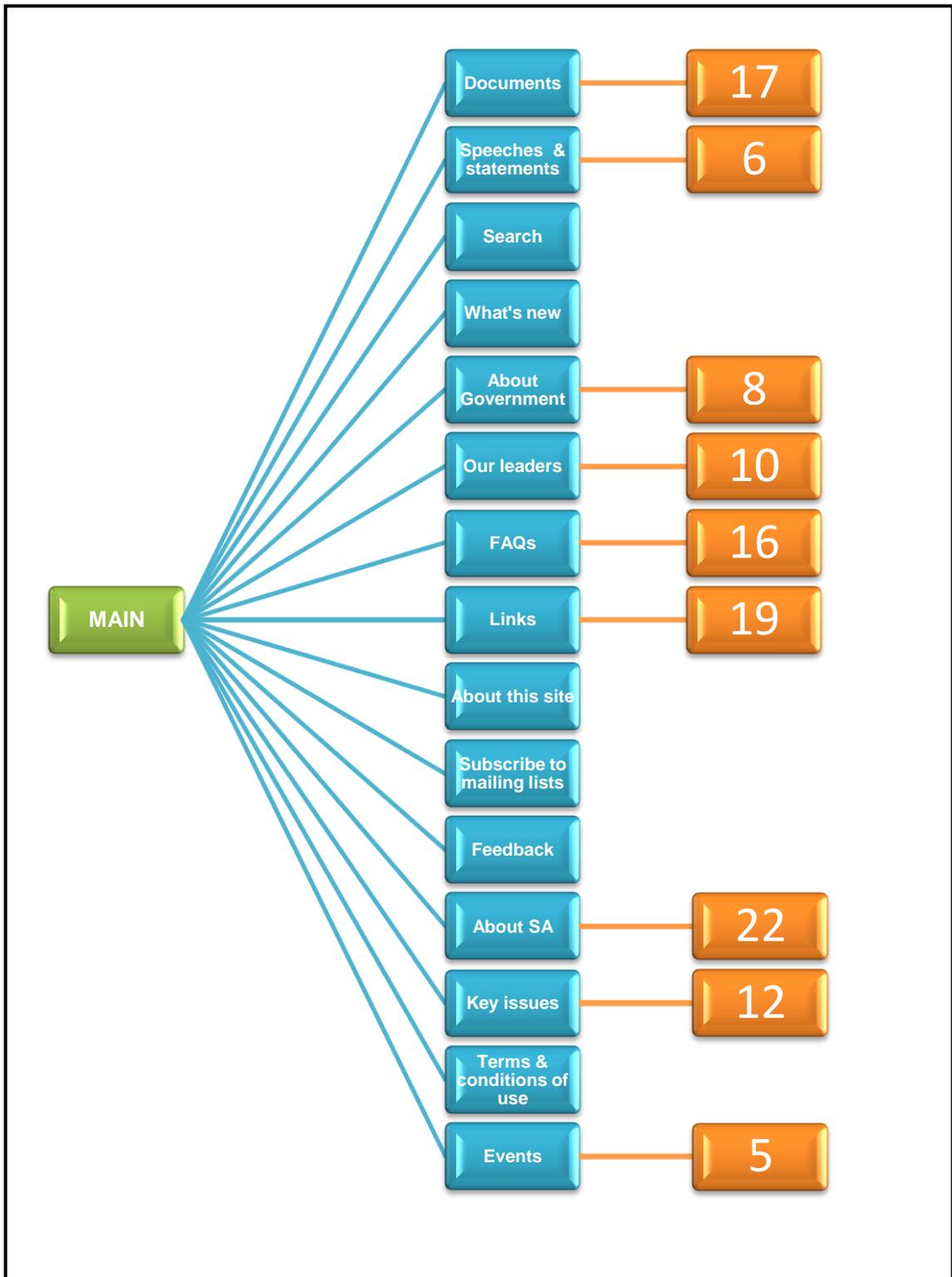


Figure 6.7: Layers 1 and 2 of the design structure of the South African Government Website (South Africa Government Online, 2000)

### 6.7.3 Website goals

The South African government website is also referred to as the Batho Pele Gateway Portal, which means putting people first. The aim of the initiative is to enhance the service and accessibility of government services to the public. This will be achieved by improving efficiency and accountability for the recipients of public goods and services (Bernardo, 2005). This initiative requires eight service delivery principles to be implemented. These principles are the following (Bernardo, 2005):

- regularly consult with customers
- set service standards
- increase access to services
- ensure higher levels of courtesy
- provide more and better information about services
- increase openness and transparency about services
- remedy failures and mistakes
- give the best possible value for money

The delivery principles above may be incorporated into four main categories of goals. These goals are focused on the following aspects: providing access to online government information, providing different options to find online government information, contributing to participative governance and providing access to non-government websites, which contain information relevant to government's priorities (South Africa Government Online, 2000).

The site itself also targets a wide range of audiences, including the broader public and intermediaries (government officials and other), to provide the information to society and the media. Other targets are the national, provincial and local government officials, private sector organizations and businesses, as well as the international community (South Africa Government Online, 2000).

## 6.8 Summary

This chapter presented a detailed overview of the case study that will be conducted on the South African e-Government website. It started by discussing the research hypotheses that were formulated, which are extremely important if this research is to achieve its primary objective. The methods that will be used to determine whether the research hypotheses are true or false were then also mentioned.

Once this was achieved, the focus was on the actual research methods that will be used. The main research method is the case study. As part of the case study, two other research methods were used: a heuristic evaluation and ethnography. For the heuristic evaluation an expert review was designed: the one section focusing on culture-context heuristics and the other on e-Government website development heuristics. For the ethnography research method an online questionnaire was developed. In combination with the research methods, a section was then added that discusses the data analysis techniques that will be used to extract the required results from both the heuristic evaluation and the online questionnaire. It then looked at the manner in which all the research methods will be used to complement each other via the data triangulation technique.

What then followed was a brief discussion on the research subject, the South African culture. This was mainly incorporated to make people familiar with the main characteristics of the culture and to illustrate how diverse the culture actually is, which makes this research an especially difficult and delicate task.

This chapter ended off with a succinct overview of the South African e-Government website, as this was discussed in detail in Chapter 5. It included a discussion on why the specific site was selected for the case study, a look at the design structure of the site, as well as the goals that the site is trying to achieve. In Chapter 7, the results of the research methods will be discussed and recommendations for the improvement of the site will then be provided.

## CHAPTER 7: RESULTS AND RECOMMENDATIONS

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### 7.1 Introduction

In Chapter 6, a comprehensive discussion of the research methods was conducted. It focused on how the results required will be collected and then analysed. The descriptive and exploratory analyses of the questionnaire results and the expert review that was conducted on the South African e-Government website (used for the case study) will be the key focal point of this chapter. Once this has been accomplished recommendations will then be made for improving the South African e-Government website. The first section of this chapter will focus on the online questionnaire and includes:

- analysis of Question 1 items (section 7.2.1)
- analysis of Question 2 items (section 7.2.2)
- analysis of Question 3 items (section 7.2.3)
- comparison between Question 2 and 3 items (section 7.2.4)
- analysis of Question 4 items (section 7.2.5).

The second section of the chapter will discuss the results from the expert review. This section will include:

- analysis of Section 2 (section 7.3.1)
- analysis of Section 3 (section 7.3.2)
- usability problems and recommendations (section 7.3.3)
- analysis of hypotheses (section 7.3.4).

### 7.2 Questionnaire analysis

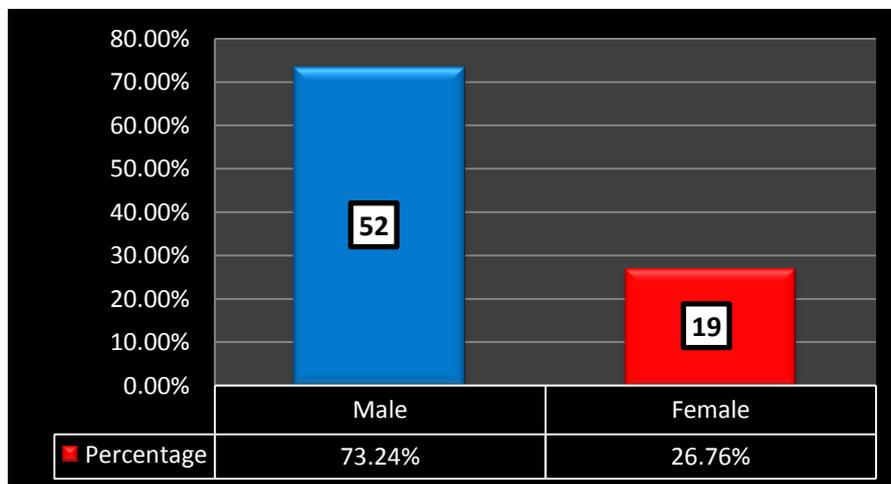
There are four sections in the questionnaire and all of the items will be analysed according to the section they are associated with. Graphs are used only in the analysis of Question 1 items. They represent the participants' responses in terms of their biographical information. The rest of the questionnaire sections (Questions 2, 3 and 4 items) are analysed using various statistical tests (discussed in detail in Section 6.4.1). In addition, Appendix K is provided, which contains the frequency tables of analysis results for each specific item from each question (1, 2, 3, and 4), which is included in the questionnaire. As mentioned in Chapter 6, Appendices H, I, and J are also related to the online questionnaire.

### 7.2.1 Analysis of Question 1 items (Biographical Information section)

In this section, the analysis will focus on the biographical information of the participants. In terms of the graphs that will be used, one will notice a figure within or above each of the columns. This number represents the actual number of participants who according to their answers fit into the specific column (whatever the case that column may be representative of). In addition, at the bottom of each graph, one will also notice percentage values. These values represent the percentages of preferences according to the participants' answers. These percentages are equivalent and determined accordingly to the number of responses of the participants. There are a total of seven related questions in this section:

#### 7.2.1.1 Item 1-1: Indicate your gender:

The questionnaire was distributed online and was equally accessible to everyone. It was disappointing to find that the female participants were outnumbered; however, it should be remembered that males predominate in the IT industry, despite major attempts to attract more women into the field (which are eventually starting to pay dividends). It can therefore be regarded encouraging that at least more than a third of the participants were female.

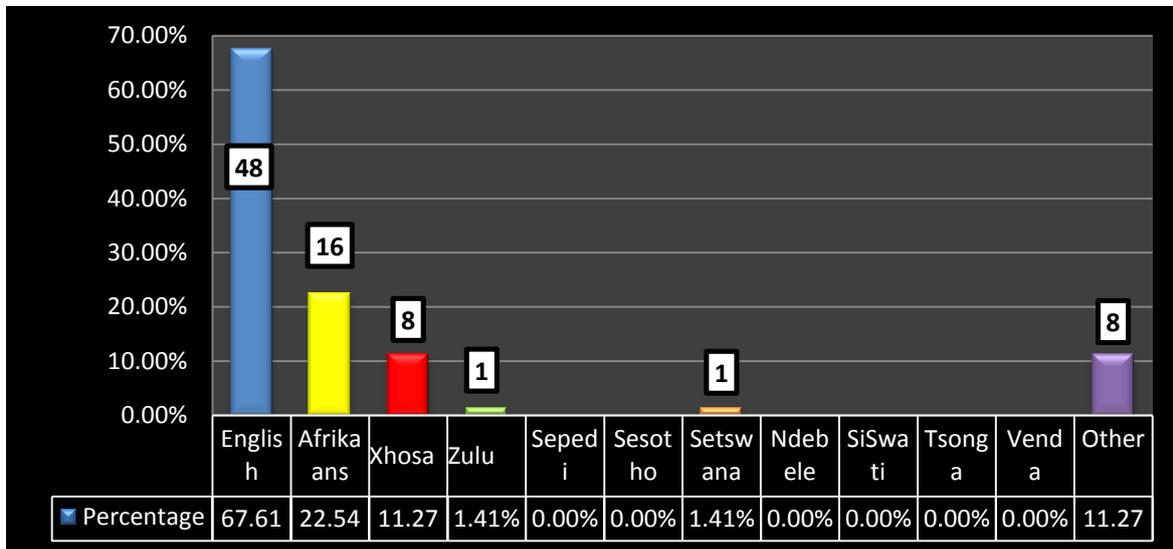


Graph 7.1: Percentage and total number of participants' values for gender status

#### 7.2.1.2 Item 1-2: What is your home language?

The questionnaire was distributed online and was equally accessible to everyone. The English speaking people outnumbered their counterparts. It was expected that the three main home languages would have been English, Afrikaans and Xhosa, with minor numbers representing the other languages. It was hoped that the Xhosa speaking people would have been more than the actual

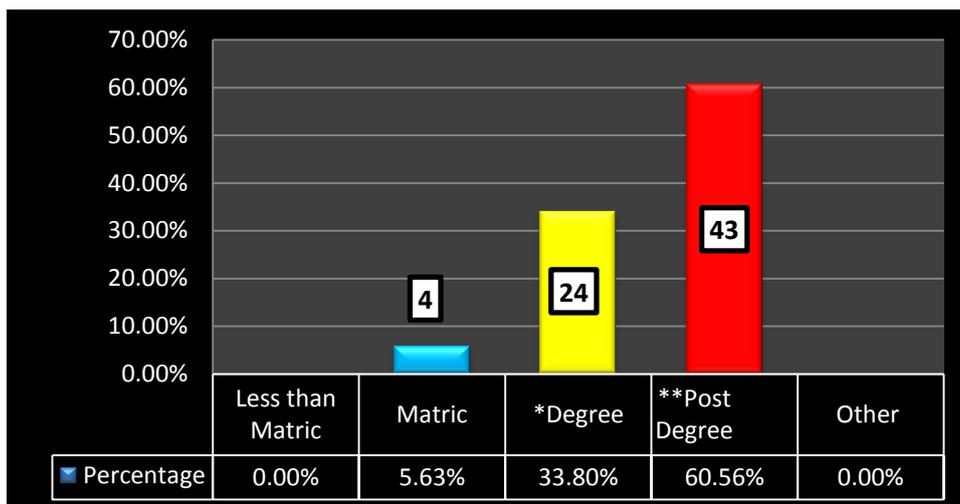
results show, as this would have benefited the research immensely because it would have produced a more fairly distributed and representative cultural opinion.



Graph 7.2: Percentage and total number of participants' values for home language

**7.2.1.3 Item 1-3: Indicate your highest educational level completed:**

The fact that the online questionnaire was mostly advertised through educational institutions could have played a determining and essential role in the results for this question. However, this was not the intention. The intention was to get as many participants as possible, regardless of age, gender, occupation, educational level, and especially cultural background.



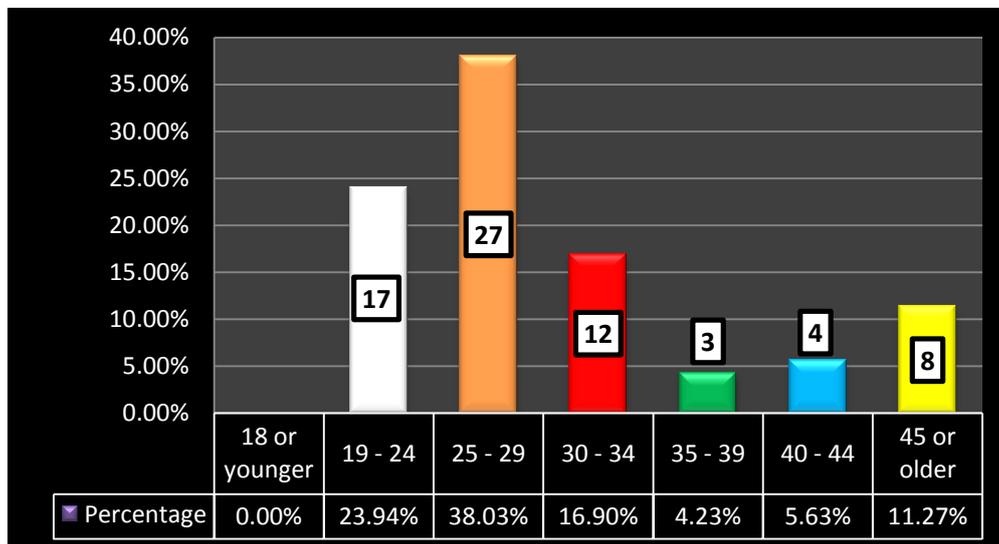
Graph 7.3: Percentage and total number of participants' values for highest educational level

Overall, it was not a surprise that most of the participants have some type of degree. With regards to Graph 7.3, a “Degree” represents an Undergraduate Degree, Diploma or Certificate. A “Post

Degree” represents a Postgraduate Degree, while “Matric” is the equivalent of Grade 12, as it is more formally known today. The majority of participants were in the possession of a postgraduate degree.

#### 7.2.1.4 Item 1-4: Please indicate your age group.

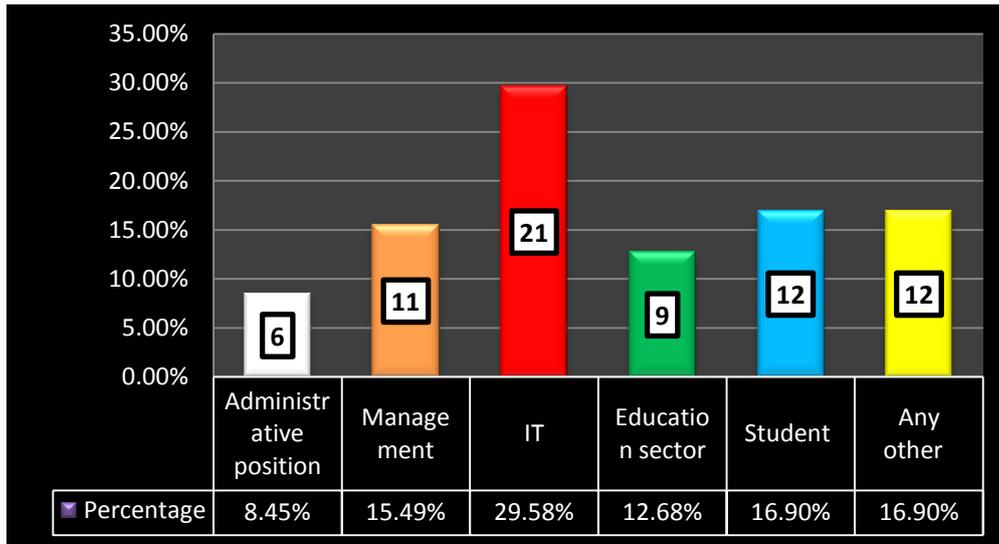
The participants were representative of all of the various age groups except for “18 or younger”, which had no representatives. This will add value to the research because there are opinions from people over a 25-year span. As mentioned previously, the aim of the research is to get citizens’ opinions regardless of their differences in all aspects of life. The age group characteristic (used as a different aspect in life) can be regarded as a successful attempt at achieving the research goals. The majority of participants were between the age groups of 20 and 30.



Graph 7.4: Percentage and total number of participants’ values for age group

#### 7.2.1.5 Item 1-5: Which category best describes your occupation?

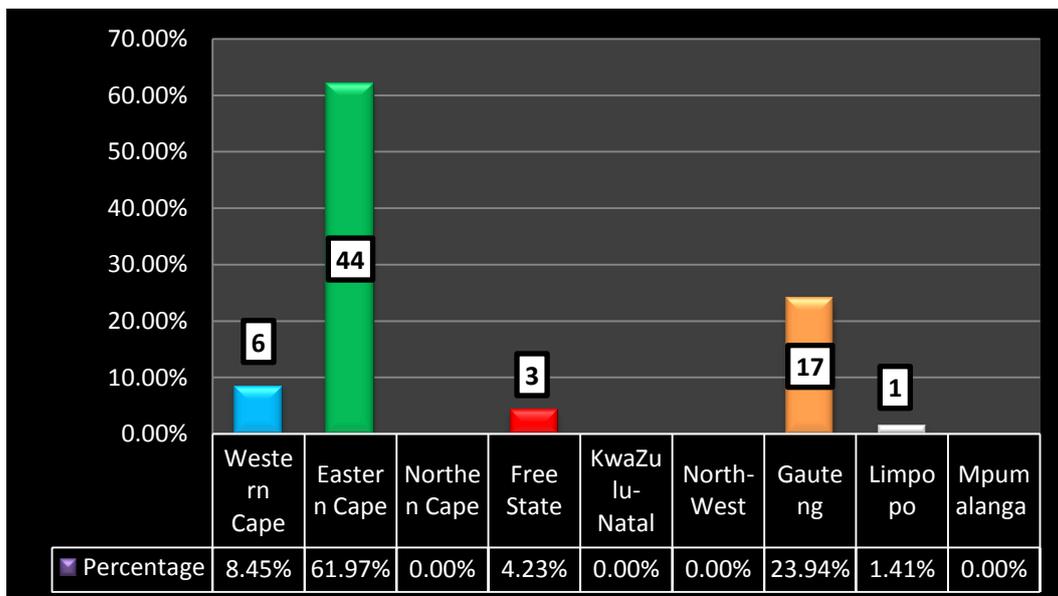
It was predicted that the majority of the participants would have been students, considering the fact that the questionnaire was mainly advertised through educational institutions. This was done by lecturers mentioning it to their students and students’ word of mouth. The online questionnaire was also advertised through e-mails and Facebook (a very popular online social utility tool). People were able to access the online questionnaire through both their e-mail and Facebook, as the URL was provided to them with the messages. The majority of participants’ occupations were in the IT sector. However, there was a fairly widely distributed selection in terms of the participants’ occupations.



Graph 7.5: Percentage and total number of participants' values for occupation

**7.2.1.6 Item 1-6: Please indicate the province where you are currently living.**

Even though the questionnaire was available online, it was expected that the majority of the participants would have been from the Eastern Cape Province. This is due to the fact that the research team had many of their personal contacts in the province. This provided the opportunity to tell people about the questionnaire on a face-to-face basis. This could have encouraged participants to complete the questionnaire more than an e-mail, message on Facebook or telephone contact would have.

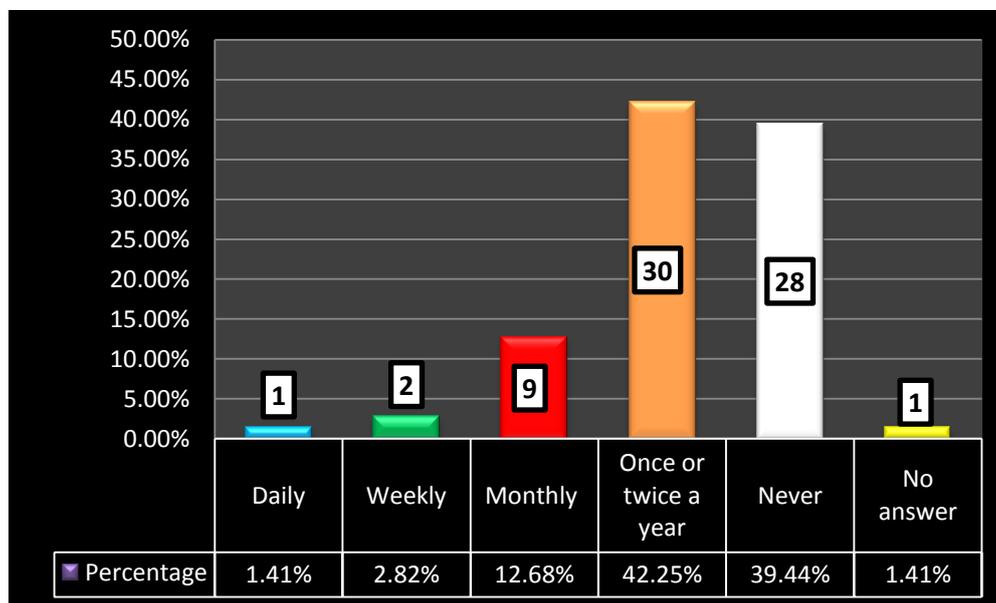


Graph 7-6: Percentage and total number of participants' values for currently living province

As anticipated, the majority of participants were from the Eastern Cape Province while the second highest representative province being Gauteng. Most of the provinces did not have any participants despite the valiant attempts at achieving this, which was disappointing. The results are displayed in Graph 7.6.

#### 7.2.1.7 Item 1-7: How often do you access the South African Government Website?

The results to this question were actually shocking, yet useful, and should alarm the officials concerned. Nearly 40% of the participants had “Never” accessed the government website. One needs to keep in mind that the participants themselves are mostly highly educated, computer literate (to a certain degree) and have some type of Internet access at their disposal (be it at work or at home). All the research that is being attempted for improving the e-Government status of South Africa will all be in vain if the people are unaware of the website itself and the services that it provides. The question definitely needs to be asked whether government should consider returning to - basics and first focus - efforts on a strong marketing campaign in order to improve e-Government awareness. Once this has been accomplished, the citizens themselves will guide the process of e-Government advancement from both a design and services perspective.



Graph 7.7: Percentage and total number of participants' values for frequency of access to the SA Government Website

### 7.2.1.8 Final outcome

The questionnaire was available online and was accessible to any South African citizen over the age of 18. It was available for a period of 8 weeks and was sent to some 200+ individuals across South Africa. In total it was completed by 71 people (36% return rate).

Demographics such as gender, home language, education level, age, occupation and province of residence had no bearing on the selection of a typical participant. The aim was to get the opinions of diverse SA citizens. However, there was a question that examined the frequency of use of the SA government website and the results showed that this was very limited and non-existent in many of the cases. This may have an impact on the results for section 3 of the survey, which focuses on government websites.

The results from the biographical section show that the participants were mostly male, preferred to speak English, had some tertiary degree and were mainly between the ages of 20 and 35. They usually accessed the government website once or twice a year. The intention was not to involve participants of a specific profile, but to represent the diverse South African population.

## 7.2.2 Analysis of Question 2 items (culture-related behaviour in Internet usage)

In this section, the analysis will focus on the participants' cultural behaviour when using the Internet (to surf all purpose websites). In order to assess this, a single sample t-test was conducted. This will determine if the typical South African user prefers a high- or low-context design style when using all purpose websites. Once the results of this test have been explained, an alternative analysis will be described, in terms of the goals and points that each item from Question 2 of the online questionnaire is evaluating.

### 7.2.2.1 Single sample t-test

As mentioned previously (section 6.4.1), this test will help determine to which side of the scale the typical South African user leans: high- or low-context when using all purpose websites.

Variable	Mean	Std.Dv.	N	Reference	t-value	df	*p	**Effect size	Culture-context status
Q2-1	2.57	1.20	70	3.00	-2.99	69	0.0038	0.36 (small to medium)	Low

Variable	Mean	Std.Dv.	N	Reference	t-value	df	*p	**Effect size	Culture-context status
Q2-2	2.60	1.26	70	3.00	-2.66	69	0.0095	0.32 (small to medium)	Low
Q2-3	2.83	1.31	70	3.00	-1.09	69	0.2764	0.13 (small)	Low
Q2-5	1.75	0.99	69	3.00	-10.44	68	0.0000	1.26 (large)	Low
Q2-6	1.93	1.12	70	3.00	-7.99	69	0.0000	0.96 (large)	Low
Q2-7	3.03	1.10	70	3.00	0.21	69	0.8290	0.03 (small)	Low
Q2-8	2.94	1.03	70	3.00	-0.46	69	0.6452	0.06 (small)	High
Q2-9	3.58	1.10	69	3.00	4.36	68	0.0000	0.53 (medium)	Low
Q2-10	3.79	1.33	67	3.00	4.86	66	0.0000	0.59 (medium)	Low
Q2-11	2.69	1.02	70	3.00	-2.59	69	0.0116	0.31 (small to medium)	High
Q2-12	1.77	0.80	70	3.00	-12.82	69	0.0000	1.53 (large)	High
Q2-13	2.39	1.05	69	3.00	-4.83	68	0.0000	0.58 (medium)	High
Q2-14	3.83	1.09	70	3.00	6.36	69	0.0000	0.76 (large)	Low
Q2-15	4.21	0.88	70	3.00	11.50	69	0.0000	1.38 (large)	Low
Q2-16	3.37	1.16	70	3.00	2.68	69	0.0090	0.32 (small to medium)	Low
Q2-17	2.23	1.14	70	3.00	-5.64	69	0.0000	0.67 (medium)	High
Q2-18	2.70	1.13	70	3.00	-2.21	69	0.0301	0.26 (small)	High
Q2-19	2.49	1.13	69	3.00	-3.71	68	0.0004	0.45 (medium)	High
Q2-20	2.56	1.33	68	3.00	-2.73	67	0.0080	0.33 (small to medium)	Low
Q2-21	1.64	0.71	69	3.00	-16.01	68	0.0000	1.93 (large)	Low
Q2-22	2.19	0.97	68	3.00	-6.90	67	0.0000	0.84 (large)	High

\* Statistically significant difference at the 5% level (p-value is less than 0.05)

\*\* Practically significant difference (medium or larger scale effect size)

Table 7.1: Results of the single sample t-test for the All Purpose Websites

It is important to understand the “Mean”, “p” and “Effect size” columns in Table 7.1. A fixed number, the number 3 (the “Reference” column), is used against which to measure the “Mean” for each item. If the value of the “Mean” is greater or less than 3, the item is then classified as high- or low-context. The “p” column represents the statistical significance. If the value is less than 0.05, then a statistically significant difference exists. These items are highlighted in a red font under the “p” column. On the other hand, the “Effect size” column represents the practical significance: the sizes of the practically significant difference of each item is also measured (e.g. small, medium etc.). Items that are of a medium or high practical significant difference are also highlighted in a red font under the “Effect size” column. Items that have a weaker effect than that of a medium size are not considered to be of practical importance. The aim is to identify the items that have a statistically significant ( $p < 0.05$ ) and practically significant difference (effect size  $\geq$  medium size) as well. The effect sizes and Cohen’s guidelines are discussed in more detail in section 6.4.1.

This style of approach and analysis applies and is followed throughout all the single sample t-tests (for each section of the online questionnaire), as well as the pairwise t-test. The items that have statistical and practical significant differences in this t-test include: Q2-5, Q2-6, Q2-9, Q2-10, Q2-12, Q2-13, Q2-14, Q2-15, Q2-17, Q2-19, Q2-21, and Q2-22.

One will also notice that items Q2-4 and Q2-23 are not included in this t-test. The reason for this is that both those items did not use the five-point ordinal scale, as is the case for the rest of the items, but were evaluated on a three-point nominal scale and focused on the users’ preferences in terms of a alphanumeric or an iconic style for a better understanding on all purpose websites (the focus is on which of the two styles improves their usability experience). The vast majority of results from the frequency tables, 79.71% for Q2-4 and 82.85% for Q2-23, indicate that they clearly require a combination of both these types (a detailed overview of results for the frequency analysis tables of all items is available in Appendix K). If the results showed a preference for alphanumeric styles this would indicate a low-context tendency, while preference for iconic styles would be a sign of a high-context tendency.

### **7.2.2.2 Implication of the results**

In this section, certain items will be incorporated into groups that test the same or similar cognitive tasks. An average scale of support for a high- or low-context culture for each group will then be determined, according to the participants’ results. The grouped items will be weakly, moderately or

strongly supported. This style of approach will be applied to the other sections of the questionnaire as well when discussing the implications of the results.

Questions 2-2 and 2-3 focus on the participants' patience, as well as the methods they use when accomplishing objectives. High-context individuals would be more patient and prefer to investigate their options on the website prior to completing objectives, unlike individuals of low-context cultures who need to complete objectives immediately, if possible. For them, there should be a clear indication on how to complete an objective. With regards to items 2-2 and 2-3, the participants' responses suggest that they lean towards a low-context culture. However, this is weakly supported. Only item 2-2 displayed a statistically significant difference while none of the items had any practically significant difference.

Questions' 2-1, 2-8, and 2-21 test the participants' approaches when retrieving their required information. Once again, it is the individuals of high-context cultures that are more patient and would prefer to browse the website to find what they are looking for. Individuals of low-context societies prefer to use the various searching tools that they have in their disposal (provided by the website) to find the required information. With regards to these types of question, the participants' responses suggest that they are also of a low-context culture. This is moderately supported. Item 2-1 displayed a statistically significant difference, while item 2-21 displayed both practically and statistically significant differences. Conversely, the results of item 2-8 were of a high-context culture.

Questions 2-4, 2-18, and 2-23 all test the participants' preferences for text or multimedia forms of information cues. To clarify this, these items focused basically on whether text (preferred in low-context cultures) or animated (preferred in high-context cultures) forms of information and menus are favoured on all purpose websites. Items 2-4 and 2-23 are those that were not included in the single sample t-test (discussed in Section 7.2.2.1), so it was not able to determine their statistical or practical significance. The responses to item 2-18 suggest that the participants are of a high-context nature. This was statistically significant. However, the overall results, undoubtedly, showed that the participants' preferred option is to have a combination of both these forms when using all purpose websites. In essence, it is strongly supported that they are in the middle of the high- and low-context continuum with regards to the way they perceive and understand information.

Questions 2-6, 2-13, and 2-14 test the participants preferences with regards to the amount and type of multimedia and colours used on the site. High-context individuals generally prefer the use of a variety of multimedia tools and colours. By contrast, low-context individuals do not, but prefer a type of clear-cut website that will not distract their attention away from accomplishing their potential objectives. Only the responses to item 2-13 correspond to those of a high-context culture. The rest of the responses clearly suggest that the participants are of a low-context culture. All the items are statistically and practically significant. It is thus reasonable to assume that the responses lean towards those of a low-context culture and that this is strongly supported.

<b>Question items</b>	<b>Cognitive groups</b>	<b>Culture-context tendencies</b>	<b>Level of support</b>
2-2 2-3	Accomplishing objectives (e.g. tasks)	Low context	Weak
2-1 2-8 2-21	Finding information	Low context	Moderate
2-4 2-18 2-23	Better understanding of content (multimedia or text)	Combination of high and lowcontext	Strong
2-6 2-13 2-14	Amount of multimedia content and colour use	Low context	Strong

**Table 7.2: Derived conclusions from the analysis of the cognitive groups in All Purpose Websites**

Table 7.2 summarises the analysis of all purpose websites. The results show that the regular South African user prefers low-context design styles in terms of their general Internet usage. To be more specific, the following facts have been derived from this analysis of the four cognitive groups:

- South African users want to complete their objectives in the simplest manner and as quickly as possible when using a site.
- South African users like using search tools on a site to find the information they require.
- South African users understand, comprehend and make better use of a site that contains a combination of both text and multimedia forms of information.
- South African users do not like sites to be overwhelmed with multimedia tools and colours. However, they appreciate the use of aesthetics.

A number of items were not incorporated into groups. Rather, they tested specific aspects of software design, as well as the preferences of the users, which apply to all purpose websites. Items that proved to have a statistically and practically significant difference are of foremost importance. It is these items that additional and solid facts may be derived from. These facts include:

- The participants prefer a detailed home page that clearly explains the sources of information available on the site.
- The participants do not like sites to have multiple sidebars and menus.
- The participants prefer a site which constantly opens new browser windows in the same browser window.
- The participants prefer a site selling a product to use a soft-sell approach.
- The participants do not like sites to use pop-up window features.
- The participants are reluctant to provide personal details and information when using a site.
- The participants prefer to use emoticons when they are available.
- The participants prefer salespeople to use communication tools and also send personal messages when trying to sell them a product.

Table 7.3 summarises the analysis of the facts above. The results show an equal distribution of high- and low-context features, which are all strongly supported (due to their statistically and practically significant differences).

<b>Feature number</b>	<b>Culture-context tendencies</b>	<b>Level of support</b>
1	Low context	Strong
2	Low context	Strong
3	Low context	Strong
4	High context	Strong
5	Low context	Strong
6	High context	Strong
7	High context	Strong
8	High context	Strong

**Table 7.3: Derived conclusions from the analysis of items that are not included in the cognitive groups in all purpose websites**

In conclusion, from the overall analysis (cognitive grouped items and single items) of the users' preferences when using all purpose websites, it would seem that there is a tendency for a low-context style and design approach.

### 7.2.3 Analysis of Question 3 items (culture-related behaviour: government website)

In this section, the analysis will focus on the participants' cultural behaviour when using the South African e-Government website. In order to assess this, a single sample t-test was conducted. This will determine whether the typical South African user prefers a high- or low-context design style when using government websites in general. Once the results of this test are explained, an alternative analysis will be described in terms of the goals and points that each item from Question 3 of the online questionnaire is evaluating.

#### 7.2.3.1 Single sample t-test

This test will help determine to which side of the scale the typical South African user leans: high- or low-context when using the South African e-Government website.

Table 7.4 displays the results from the single sample t-test, which focuses on government websites. The items that have statistically and practically significant differences in this t-test include Q3-1, Q3-3, Q3-5, Q3-6, Q3-8, Q3-9, Q3-13, Q3-14, and Q3-16.

Variable	Mean	Std.Dv.	N	Reference	t-value	df	p	Effect size	Culture-context status
Q3-1	2.06	0.94	68	3.00	-8.21	67	0.0000	1.00 (large)	Low
Q3-2	2.67	1.16	70	3.00	-2.36	69	0.0209	0.28 (small)	Low
Q3-3	2.49	1.13	68	3.00	-3.76	67	0.0003	0.46 (medium)	Low
Q3-5	1.81	0.96	69	3.00	-10.29	68	0.0000	1.24 (large)	Low
Q3-6	1.88	0.98	66	3.00	-9.25	65	0.0000	1.14 (large)	Low
Q3-7	2.75	1.04	68	3.00	-1.97	67	0.0519	0.24 (small)	High
Q3-8	3.62	1.11	68	3.00	4.60	67	0.0000	0.56 (medium)	Low
Q3-9	3.70	1.35	69	3.00	4.26	68	0.0000	0.51 (medium)	Low
Q3-10	2.66	1.15	67	3.00	-2.44	66	0.0171	0.30 (small to medium)	High
Q3-11	2.74	1.16	69	3.00	-1.87	68	0.0657	0.23 (small)	High

Variable	Mean	Std.Dv.	N	Reference	t-value	df	p	Effect size	Culture-context status
Q3-12	3.19	1.14	69	3.00	1.37	68	0.1747	0.17 (small)	Low
Q3-13	3.96	1.01	68	3.00	7.77	67	0.0000	0.94 (large)	Low
Q3-14	2.22	1.15	69	3.00	-5.65	68	0.0000	0.68 (medium)	High
Q3-15	2.88	1.12	67	3.00	-0.87	66	0.3867	0.11 (small)	High
Q3-16	1.90	0.89	69	3.00	-10.23	68	0.0000	1.23 (small)	Low

**Table 7.4: Results of the single sample t-test for the South African e-Government Website**

One will notice that items Q3-4 and Q3-17 are not included in this t-test. The same reasoning applies here as for the t-test applied to all purpose websites. These items were not evaluated according to the five-point ordinal scale, as is the case for the rest of the items, but on a three-point nominal scale. They also focused on the users' preferences in terms of alphanumeric or iconic styles on government websites. The vast majority of results from the frequency tables, 70.00% for Q3-4 and 78.26% for Q3-17, indicate that they clearly require a combination of both types. The results are slightly lower but clearly indicate an analogous effect with respect to those of the all purpose websites.

#### 7.2.3.2 Implication of the results

The same aspects that the items from the all purpose websites were evaluating are checked for government websites as well. Questions 3-2 and 3-3 focus on the participants' patience and methods that they use when accomplishing their objectives. With regards to these types of question, the participants' responses suggest that they are of a low-context culture. This is strongly supported. Item 3-2 displayed a statistically significant difference while item 3-3 had a statistically and practically significant difference.

Questions 3-1, 3-7 and 3-16 test the participants' methods in terms of retrieving their required information. With regards to these types of question, the participants' responses suggest that they are clearly of a low-context culture. This is strongly supported. Items 3-1 and 3-16 showed statistically and practically significant differences. In contrast, responses to item 3-7 were of a high-context nature, yet showed no statistically or practically significant differences.

Questions 3-4, 3-15 and 3-17 all test the participants' preferences for text or multimedia forms of information cue. Items 3-4 and 3-17 are those that were not included in the single sample t-test (discussed in Section 7.2.3.1). The responses to item 3-15 were of a high-context culture but with no statistical or practical significance. However, the overall results clearly suggest that the participants' preferred option is to have a combination of both these forms on government websites. In essence, it is strongly supported that they are in the middle of the high- and low-context continuum with regards to the way they perceive and understand information on these sites.

Questions 3-6, 3-11 and 3-12 test the participants' preferences with regard to the amount and type of multimedia and colours used on government websites. The responses here were diverse. Responses to item 3-11 correspond to those of a high-context culture while responses to items 3-6 and 3-12 correspond to those of a low-context culture. However, only item 3-6 was of statistical and practical significance. It is reasonable to assume that the responses lean towards those of a low-context culture and that this is weakly supported.

<b>Question items</b>	<b>Cognitive groups</b>	<b>Culture-context tendencies</b>	<b>Level of support</b>
3-2 3-3	Accomplishing objectives (e.g. tasks)	Low context	Strong
3-1 3-7 3-16	Finding information	Low context	Strong
3-4 3-15 3-17	Better understanding of content (multimedia or text)	Combination of high- and low-context	Strong
3-6 3-11 3-12	Amount of multimedia content and colour use	Low context	Weak

**Table 7.5: Derived conclusions from the analysis of the cognitive groups in Government Websites**

Table 7.5 summarises the analysis of government websites. The results show that the regular South African user prefers low-context design styles when using the South African e-Government website. In addition, the following facts have been derived from the analysis, which apply to government websites:

- South African users want to complete their objectives in the simplest manner and as quickly as possible when using the site.
- South African users like to use search tools on a site to find information they require.
- South African users understand, comprehend and make better use of a site that contains a combination of both text and multimedia forms of information.
- South African users tolerate multimedia tools, aesthetics and colours on a site. However, this must be limited and not overused.

The facts derived from the items that were not incorporated into any group but proved to have a statistically and practically significant difference for the government websites include the following:

1. The participants prefer a detailed home page that clearly explains what sources of information are available on the government site.
2. The participants' do not like the government site to have multiple sidebars and menus.
3. The participants like the government site to constantly open new browser windows in the same browser window.
4. The participants do not like the government site to use pop-up window features.
5. The participants are reluctant to provide their personal details and information when using the government site.

Table 7.6 summarises the analysis of the facts above. The results show a predominant preference for low-context facts over high-context ones, which are all strongly supported (due to their statistically and practically significant differences).

<b>Feature number</b>	<b>Culture-context tendencies</b>	<b>Level of support</b>
1	Low context	Strong
2	Low context	Strong
3	Low context	Strong
4	Low context	Strong
5	High context	Strong

**Table 7.6: Derived conclusions from the analysis of items that are not included in the cognitive groups in Government Websites**

The results of this section are very similar to those of the all purpose websites; that is, they incline towards a low-context culture. However, a tendency for a low-context style and design approach is slightly more apparent for the government websites.

#### 7.2.4 The comparison: government and all purpose websites

This section will highlight aspects of interest that emerged from the direct comparison of the government and all purpose items. This will help determine whether the cultural-context dimension design features affect the behaviour of South African users differently when using all purpose websites in comparison to government ones.

##### 7.2.4.1 Pairwise t-test

The online questionnaire contained a section focusing specifically on all purpose websites and another focusing specifically on government websites. Both consisted of the same type of questions, although they were asked from a different perspective (government or all purpose).

The main reason for doing this was to distinguish whether there were any differences in the way in which users use all purpose websites in comparison to government websites. The goal therefore is to identify aspects in Web design, if any, which are preferred on government websites. These aspects should improve government websites by making them more user-friendly and understandable, and at the same time helping them meet the South African citizens' requirements and expectations more effectively and efficiently.

The participants' responses confirm that there are no major differences in the way in which they use government or all purpose websites, as well as in their preferences in terms of the design features that are used on both these types of website. This basically proves that the common South African user does not actually require a different approach in the design and representation of a government website when compared to an all purpose website. This can be observed in the Pairwise t-tests that were conducted. The results are displayed in Table 7.7.

Variable	Mean	Std.Dv.	N	Diff.	t	df	p	Effect size
Q2-1	2.58	1.20						
Q3-1	2.06	0.95	67	0.52	3.688	66	0.0005	0.44 (medium)
Q2-2	2.62	1.25						
Q3-2	2.68	1.17	69	-0.06	-0.394	68	0.6951	0.05 (small)
Q2-3	2.85	1.31						

Variable	Mean	Std.Dv.	N	Diff.	t	df	p	Effect size
Q3-3	2.49	1.13	67	0.36	2.673	66	0.0095	0.27 (small)
Q2-5	1.75	0.99						
Q3-5	1.82	0.97	67	-0.07	-1.093	66	0.2785	0.08 (small)
Q2-6	1.95	1.15						
Q3-6	1.88	0.99	65	0.08	0.582	64	0.5625	0.07 (small)
Q2-8	2.93	1.03						
Q3-7	2.76	1.05	67	0.16	1.169	66	0.2465	0.16 (small)
Q2-9	3.56	1.12						
Q3-8	3.62	1.12	66	-0.06	-0.552	65	0.5830	0.05 (small)
Q2-10	3.79	1.34						
Q3-9	3.70	1.36	66	0.09	0.668	65	0.5065	0.07 (small)
Q2-11	2.67	1.03						
Q3-10	2.67	1.15	66	0.00	0.000	65	1.0000	0.00 (small)
Q2-13	2.40	1.05						
Q3-11	2.75	1.16	68	-0.35	-2.857	67	0.0057	0.34 (small to medium)
Q2-15	4.19	0.89						
Q3-13	3.96	1.02	67	0.24	2.157	66	0.0346	0.27 (small)
Q2-17	2.25	1.15						
Q3-14	2.24	1.15	68	0.01	0.139	67	0.8899	0.01 (small)
Q2-18	2.64	1.10						
Q3-15	2.89	1.12	66	-0.26	-2.132	65	0.0368	0.23 (small)
Q2-21	1.66	0.71						
Q3-16	1.88	0.90	67	-0.22	-2.072	66	0.0422	0.32 (small to medium)

**Table 7.7: Results of the Pairwise t-tests for Government vs. All Purpose Websites**

In brief, these tests take the two corresponding items (“Variable” column); from government and all purpose websites and then compare their mean responses (“Mean” column) for significant differences. The “Diff” column shows the actual difference between the two mean values while the “t”, “df” and “p” columns respectively display the t-value, degrees of freedom and the p-value that result from the pairwise t-test.

Once the difference has been determined, it is categorised as being either of a small, medium or large effect size. This is calculated using Cohen’s d guidelines (Cohen, 1969). In terms of the results, there were only a total of three cases where the difference was not of a small effect size and this could possibly imply a practically significant difference as well. Two such cases were of a small to medium effect size (Q2-13 vs. Q3-11, and Q2-21 vs. Q3-16) and the other case was of a medium effect size (Q2-1 vs. Q3-1). In essence, the variables that compare items Q2-13 with Q3-11 and Q2-21 with Q3-16 measurements were too small to imply any practically significant

differences. However, the variable that compares Q2-1 with Q3-1, which is of a medium effect size, implies a practically significant difference.

In terms of its relevance to this test, the comparison of the variables Q2-1 with Q3-1 is the only case where there seems to be a notable difference in the perception and preferences of the participants when using all purpose and government websites. The rest of the cases clearly confirm that their preferences, understanding, and use of design aspects and features for government and all purpose websites are identical. They do not require different design styles for the two types of site.

With regards to the comparison of variables Q2-1 with Q3-1, which is of a medium effect size, one may conclude that the participants generally do not like to browse a website. Instead, they want to accomplish their tasks in the easiest and quickest manner possible. This applies to both types of websites, government and all purpose. However, in the case of the government websites, this was clearly more evident and thus more strongly supported. As mentioned earlier, this is the only case where such a difference is observed.

#### **7.2.4.2 Results of minor implications**

This section will briefly describe less-important facts that were observed from the pairwise t-tests. These facts have no real impact in terms of their effect but are worth mentioning for purely informative purposes, as they may provide a foundation for future research. In relation to the online questionnaire, the results were very similar when applied to government and all purpose websites (only three cases that may suggest a difference of practical significance). There were minor differences for a certain number of questions, which are now further elaborated on:

- Clearly, most of the participants generally did not prefer to use a menu when using both, government and all purpose websites. However, the number of participants who preferred to browse through a menu in all purpose websites was considerably more than there were for government websites (determined by the analysis of Q2-1 and Q3-1).
- Clearly, most of the participants preferred to have a menu system that allows them to achieve objectives in one way only for both government and all purpose websites. However, the number of participants who preferred to have a menu that provides them with multiple options in order to achieve objectives in all purpose websites was more than on government websites (determined by the analysis of Q2-3 and Q3-2).

- Clearly, most of the participants preferred an exploratory approach (process-oriented style) for both government and all purpose websites. However, the number of participants who preferred this type of approach were slightly less for all purpose websites than government websites. This may seem odd, as one would have expected the opposite. One would assume that users would prefer to achieve their objectives more easily and immediately when using government websites. Thus, government websites would have been expected to have a goal-oriented approach rather than a process-oriented style (determined by the analysis of Q2-8 and Q3-7).
- Clearly, most of the participants preferred the use of aesthetics on both government and all purpose websites. However, the number of participants who preferred aesthetics were slightly more for all purpose websites than government ones. This seems logical and makes perfect sense, as one would expect users to prefer a more direct communication approach (e.g. evidently stating terms and conditions) on government websites. This would provide government with credibility and instill confidence in citizens with regard to the website. It was predicted that the participants would prefer a direct communication style overall on government websites, which was not the case (determined by the analysis of Q2-13 and Q3-11).
- Clearly, most of the participants do not prefer the use of multiple bright colours, fonts or shapes in all purpose websites. From a government perspective, this question was asked in a somewhat different terms. The results show that the participants would prefer a government website to make use of more colours, other than the official government colours. This may imply that the government websites should use more colours because the participants think it would enhance the design and user experience or because the colours are kept to a minimum and are considered to be dull and boring, however it is difficult to say. One would expect the same results will apply to government websites in relation to colours, shapes and fonts as to all purpose websites (determined by the analysis of Q2-14 and Q3-12).
- Clearly, most of the participants preferred to use search engines when trying to find information for both government and all purpose websites. However, the number of participants who preferred this in all purpose websites was slightly more than in government websites. This contradicts the anticipated results. One would predict that there would be more participants using search engines to complete their tasks on government than all purpose websites (e.g. trying to find a bill or applying for an I.D.). This is due to the fact that

users use government websites for a particular purpose and it would be assumed that they would need to find the required information or complete the required task as soon as possible (determined by the analysis of Q2-21 and Q3-16).

Table 7.8 is a summary of the items that displayed slight differences in their analysis of all purpose and government websites (mentioned above). The rest of the results showed that the participants' answers were very similar when a question was asked from both perspectives.

Checkpoint	All purpose	Government
Use of menus	<input checked="" type="checkbox"/>	
Achievement of objectives in a single approach		<input checked="" type="checkbox"/>
Exploratory design approach		<input checked="" type="checkbox"/>
Use of aesthetics	<input checked="" type="checkbox"/>	
Use of multiple bright colours, shapes and fonts	N/A	N/A
Use of search engines	<input checked="" type="checkbox"/>	

**Table 7.8: Results of minor-significant differences from the comparison of All Purpose and Government Websites**

In terms of Table 7.8, the “Checkpoint” column represents the elements or case that is being evaluated. According to the results of that specific case, it will then be placed under the “all purpose” or “government” column. This depends largely on where that specific case is more commonly preferred. For example, results show that the use of menus is more common in “all purpose” websites. Hence, there is a tick under the “All purpose” column for this particular case.

For the case that evaluates the use of multiple bright colours, shapes and fonts, one will notice that there is no statement as to which website should make more use of these elements. This is because the question was asked from a slightly different way for the government websites in comparison to the all purpose ones (mentioned earlier in the analysis of these two items).

It is important to clarify that the analysis of the less-important items does not define whether or not the item is of a high- or low-context nature. This has already been achieved. With regards to these observations, although an item may be more commonly preferred in an all purpose website, this may generally not be the case. To make this more understandable, in Table 7.8 for example, menus will more generally be used in all purpose websites than in government ones. However, from the overall results the participants generally do not prefer to make use of a menu when using both types of websites, which conforms to a low-context culture for this design aspect. These are cases where

minor and less-important differences have been observed within the results when an item is being evaluated from both website perspectives.

#### **7.2.5 Analysis of Question 4 items (general culture-related behaviour)**

In order to test the cultural profile of the South African population, a section was added to the questionnaire, which tests the participants' general culture-related behaviour in everyday life. It is important to note that the questions in this section have no connection with the field of ICT. They focus primarily focuses on the actions and perceptions of South African citizens to certain situations relating to four important cultural values and aspects of life.

It is these cultural values that will assist in determining whether South Africa can be regarded as a high or low-context culture, or even a mixture of both (regarding the diverse cultural heritage of South Africa this option would be the most probable result). As mentioned above, the questions in this section will be validated according to four cultural values. They focus on the following ideals:

- What are South African perceptions of time? This relates to the polychronic vs. monochronic cultural dimension of Hall.
- What are the South African perceptions of their role in society and life in general? This relates to Hofstede's individualism vs collectivism cultural dimension.
- What are South African perceptions of their orientation to achieving goals and creating relationships? This is associated with Hofstede's short- vs long-term orientation cultural dimension.
- What are South African perceptions of the communication process? This is linked to the manner in which things are perceived to be more important: the words that are actually spoken or the surrounding context in which those words are transmitted in – this relates to the culture-context cultural dimension of Hall.

It is worth reminding one that the reason that Hofstede's two cultural dimensions, as well as Hall's time dimension, were used for this validation is because they are tightly coupled to the characteristics that determine whether a culture is a regarded as a high- or low-context one (discussed in more detail in sections 2.2.2.2. and 3.5.2).

### 7.2.5.1 Single sample t-test

This test will help determine to which side of the scale the typical South African citizen leans: high- or low-context in relation to the way they understand and live life in their own community. This test will only evaluate items 4-1 up to and including 4-10. The results of the t-test for these particular items are displayed in Table 7.9. All these items relate to the dimensions that test polychronic vs. monochronic, individualism vs. collectivism and long- vs. short-term orientation perceptions. Items 4-11 onwards will be discussed on their own in a separate section.

Variable	Mean	Std.Dv.	N	Reference	t-value	df	p	Effect size	Culture-context status
Q4-1	2.09	1.15	70	3.00	-6.64	69	0.0000	0.79 (large)	High
Q4-2	1.77	0.54	71	3.00	-19.12	70	0.0000	2.27 (large)	High
Q4-3	2.17	1.04	69	3.00	-6.58	68	0.0000	0.79 (large)	Low
Q4-4	3.40	1.21	70	3.00	2.76	69	0.0072	0.33 (small to medium)	High
Q4-5	3.48	1.29	71	3.00	3.13	70	0.0024	0.37 (small to medium)	High
Q4-6	2.80	1.33	70	3.00	-1.26	69	0.2109	0.15 (small)	Low
Q4-7	3.13	1.29	71	3.00	0.83	70	0.4092	0.10 (small)	Low
Q4-8	1.91	0.79	70	3.00	-11.44	69	0.0000	1.37 (large)	Low
Q4-9	4.29	0.82	69	3.00	12.99	68	0.0000	1.56 (large)	Low
Q4-10	2.20	0.83	69	3.00	-7.95	68	0.0000	0.96 (large)	High

**Table 7.9: Results of the single sample t-test for the items which measure polychronic vs. monochronic, individualism vs. collectivism and long- vs. short-term orientation tendencies**

The items that evaluate the polychronic vs. monochronic dimension include Questions 4-1, 4-2, and 4-3. Items that focus on the long- vs. short-term orientation include Questions 4-4, 4-5, and 4-10, while Questions 4-6, 4-7, 4-8, and 4-9 are items that focus specifically on the individualism vs. collectivism dimension. The items that imply both statistically and practically significant differences in this t-test include Q4-1, Q4-2, Q4-3, Q4-8, Q4-9, and Q4-10. The implications of the results for these items will be discussed in more depth in the section 7.2.5.3.

### 7.2.5.2 Analysis of items 4-11 to 4-24

In addition to the single sample t-test, these items were subjected to a factor analysis. All items focus specifically on the cultural-context dimension and test the participants' perceptions of the communication process.

The purpose of factor analysis is to divide the items that measure culture-context into correlated groups, which are referred to as "Factors". In order to achieve this, exploratory factor analysis was performed on the data from items 4-11 to 4-24 to determine which related items could be combined to form factors. To establish the number of factors, the eigenvalues of the correlation matrix and a plot of these values – the scree plot – were examined. The Eigenvalues of the items are displayed in Table 7.10 and the scree plot is displayed in Figure 7.1.

<b>Eigenvalues Extraction: Principal components</b>				
<b>Value</b>	<b>Eigenvalue</b>	<b>% Total Variance</b>	<b>Cumulative Eigenvalue</b>	<b>Cumulative %</b>
1	3.89	27.79828	3.89176	27.7983
2	2.12	15.14945	6.01268	42.9477
3	1.30	9.30584	7.31550	52.2536
4	1.13	8.09590	8.44893	60.3495
5	0.97	6.92673	9.41867	67.2762
6	0.89	6.38055	10.31194	73.6567
7	0.74	5.29215	11.05285	78.9489
8	0.62	4.40255	11.66920	83.3514
9	0.60	4.26419	12.26619	87.6156
10	0.52	3.73335	12.78886	91.3490
11	0.42	2.99694	13.20843	94.3459
12	0.33	2.38255	13.54199	96.7285
13	0.26	1.82715	13.79779	98.5556
14	0.20	1.44437	14.00000	100.0000

**Table 7.10: Eigenvalues and percentage variance explained**

Three popular methods are used to decide on the number of factors to use:

- Kaiser's rule – it states that the number of eigenvalues of the correlation matrix that are greater than 1 is the number of factors to use (Nunnally, 1978).
- The scree test – a plot of the eigenvalues is examined. Such a plot usually shows an "elbow", that is, a point beyond which the eigenvalues are relatively small compared to the eigenvalues

before that point. The rule is that the number of factors is equal to the number of eigenvalues before the “elbow” (Cattell, 1966).

- The proportion of variance explained by the factors – at least 50%.

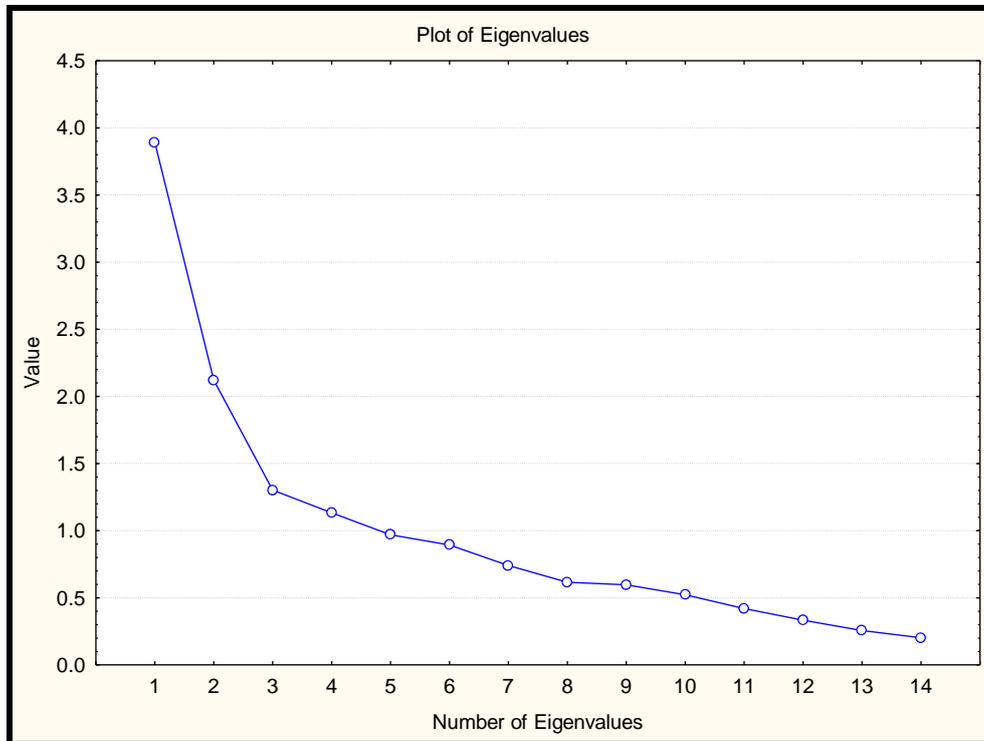


Figure 7.1: The scree plot of the items

It is good practice to use a combination of these rules to determine the number of factors. According to Kaiser’s rule, in the present situation one could use four factors, while the scree plot suggests only three. Both of these also satisfy the third criterion (proportion of variance explained at least 50%).

Subsequently, three and four factors were extracted by means of the principal axis factoring method and the rotation was performed using the Varimax method. These two solutions were examined and it was decided to use the three-factor solution based on its interpretability. The matrix of factor loadings is given in Table 7.11.

Variable	Factor Loadings (Varimax normalized)		
	Extraction: Principal axis factoring		
	Factor 1	Factor 2	Factor 3

Variable	Factor Loadings (Varimax normalized) Extraction: Principal axis factoring		
Q4-11	-0.06	0.64	0.01
Q4-12	-0.12	-0.16	-0.40
Q4-13	-0.20	0.70	0.04
Q4-14	0.19	0.45	0.11
Q4-15	0.26	0.50	0.42
Q4-16	0.10	0.26	0.17
Q4-17	0.23	0.40	0.20
Q4-18	0.53	0.06	0.28
Q4-19	0.93	0.07	-0.05
Q4-20	0.11	0.03	0.52
Q4-21	0.06	0.37	0.68
Q4-22	0.65	0.18	0.13
Q4-23	0.54	0.05	0.49
Q4-24	0.47	-0.10	0.34

\* Loadings which are greater than 0.4 are marked in red font

**Table 7.11: Results of the factor analysis for the items that measure cultural-context tendencies**

The three factors that emerged from this analysis were:

- Factor 1 – Items 4-18, 4-19, 4-22, 4-23, 4-24 (Cronbach alpha = 0.79)
- Factor 2 – Items 4-11, 4-13, 4-14, 4-15, 4-17 (Cronbach alpha = 0.68)
- Factor 3 – Items 4-12, 4-20, 4-21 (Cronbach alpha = 0.58)

These three factors seemed to have acceptable internal reliability as measured by Cronbach coefficient alpha. Although factor 3 had a relatively small value, it was measured by only three items and was deemed acceptable. The names that could be given to the factors are:

- Factor 1: “The impact the amount of words has in a conversation in SA”. The items that fitted into this factor are marked with red font in the “Factor 1” column.
- Factor 2: “The expectations of listeners and speakers in the communication process”. The items that fitted into this factor are marked with red font in the “Factor 2” column.
- Factor 3: “The reasons of communication failure”. The items that fitted into this factor are marked with red font in the “Factor 3” column.

In cases where an item had high loadings (greater than 0.4) on more than one factor, the item was placed in the most sensible factor based on theoretical grounds. In all cases this was where the loading was the highest.

Item 4-16 did not load on any of the three factors and was analysed separately. It looked at the importance of the surrounding context in a conversation. For this reason the specific item does not fit into any of the factors but is rather analysed on its own.

Item 4-12 shows negative results when applied to all three factors. This item was placed under the “Factor 3” column, in which it had the highest negative result. The reason for this is that the specific item was a negatively stated question (the word NOT was used and emphasised for this item). As a result, the factor that produces the highest negative value will be the preferred one.

A factor score for each factor was calculated for each of the respondents. This was done by calculating the respondent’s mean response on the items that make up each factor. This resulted in scores that were on the same scale as the individual items, namely they ranged from 1 to 5.

Table 7.12 shows the results of the single sample t-test, comparing the mean responses on item 4-16 and the three factors to the middle value of the scale, namely 3.0. Only variable 4-16 suggests differences of a statistical and practical significance. The rest of the results show that although the variables are portrayed as being either high- or low-context, this is not so strongly supported.

Variable	Mean	Std.Dv.	N	Reference	t-value	df	p	Effect size	Culture -context status
4-16	2.49	0.96	70	3.00	-4.48	69	0.0000	0.54 (medium)	High
Factor 1	2.89	0.78	70	3.00	-1.16	69	0.2495	0.14 (small)	High
Factor 2	3.20	0.70	70	3.00	2.41	69	0.0181	0.29 (small)	Low
Factor 3	3.15	0.67	69	3.00	1.84	68	0.0688	0.22 (small)	Low

Table 7.12: Results of the single sample t-test for the items 4-11 to 4-24

### 7.2.5.3 Implication of the results

Questions 4-1, 4-2, and 4-3 all focus indirectly on the participants' cultural-context status by testing their perceptions of time. The results show that for all these questions, except for question 4-3, the participants' responses suggest that they are of a high-context culture. The responses for question 4-3 aligned with those of a low-context culture. All items showed a statistically and practically significant difference. With regards to the time cultural dimension, South Africa can be regarded as a polychronic culture. In that respect, South Africa is more of a high-context culture and this is moderately supported.

Questions 4-4, 4-5, and 4-10 focus indirectly on the participants' cultural-context status by testing their orientation perceptions. The results show that for all these questions the participants' responses suggest that they are of a high-context culture. Items 4-4 and 4-5 showed a statistically significant difference while item 4-10 was of a statistical and practical significance. With regards to the orientation cultural dimension, South Africa can be regarded as a long-term orientation culture. In that respect, South Africa is more of a high-context culture and this is strongly supported.

Questions 4-6, 4-7, 4-8, and 4-9 focus indirectly on the participants' culture-context status by testing their perceptions of the individualism vs collectivism cultural dimension. With regards to this dimension, the results clearly align with those of a low-context culture. However, only items Q4-8 and Q4-9 were of a statistical and practical significance. The results portray South Africa as an individualistic society. In that respect, the participants' responses suggest that they are of a low-context culture and this is strongly supported.

Question items	Culture dimension checkpoint	Culture dimension status	Culture-context tendencies	Level of support
4-1 4-2 4-3	Time (polychronic vs. monochronic)	Polychronic	High context	Moderate
4-4 4-5 4-10	Orientation (long term vs short term)	Long term	High context	Strong
4-6 4-7 4-8 4-9	Role in society and predominant values (individualism vs. collectivism)	Individualism	Low context	Strong
4-11 to 4-24	Communication (high-context vs low context)	High and low context	High and low context	Strong

**Table 7.13: Derived conclusions from the analysis of items which measure polychronic vs. monochronic, individualism vs. collectivism and long- vs. short-term orientation tendencies**

Questions 4-11 up to and including 4-24 all primarily focus on the way a message is being transmitted as well as the context in which that message is being communicated. These questions test the participants' perceptions directly in terms of the cultural-context dimension. The participants' responses were very evenly balanced for these questions. Half of the responses imply that South Africa is a high-context culture (Questions 4-11, 4-13, 4-16, 4-19, 4-20, 4-22, and 4-24) while the other half implies that it is a low-context culture (Questions 4-12, 4-14, 4-15, 4-17, 4-18, 4-21, and 4-23).

Table 7.13 summarises the analysis from the four culture dimension aspects. The results show that the typical South African citizen has more high-context tendencies according to the manner in which they live their daily lives. The following points identify the position of the participants with regard to the culture dimension that is being evaluated, as well as certain characteristics that are associated with the particular dimension. These characteristics are important and should be considered in any business and social attempts, and not only when designing software products. In addition, the following facts have been derived from this analysis:

- South African people are polychronic. Effects that are associated with polychronic individuals include doing many things at once and in their own time; they are very distractible and subject to interruptions, are committed to people and human relationships, and tend to change their plans more often and easily.
- South African people have a long-term time orientation. This has a major impact on the way they understand and achieve various goals and objectives in life, as well as on the relationships that they create. Long-term oriented individuals are persistent, they order the status of a relationship and respect this order, and tend to have a sense of shame, which may prevent them from confrontational situations.
- South African people have more individualistic perceptions. Their main focus is on their own and immediate family's well-being. There is a low sense of community or group ethic within society, although group work is important. Personal achievements and individual

rights are highly valued. Everyone is entitled to their personal opinion and should be able to express it freely.

- South African people take into account both aspects of the communication process equally: the actual message that is being transmitted and the surrounding context in which that message is being transmitted. They both have a crucial bearing on the understanding of the message that is trying to be communicated.

### **7.3 Expert review analysis**

There are three distinct sections in the expert review. The first section focuses on the biographical information of the reviewers, the second focuses on the cultural-context heuristics and the third relates to the e-Government heuristics. It is the results of sections 2 and 3 that will be thoroughly analysed and discussed. Appendixes have also been provided for a more comprehensive study of the results. Appendix L displays the actual expert review that was sent to the reviewers and Appendix M includes the results from the expert reviewers, as returned by each reviewer respectively.

#### **7.3.1 Analysis of section 2 (cultural-context heuristics)**

This part will first focus on the results of the analysis and will then determine the implications of these results. Once this has been achieved, the usability task list for section 2 will be provided.

##### **7.3.1.1 Results**

The majority of participant responses were used to determine whether a specific item is a high- or low-context one. In order to clarify this, an example is provided: in the case of item 1.1, one will notice that the letter “Y”, which constitutes “Yes”, was the most preferred option. Thus, the verdict for this particular item (the “Overall result” column) will display “Yes”. Then it is the literature itself that determines the implications of these results (e.g. that item 1.1 is low-context). In addition, “N” constitutes “No” and “NA” constitutes “Not Applicable”. The results for Section 2 of the expert review are displayed in Table 7.14. Items 3.2, 8.4, and 8.8 are “Not Applicable” because they do not relate directly to high- and low-context heuristics (more detail in Section 6.3.2.1). Item 7.3 is “Not Determined” because there are an equal number of “Y” and “NA” answers.

Item no.	Expert 1	Expert 2	Expert 3	Expert 4	Expert 5	Expert 6	Overall result	Culture-context status
<b>1. Links</b>								
1.1	N	Y	Y N	Y	Y N	Y	Yes	Low
1.2	Y	N	N	Y	N	N	No	High
1.3	N	N	Y	N	Y	N	No	High
<b>2. Navigation</b>								
2.1	Y	Y	Y	Y	Y	N	Yes	Low
2.2	Y	Y	Y	Y	Y	NA	Yes	Low
2.3	Y	Y	Y	Y	Y	N	Yes	High
2.4	Y	Y	Y	Y	Y	NA	Yes	Low
<b>3. Searching</b>								
3.1	Y	Y	Y	Y	Y	Y	Yes	Low
3.2	Y	Y	N	-	Y	Y	Yes	*Not Applicable
<b>4. Home Page</b>								
4.1	N	N	Y	N	Y	Y	Yes/No	High/Low
4.2	Y	N	Y	Y	Y	N	Yes	Low
<b>5. Colours</b>								
5.1	Y	Y	Y	Y	Y	Y	Yes	Low
5.2	Y	Y	Y	Y	Y	Y	Yes	Low
<b>6. Fonts</b>								
6.1	Y	Y	Y	Y	N	Y	Yes	Low
6.2	N	Y	N	N	N	Y	No	High
6.3	N	N	N	N	N	Y	No	High
<b>7. Privacy</b>								
7.1	Y	Y	Y	Y	Y	Y	Yes	Low
7.2	Y N	Y	Y	Y	Y	Y	Yes	Low
7.3	NA	Y	Y	NA	Y	NA	Yes/NA	Not Determined
<b>8. General – Design Features</b>								
8.1	Y	Y	Y	Y	Y	Y	Yes	Low
8.2	N	Y	-	Y	Y	NA	Yes	High
8.3	N	Y	Y	Y	N	Y	Yes	Low
8.4	Y	Y	N	Y	N	Y	Yes	*Not Applicable
8.5	Y	Y	Y	Y	Y	Y	Yes	Low
8.6	N	N	N	N	Y	Y	No	High
8.7	Y	Y	Y	Y	Y	N	Yes	High
8.8	N	N	Y N	NA	N	Y	No	*Not Applicable

Table 7.14: Results from Section 2 (cultural-context heuristics) of the expert review

### 7.3.1.2 Implications

Table 7.15 is an adequate summary of the results of section 2. In this table, each aspect is validated in accordance to the high- vs. low-context status of its own items. Once again, it is the majority of results that will determine if the site is high- or low-context in terms of the particular aspect. In order to clarify this, an example will be provided: in the case of the Links aspect, which has three related items; one will notice that items 1.2 and 1.3 are of a high-context nature and only item 1.1 is of a low-context nature. Because of the fact that the high-context items prevail over the low-context ones, this design aspect is regarded to be more high-context.

Aspects	Culture-context status
Links	High
Navigation	Low
Searching	Low
Home page	Low
Colours	Low
Fonts	High
Privacy	Low
General design features	High/Low

**Table 7.15: Summary of Section 2 (cultural-context heuristics) results**

In terms of Table 7.15, the results suggest that the South African government website is more low-context in terms of the design styles, elements and approaches that were used for its design. Although there are certain aspects of design that follow the high-context influences of Web design, the low-context ones are more clearly predominant. The online questionnaire showed that the South African participants preferred low-context design styles when using government websites. In the case of this assessment, the South African e-Government website does meet the cultural-context preferences of the participants in relation to their cultural-related behaviour when using the specific site. In terms of the Links, Fonts and General design features (was evenly balanced) categories, which did not match the low-context styles of design, they may be adjusted and improved on in order to meet these standards, which should be more low-context.

### 7.3.1.3 Usability task list

As mentioned previously, a usability task list has been provided, which relates to section 2. What follows now is a brief description on how the usability task list table is designed.

Table 7.16 includes a detailed analysis for each item of section 2 of the expert review. In terms of the table, a main category is being assessed (e.g. Links), a related subcategory (e.g. 1.1 Internal links), and comments (“Comments” column) from the reviewers for the specific item. In addition, depending on the comments of the reviewers, usability issues (“Usability issues” column) may be identified. In certain cases, the experts expressed their own recommendations (“Expert recommendations” column) in order to improve or fix a usability issue. One will also notice that after each recommendation there is a number to which it relates. This number corresponds with the same number in the “Comments” column. In other words the subsequent recommendation results from that specific comment.

Item no.	Subcategory	Comments	Usability issues	Expert recommendations
<b>1. Links</b>				
1.1	Internal links	<ul style="list-style-type: none"> <li>• The “<i>services</i>” link on the portal (home page) opens up in a new browser window.</li> <li>• All links within the “<i>services</i>” section open up in the same browser window,</li> <li>• All the links under the “<i>services</i>” category on the portal open-up in the same browser window.</li> <li>• Links back to the portal from “<i>Government services</i>” and “<i>Government information</i>” sections open in new windows.</li> <li>• Certain links on the “<i>Documents</i>” page open in new windows</li> </ul>	There is a high degree of inconsistency: Certain internal links open up in new browser windows while others open up in the same browser window, irrespective of whether they belong to the same section or not (“ <i>Government services</i> ” or “ <i>Government information</i> ”).	
1.2	External links	<ul style="list-style-type: none"> <li>• Most of the external links open in new browser windows.</li> <li>• Links on the “links” page open in the same browser window. Only at the second level of depth do links open pages in new browser windows.</li> <li>• In some cases it is difficult to</li> </ul>	There is a medium degree of inconsistency: Certain external links open up in new browser windows while others open up in the same browser window.	

		differentiate between an internal and external link.		
1.3	Use of external links	<ul style="list-style-type: none"> <li>• Wide variety of external links (e.g. <i>museums, festivals, South Africa 2010</i> etc.)</li> <li>• External links to outside companies and organisations.</li> <li>• Limited external links for private sector.</li> </ul>		
<b>2. Navigation</b>				
2.1	Menus and links redundant to find information	<ul style="list-style-type: none"> <li>• In some cases the menu and links are not redundant enough (e.g. it is not obvious that the headings “<i>services</i>” and “<i>information</i>” on portal are also links).</li> <li>• Generally it easy to find the required information through the menus and links, which are to the point (e.g. “<i>dual citizenship</i>”, “<i>renew motor vehicle licence</i>”).</li> </ul>	There is a low degree of inconsistency: links are not always clear and recognisable.	
2.2	Menus and links redundant to accomplish tasks	<ul style="list-style-type: none"> <li>• Generally there is sufficient clarity for users to accomplish tasks through the menus and links, which are to the point.</li> <li>• The links that relate to tasks are also highlighted and underlined in the “<i>services</i>” section.</li> </ul>		
2.3	Alternative paths to	1. Links that are under the “ <i>services</i> ” heading on the portal page are also		

	complete objectives	<p>available on the “<i>services</i>” page itself.</p> <ol style="list-style-type: none"> <li>Click on a specific link or by browsing through the page/category link and then selecting the specific link.</li> <li>Site map, FAQs, breadcrumb trail, RSS feed, within site search functionality.</li> </ol>		
2.4	Website approach	<ol style="list-style-type: none"> <li>Goal-oriented.</li> <li>Navigation labels are focused on getting to content.</li> </ol>		
<b>3. Searching</b>				
3.1	Multiple search options	<ol style="list-style-type: none"> <li>There is a simple search, advanced search, and VQL search.</li> <li>There is a “<i>search for information</i>” link on the portal.</li> <li>The search mechanism on the “<i>services</i>” page is different to the one on the “<i>information</i>” page.</li> </ol>	There is a medium degree of inconsistency: search mechanisms are different on certain pages. This may cause confusion for the users.	A search box with a search button on the portal would be more clear and standardised (relates to 2).
3.2	Searching for different skill levels	<ol style="list-style-type: none"> <li>Simple and advanced search options are available.</li> <li>The search mechanism on the “<i>services</i>” page is not clearly marked.</li> <li>If no text is entered into the search box and clicked on the “<i>services</i>” page, a technical error message is displayed.</li> <li>The “<i>search for information</i>” link on portal not very helpful.</li> <li>The results from a search return matched words mostly from documents, bills, regulations and speeches, etc.</li> </ol>		<p>An explanation of the “VQL” search and how it works is required (relates to 1).</p> <p>Illiterate users will not realise the search mechanism on the “<i>services</i>” page and that it can be used to find information (relates to 2).</p> <p>A one-liner search box should be available for novice users rather than the “<i>search for information</i>” link on portal (relates to 4).</p>

				Results should rather show where the required information can be found on the site, e.g. if one wants to renew a drivers licence, there should be a link to the relevant page, from the search results (relates to 5).
<b>4. Home Page</b>				
4.1	Detail overview of content	<ol style="list-style-type: none"> <li>1. Only links are provided.</li> <li>2. It is not clear what content is available within site.</li> <li>3. It is not clear that the site is divided into two other websites (“<i>South African Government Services</i>” and “<i>South African Government Information</i>”).</li> <li>4. There are a total of three websites.</li> </ol>		
4.2	Description of links	<ol style="list-style-type: none"> <li>1. Certain labels are vague.</li> <li>2. The “FAQs” link is unclear.</li> <li>3. There are no descriptions available.</li> </ol>		The home page of a website should be link-rich (relates to 1). It would be better to write the abbreviation out in full in brackets (relates to 2).
<b>5. Colours</b>				
5.1	Use of bright colours	<ol style="list-style-type: none"> <li>1. The use of bright colours (e.g. red, and orange) is usually observed in the headings.</li> </ol>		
5.2	Use of multiple colours	<ol style="list-style-type: none"> <li>1. There is a consistent colour palette of less saturated and muted colours of green that is used throughout.</li> <li>2. Portal page colours are not consistent</li> </ol>	There is a low degree of inconsistency: the colours used on the portal page are not consistent with the	

		with the rest of the site.	other pages.	
<b>6. Fonts</b>				
6.1	Use of standard font colour	<ol style="list-style-type: none"> <li>1. The colour used in the body text is mostly black but not consistent throughout.</li> <li>2. The hyperlink colours are not consistent (e.g. underlined blue, green and black colours).</li> <li>3. Certain links are underlined while others are not.</li> <li>4. The portal page differs considerably with the rest of the site.</li> </ol>	There is a medium degree of inconsistency: different colours are used in the text.	
6.2	Use of standard font size	<ol style="list-style-type: none"> <li>1. The body text size is considerably consistent.</li> <li>2. The navigation and heading font sizes are not standard throughout.</li> <li>3. Although there is a use of different font sizes, it is a font size 10 and 8 that is mainly used.</li> </ol>	There is a medium degree of inconsistency: more than one font size has been used in the body text.	
6.3	Use of standard font type	<ol style="list-style-type: none"> <li>1. A combination of Arial and Verdana are used on different pages.</li> <li>2. There is a mixture of serif and sans-serif fonts.</li> <li>3. The font type of the body text is consistent but not standard throughout.</li> <li>4. The portal page uses san-serif font for its navigation which differs from the other navigation font type within the site.</li> </ol>	There is a low degree of inconsistency: mainly Arial and Verdana font types are used.	
<b>7. Privacy</b>				

7.1	Clear user rights	<ol style="list-style-type: none"> <li>1. The “Terms and conditions” page clarifies the users’ rights.</li> <li>2. Each section of the site has the “Terms and conditions” link.</li> <li>3. The “Terms and conditions” page should open in a new browser window but it does not.</li> </ol>		
7.2	Legitimate and representative of SA Government	<ol style="list-style-type: none"> <li>1. The portal does not clearly represent the SA government. However, the “services” and “information” sections do.</li> <li>2. This is depicted by the URL, flag and content.</li> <li>3. There is credibility of the content and clear contact details.</li> <li>4. Safety can never be guaranteed or assumed. The “Terms and conditions” page does address security and privacy.</li> </ol>		
7.3	Safety of personal information	<ol style="list-style-type: none"> <li>1. There are clear privacy and disclosure statements.</li> <li>2. The “Terms and conditions” page supports this.</li> </ol>		
<b>8. General – Design Features</b>				
8.1	Use of multimedia elements	<ol style="list-style-type: none"> <li>1. There are limited multimedia elements</li> <li>2. The plain transcripts of television interviews were pleasing.</li> </ol>		
8.2	File sizes for downloads	<ol style="list-style-type: none"> <li>1. There is no indication as to file sizes on the PDF files.</li> <li>2. This also depends on user’s connection</li> </ol>		It would be advisable to put file sizes on the documents in the case of downloading, although one can

		type		see the size of the completed file as it is downloading (relates to 1).
8.3	Page layout and approach	<ol style="list-style-type: none"> <li>1. There is congested information on many of the pages (e.g., on the “<i>Information</i>” home page). However, this information is well grouped and easy to find when one knows what they are looking for.</li> <li>2. There is a functional design approach – the various navigation and content areas are well defined.</li> <li>3. Certain information may only be accessed after several clicks (e.g. finding events).</li> </ol>	Congestion of information on many of the pages.	
8.4	Use of formal language	<ol style="list-style-type: none"> <li>1. Clear and simple English is used throughout.</li> </ol>		
8.5	Use of pop-ups	<ol style="list-style-type: none"> <li>1. Other than websites opening in new windows, there is no use of pop-ups.</li> </ol>		
8.6	Use of sidebars	<ol style="list-style-type: none"> <li>1. Only available on the home pages of each section.</li> <li>2. They are very consistently used on the “<i>Government information</i>” side. However, it is not consistent on the “<i>Government services</i>” pages.</li> <li>3. There seems to be sidebars everywhere. The ones that were on the right side of the page were ignored.</li> </ol>		
8.7	Use of	<ol style="list-style-type: none"> <li>1. There are many options: top navigation,</li> </ol>		

	multiple menus	breadcrumb navigation, left-hand navigation, footer-navigation, and related-navigation on the sidebars.		
8.8	Multilingual site	<ol style="list-style-type: none"> <li>1. Only apparent on the “<i>Government Services</i>” side – there is a language menu selection option</li> <li>2. There is nothing on the “<i>Government Information</i>” side.</li> <li>3. Certain content is multilingual but there is other crucial information that should also be multilingual and it is not.</li> </ol>		

Table 7.16: Usability task list for Section 2

### 7.3.2 Analysis of section 3 (e-Government heuristics)

This part will follow a similar approach of analysis as used in section 2. It will first focus on the results of the analysis and will then determine the implications of these results. Once this has been completed, a usability task list relating to section 3 is provided.

#### 7.3.2.1 Results

The mean score will be calculated in order to analyse and determine the collective severity rating score for each item. The mean score was the preferred measurement as it has been used before by other researches within the field in their attempts to analyse heuristic evaluations (McDaniel, 1999).

Item no.	Expert 1	Expert 2	Expert 3	Expert 4	Expert 5	Severity rating average
<b>1. Design for accessibility</b>						
1.1	1	0	3	1	4	1.8
<b>2. Promote unity</b>						
2.1	0	0	0	3	0	0.6
2.2	3	2	0	2	3	2.0
<b>3. Information &amp; services</b>						
3.1	1	2	0	2	3	1.6
3.2	2	2	0	2	3	1.8
3.3	2	1	-	2	4	2.3
<b>4. Analysis</b>						
4.1	2	0	-	1	0	0.8
4.2	0	0	-	1	0	0.3
<b>5. Privacy</b>						
5.1	0	0	0	2	0	0.4
5.2	-	0	0	4	0	1.0
<b>6. Technological adaption</b>						
6.1	3	2	3	2	2	2.4
6.2	1	2	-	2	2	1.8
<b>7. Content</b>						
7.1	1	2	0	3	2	1.6
7.2	0	0	0	3	3	1.2
<b>8. General design features</b>						
8.1	4	3	2	3	4	3.2
8.2	0	2	0	3	2	1.4
8.3	0	0	0	2	0	0.4
8.4	2	0	1	3	1	1.4

Table 7.17: Results from Section 3 (e-Government heuristics) of the expert review

Microsoft Excel is the program that was used to calculate the overall mean of each item, using the average function in particular. The purpose of the Average function is to calculate the arithmetic mean of the arguments (Microsoft Excel, 2007). In other words, the ratings of the experts for each specific item are combined and these return the average score (the “Severity rating average” column). The results for section 3 of the expert review are displayed in Table 7.17.

The ratings from one of the experts (expert 6 in Table 7.14) for section 3 were not included and therefore not considered in the overall results. This was because the expert provided Y/N/NA answers instead of the severity rating that was required for this section. This decision was made for the sake of research integrity and to avoid bias. However, the same expert’s answers and comments were included and considered in section 2 of the heuristic evaluation. One will also notice that in Table 7.17 there are certain cases where there is a “-” symbol instead of a severity rating. In these cases the expert replied with Y/N/NA answers as well. In these limited cases, the reviewers’ answers were not measured in the overall rating of the specific item.

In terms of the results, items that showed a severity rating of 2.0 or higher were considered more significant. These included items 2.2, 3.3, 6.1, and 8.1. A complete set of usability problems and recommendations will be discussed later on in the chapter. Items 2.2, 3.3, 6.1 and 8.1 will be referred to in this section along with other issues which are the outcome of the analysis.

### 7.3.2.2 Implications

Table 7.18 shows how the South African e-Government site rated according to the UK key guidelines for e-Government development (discussed in detail in section 6.3.2.1) by which it was assessed. For this assessment, a three-scale compliant level is used for each guideline (low-, semi- or high-compliant level of adherence). The high-compliant level is also used to describe the cases in which the website might be fully compliant with a specific UK guideline.

Guideline No.	Comments	Compliant level
1	The site was highly focused on its users and was equally accessible. However, it could not be determined if the <i>World Wide Web Consortium (W3C)</i> and the <i>Web Accessibility Initiative (WAI)</i> guidelines for accessibility were followed.	Semi
2	The various government websites are well inter-connected. However, the great diversity and inconsistency of the sites break the unity and deprive the one entity image of Government. It could not be determined if the <i>e-Government Interoperability Framework (e-GIF)</i> guidelines were followed. The <i>Government Gateway</i> is used to provide online services.	Low
3	The Government organisations are striving towards producing all of their government services and information online.	High
4	The content does meet the users' expectations in terms of quality, accuracy and uniformity of the government content.	High
5	The government website follows legal procedures and explains its terms and conditions explicitly to the citizens. It could not be determined if the <i>Trust Charter for Electronic Service Delivery (e-Trust Charter)</i> guidelines were followed.	High
6	The government website is two-way with regards to communication. However, it can become even more transparent and engaging with citizens.	Semi
7	The government website is not able to operate through a full range of channels and other technological means.	Semi
8	The government website requires more reporting tools in place that will evaluate the system.	Low
9	The government website does provide a certain degree of metadata about its documents, yet more is required. It could not be determined if the <i>e-Government Metadata Framework (e-GMF)</i> was followed.	Semi
10	The government website is properly and well managed. It is well-maintained and frequently updated.	High

**Table 7.18: Assessment of the South African e-Government website according to the UK e-Government development guidelines**

### 7.3.2.3 Usability task list

As mentioned previously, a usability task list has been provided that relates specifically to section 3. Table 7.19 includes a detailed analysis for each item for section 3 of the expert review. As with section 2, a brief description on the way the table is designed will follow.

In terms of the table, there is a main category that is being assessed (e.g. Design for accessibility), a related subcategory (e.g. 1.1 Use of W3C accessibility guidelines), and comments (“Comments” column) from the reviewers for the specific item. In addition, depending on the comments of the reviewers, usability issues (“Usability issues” column) may be identified. In certain cases, the experts expressed their own recommendations (“Expert recommendations” column) in order to improve or fix a usability issue. One will also notice that after each recommendation there is a number to which it relates to. This number corresponds to the same number in the “Comments” column. In other words the subsequent recommendation is results from that specific comment.

Item no.	Subcategory	Comments	Usability issues	Expert recommendations
<b>1. Design for Accessibility</b>				
1.1	Use of W3C accessibility guidelines	<ol style="list-style-type: none"> <li>1. There is no reference to the W3C accessibility guidelines.</li> <li>2. The site is quite accessible. However, it could be improved a great deal by following basic W3C guidelines.</li> <li>3. The “<i>About the site</i>” page explains the purpose of the site but there is no mention about W3C.</li> </ol>	Basic W3C guidelines have not been followed.	The commonly used “ <i>about us</i> ” page is not available on home page of the site. There is an “ <i>about government</i> ” link. The “ <i>About the site</i> ” link is evidently available within the site. All this inconsistency may cause confusion to the users (relates to 3).
<b>2. Promote Unity</b>				
2.1	Connection of all government entities	<ol style="list-style-type: none"> <li>1. Possible to access any department website easily.</li> </ol>		
2.2	Government as one entity	<ol style="list-style-type: none"> <li>1. It seems to be portrayed as one entity.</li> <li>2. There is a lack of consistency between the websites, which breaks</li> </ol>	There is a lack of unity and consistency, thus government is not portrayed as one complete and unified entity.	

		the unity. 3. The fact that there are all different windows opening also breaks the entity.		
<b>3. Information and Services</b>				
3.1	Availability of all Government information online	1. There is no explicit statement on what information is available to the public. However, important information seems to be listed and linked to. 2. The “ <i>About the website</i> ” page briefly states the type of information available.		The “ <i>About the website</i> ” link is not consistent. It is at the top of the page in the “ <i>services</i> ” section and at the bottom of the page in the “ <i>information</i> ” section. It is also referred to “ <i>about the site</i> ” on the “ <i>information</i> ” side (relates to 2).
3.2	Clarification on services provided	1. There are extensive services available to the users.	The type of services available need to be better explained.	There is a need for more clarity about the types of service available upfront. As is, the user needs to dig deep in order to find the service required (relates to 1).
3.3	Use of metadata	1. This mainly depends on how the information is used. For the novice users the metadata is sufficient (e.g. department, title, file type, date etc.)		
<b>4. Analysis</b>				
4.1	Use of reporting tools	1. It is not noticeable whether there are any reporting tools in place.	There is a lack of reporting and analysis tools.	

		<p>2. It is not important as such information would question the credibility of the data.</p> <p>3. On the “<i>services</i>” section there is a reporting tool (e.g. urchinTracker). However, on the “<i>information</i>” section there is no evidence of any tools.</p>		
4.2	Clarification of user information for analysis	<p>1. It is specified that user information is collected (e.g. cookies) to help analyse website usage.</p> <p>2. The “<i>Terms and conditions of use</i>” page discusses this matter.</p>		
<b>5. Privacy</b>				
5.1	Clarification of legalities	<p>1. The “<i>Terms and conditions</i>” page addresses this.</p>		<p>The “<i>Terms and conditions</i>” link is also referred to as the “<i>Terms and conditions of use</i>” link in certain instances. They both lead to the same page, “<i>Terms and conditions</i>”. Once again, this inconsistency may cause confusion (relates to 1).</p>
5.2	Protection of users personal information	<p>3. The “<i>Terms and conditions</i>” page addresses this.</p>		
<b>6. Technological Adoption</b>				
6.1	Alternative	<p>1. There is no clarification of other</p>	The site lacks alternative	

	technological means of accessibility	<p>accessibility options.</p> <p>2. Certain pages have proper doctypes that detail any Web standards conformance – therefore much of the website is not forward compatible.</p>	technological means of accessibility.	
6.2	Adaptability towards future technologies	<p>1. The site has no position regarding future technologies.</p> <p>2. The site only states that it continuously updates the information and website.</p>	The site has no indication of adaptability towards future technologies.	
<b>7. Content</b>				
7.1	Relevance to user expectations	1. The content meets user expectations.		There seems to be too many pathway pages with navigation before reaching the required content (relates to 1).
7.2	Currentness	<p>1. The content is dated accordingly and archived information is also available.</p> <p>2. Content is updated on a daily basis.</p>		
<b>8. General – Design Features</b>				
8.1	Consistent look and feel of site	<p>1. The links are not consistent.</p> <p>2. The home page needs to look and feel similar to the other pages.</p> <p>3. The various government websites are</p>	The site does not have a comparable look and feel about it, thus there is a great amount of inconsistency throughout and within all design aspects.	

		<p>too different – not portrayed as one entity.</p> <p>4. The consistency is different in the home pages of the “<i>services</i>” and “<i>information</i>” sections (e.g. design, layout, colours navigation).</p>		
8.2	Promotion of two-way communication	1. Official contact information is clearly displayed (e.g. phone numbers and addresses). However, this could still be made even clearer.		
8.3	Ease of finding site	1. The site is easy to locate. It appears first on Google.		
8.4	Well-maintained site	<p>1. There are consistency issues.</p> <p>2. All links are working well.</p> <p>3. Overall, it is well-maintained.</p> <p>4. The Last Updated dates are indicated (current on updates).</p>		

Table 7.19: Usability task list for Section 3

### 7.3.3 Usability problems and recommendations

The usability problems that have been identified by means of the expert review analysis may be grouped into five main categories: navigation, visibility and recognition, searching, consistency and general. These usability problems are displayed in Table 7.20. In addition, the table consists of recommendations that correspond to each usability problem respectively.

No.	Description of problem	Design recommendation
<b>Navigation</b>		
1	Certain internal links open in new browser windows while others in the same browser windows.	Internal links should open in the same browser window.
2	Certain external links open in the same browser windows when they should not.	External links should open in a new browser window.
3	Internal and external links cannot be differentiated.	Use a different colour for internal and external links.
4	Sidebars are not the same throughout the site and in the cases where they were placed on the right-hand side of the page they were not really used	Create a standard format of sidebars for all the sites: portal, “information”, and “services” sections and remove sidebars on the right-hand side of the page.
<b>Visibility and recognition</b>		
5	Certain links and labels are not clear and are vague.	Underline all links and give detailed descriptions for all labels.
6	No clarity and detail of the site content from the portal.	Make the portal very transparent. Provide a detailed overview of the site from it. It should include a large collection of links with clear descriptions by making use of subheadings, headings and illustrations.
7	Links are not always underlined.	All links must be underlined.
8	Information is congested on certain pages and it can also be hard to find at times (three levels deep or more).	Information should be displayed side by side so that nothing is covered and users should be able to access the information (at least the most important) within two clicks.
<b>Searching</b>		
9	Cannot search for information from the portal	Add a search box with a “Search” button on the portal itself
10	Search facilities (Searchbox) within the site looks different (not referring to search page)	Use the same type of search mechanism on the portal, “information”, and “services” sections
11	Error messages from invalid searches (via Searchboxes) are not user-friendly	Error messages must be in simple English with non-technical terms and should guide the user, as well as describe the cause of the problem
<b>Consistency</b>		
12	Colours used on portal do not match up	Make use of the same colour themes

No.	Description of problem	Design recommendation
	with the rest of the site	throughout all the sites: portal, “information”, and “services” sections
13	Colour, size and type of font is not always the same throughout the site	Use a standard colour, size and type of font for each section on a page (e.g. all headings can be blue, bold, Arial 20 while the body text of the page can be black, Arial 12)
14	Use of various link colours throughout the site	Keep two standard link colours (e.g. green for internal links and blue for external links)
15	The Government departments’ sites are too different in all aspects and this breaks Government unity	It was mentioned that all sites: portal, “information”, and “services” sections should look and feel the same - this should apply for all the various government departments’ websites as well
<b>General</b>		
16	“Terms and conditions” page does not open in a new browser window	The “Terms and conditions” page should be the only internal link that does open in a new browser window
17	File sizes of documents are not available	Provide all downloadable documents with file size descriptions
18	Not all content is multilingual	At least the most important information must be multilingual on all sites: portal, “information”, and “services” sections
19	The W3C accessibility guidelines were not followed	The W3C accessibility guidelines should be used to improve upon the current site where it is needed
20	There is an evident lack of reporting tools in place (it is difficult to determine this with certain reporting tools – there might be tools in place that can only be viewed from the government side)	Reporting tools should be included, as this will constantly help improve the site (e.g. number of users, successful/unsuccessful tasks completed, most viewed information)
21	There is no indication of other accessibility options and adaptability towards future trends and technologies are not evident	The site should be equally accessible and usable across all current technologies (e.g. digital TV, mobile phones, etc.) and it should be able to adapt to future technologies (e.g. HD video of the minister’s National Budget speech)

Table 7.20: Usability problems and recommendations to improve the South African e-Government website

In many of the cases, the recommendations provided are based on a low-context perspective. There are two main reasons for this:

1. The survey shows that the participants clearly prefer low-context styles in terms of Web design for both government and all purpose websites.
2. The expert review shows that the South African e-Government website is designed to match the understandings and preferences of more low-context users in terms of its style.

### 7.3.4 Analysis of hypotheses

In section 6.2 the formulated hypotheses of this research, as well as the techniques that will be used to assess them, were discussed in detail. Since the survey and heuristic evaluation has been completed and the results have been thoroughly analysed, the hypotheses may now be tested. Table 7.21 displays the results from the analysis of the four hypotheses.

Hypothesis	Accept	Reject	Comments
H0		<input checked="" type="checkbox"/>	Despite the mixture of high- and low-context influences, South Africa is considered to be more of a high-context society. In terms of the South African e-Government website, there are noticeably more low-context elements and styles of Web design.
H1		<input checked="" type="checkbox"/>	For many of the items on the survey, the participants' answers were well distributed across the various options (e.g. Agree, Disagree, etc.). Few items showed a clear preference in terms of the responses. This showed a diversity of responses where the majority option prevailed.
H2		<input checked="" type="checkbox"/>	Despite the fact that South Africa can be considered a high-context culture, the participants preferred more low-context styles and elements of design on websites.
H3	<input checked="" type="checkbox"/>		The site did follow the UK guidelines for e-Government development to a large extent. In providing satisfactory service delivery to the citizens it is still at the mediocre level, although there is still great potential for improvement. However, one may take satisfaction from the fact that it is evident that government is on the right track to making itself transparent and accountable via ICT.

**Table 7.21: Analysis of research hypotheses**

## 7.4 Summary

In this chapter the results from the online questionnaire and the expert review research methods were analysed and discussed. On the basis of these analyses, recommendations were then made in an attempt to improve the South African e-Government website.

Each question (four main questions with multiple items in each) from the questionnaire was analysed within its own section. First we looked at the results of the items from Question 1 and the overall conclusion from these results. Question 2 was then analysed, which included a single sample t-test and a discussion on the implications of the results from this test. Question 3 was analysed in the exactly the same way: a single sample t-test and a discussion on the implications of these results. What then followed was a comparison between Question 2 (All Purpose) and 3 (Government) items for which a pairwise t-test was conducted. A discussion followed on the more minor implications of these results, as there were no major differences between the comparing variables. For Question 4, items not directly relating to the cultural-context dimension were analysed separately. Thus, a single sample t-test was first conducted only on items Q4-1 to Q4-10, which test other culture dimensions. Items 4-11 to 4-24, which directly focus on the cultural-context dimension, were then analysed. These items were subject firstly to a factor analysis and then to a single sample t-test. The implications of the results from the indirectly and directly related items with the cultural-context dimension were then discussed.

As with the questionnaire, the expert review was analysed by section. Section 2 was analysed first, as section 1 focused on the biographic information of the reviewers. Section 2 focused on the cultural-context heuristics and determined that the South African e-Government website had more low-context features in its design, thus it is better suited for low-context societies. A usability task list relating to section 2 was also provided. Section 3 focused on e-Government heuristics. In terms of the results, the South African e-Government website did follow most of the core guidelines, yet there still needs a great deal of improvement. Once again, a usability task list relating to this specific section was provided and usability problems were identified and reported. Recommendations for improving the usability problems identified were also mentioned. This chapter ended with the analyses of the hypotheses that were formulated in chapter 6 before the research methods and tests were conducted.

## CHAPTER 8: CONCLUSION

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### 8.1 Introduction

The purpose of this research was to improve the overall usability of the South African e-Government website by taking into consideration the cultural-context profile of South African citizens. This topic arose from the fact that in developing countries there is an extremely high failure rate for e-Government initiatives. There are a number of reasons that contribute to this which are discussed in detail in chapter 4. Most of these reasons relate to the digital divide, and rightly so, and the unreadiness of developing countries to accept and use e-Government systems that are designed for Western cultures by Western developers.

The fact that there is a mismatch when developing countries use systems designed for developed countries is very interesting and this paved the way for focusing on e-Government failure from a cultural perspective, as plenty research has been conducted on the digital divide. Having said this, however, if the problems of the digital divide were to be solved, would this guarantee the success of e-Government in South Africa or in any other developing country? One should not forget that it is the users, the citizens, who will be using these technologies. First of all, and most importantly, they will need to improve their ICT literacy skills, as many have none whatsoever. Secondly, they should play a pivotal role in the design of the e-Government website. The way South Africans understand and use information will play a crucial role in the success of the system.

Taking into account the above, there was an evident gap in research relating to the impact that the cultural background of South African users may have when using government websites and the Internet in general. At the same time, it would be difficult to determine how culture as a whole may impact, as this would be too general. Research in this regard would have to be more focused and possibly consider each cultural dimension individually. After examining a wide variety of culture dimensions, it was clear that the cultural-context dimension, which focuses on communication and which is a fundamental aspect of e-Government, would prove most valuable in an attempt to assess the South African culture in terms of their Web design preferences. The aim is to identify their cultural-context trends for their Internet usage. However, this research could lead to important findings not only for the Web development community but also for the software development community. In particular, the cultural-context design styles and elements that are preferred by South

African users when using websites may also be applied to the design of software packages created for local distribution. Taking this even further (or the “big” picture), knowing the Web design preferences for high- and low-context users provides one with the ability to design for both cultural types (e.g. what type of design is preferred in South Africa, China or the USA because their culture-context status is already known).

## **8.2 Summary of work completed**

This research started off by reviewing the existing body of knowledge on the concept of culture (chapter 2). This included discussions on a definition, characteristics, dimensions and elements of culture and its role in the business environment was also analysed. Once culture had been discussed, the chapter focused specifically on the cultural-context dimension. This included a thorough discussion on the topic from four main perspectives: defining it, clarifying the concept of high- and low-context cultures and then comparing the two types, classifying countries as high- or low-context, and the impact of this on society.

The following chapter (chapter 3) focused largely on the relationship that exists between the cultural-context dimension and Web design. Additional discussions in the chapter, which help lead up to the Web design and culture-context relationship include the impact of the Internet in the world of today, the concepts of local and global use products in terms of software development, as well as the general impact that culture has on Web development – this section is very useful as it gives a more holistic and general approach to the role of culture in Web design, which has been thoroughly investigated by many researches, before focusing on the more specific cultural-context dimension, as it relates to Web design.

Next (chapter 4) came an extensive review on e-Government from two different perspectives: e-Government as an entity on its own and e-Government in developing countries. As an entity on its own, e-Government was analysed in the following terms: defining it, identifying goals and benefits as an outcome from it, the stages of e-Government development, prerequisites and components for an effective system, and design specifications for the development of such websites. In terms of e-Government in developing countries, the aspects that were discussed included the high failure rates, the costs that are involved for countries when such failures occur, and the challenges and threats facing e-Government development in developing countries.

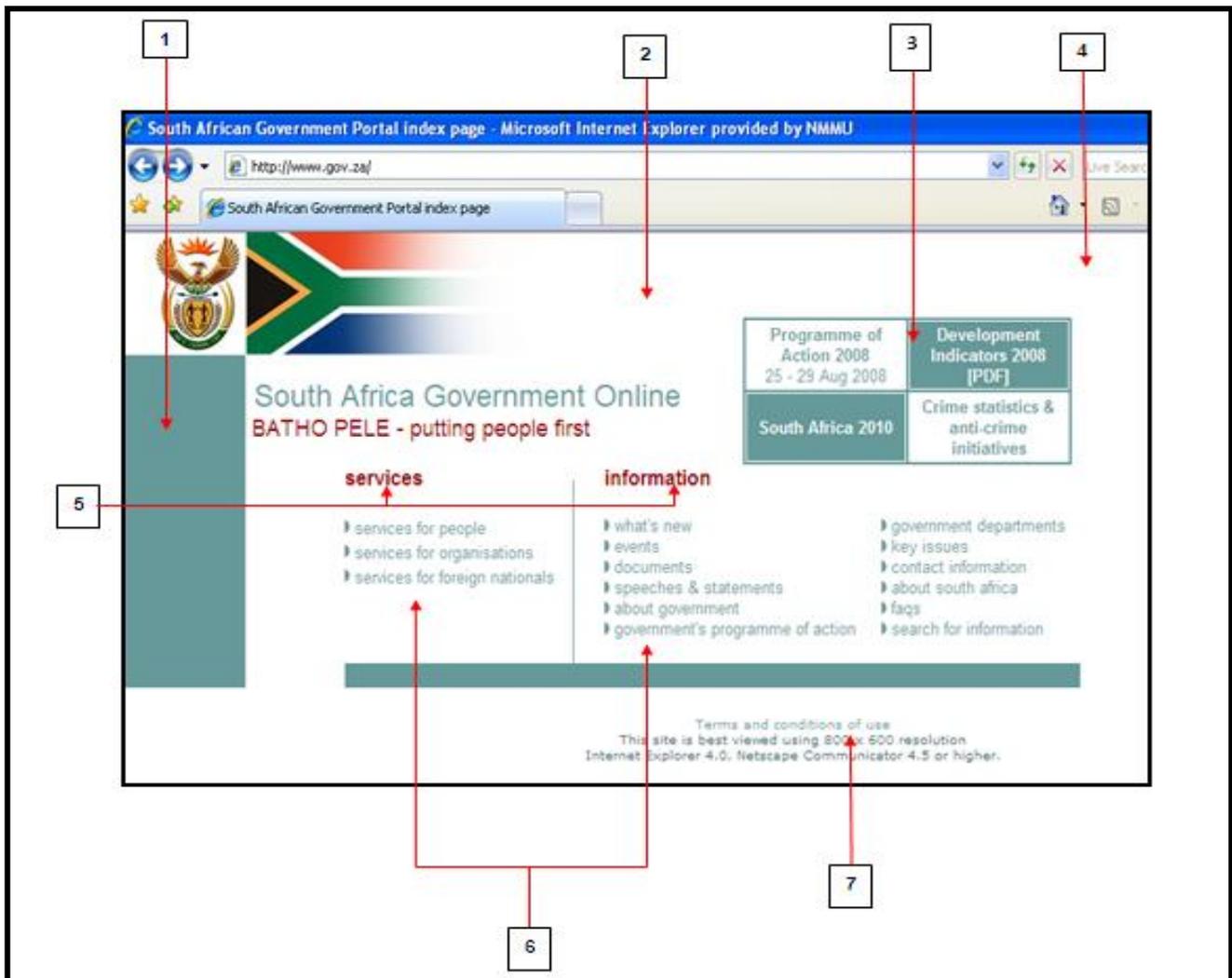
The context of e-Government in South Africa was then discussed (chapter 5). Once again, this was conducted from two focus points: e-Government as entity within South Africa and a description of the actual website itself, which represents the South African government. As an entity within South Africa, e-Government was analysed from the following perspectives: the role of the Internet in the country, a previous evaluation that was conducted on the website, the challenges and concerns of the current electronic model, and re-booting e-Government in South Africa. The portal, services and information sites were individually analysed in order to provide a description of the website. In addition, a review on other specific pages, elements and links available on the site was included.

A case study on the South African e-Government Website was the next step (chapter 6). In this chapter hypotheses were formulated, the research methods that were used to evaluate the system and extract the required data were discussed, as well as the techniques that would be used to analyse the data collected. It was also important to describe how all the research methods would be combined to assist one another. This was discussed in the form of data triangulation. This chapter ended with a brief overview of the South African culture and a look at the South African e-Government website from an experimental design perspective.

Finally (chapter 7), the results from the research methods were analysed and conclusions and recommendations were made from the findings in order to improve the South African e-Government website in terms of the newly formulated cultural-context and existing UK e-government guidelines. Once this analysis was completed, the hypotheses set out in the previous chapter were evaluated.

### **8.3 Recommendations from the results**

This section is used as a vehicle for redesigning the South African government portal. The redesign of the site is a result of the analysis of the online questionnaire and the expert review and may be regarded as a preliminary prototype. There is still a lot more of investigation and work that needs to be conducted in order to implement all of the findings from this research into the design of the site. The purpose of this section is to demonstrate how some of the acquired knowledge (by applying certain design changes or by adding extra design features and elements) may be put into practice. Figure 8.1 displays the actual government portal as is today.



**Figure 8.1: The South African Government portal**

One will notice that in Figure 8.1 there are little boxes with numbers in them. These numbers are used as a guide in order to explain the specific recommendation with which it had been aligned, which is discussed in Table 8.1. In addition, the relating arrows display the exact location where the improvement is necessary or where a usability problem has been identified. It is important to clarify that these changes are associated with this research, which investigated cultural-context and e-Government development guidelines and recommendations. In terms of Table 8.1, the “Usability issue” column describes the problem that was identified, the “Recommendation” column provides a solution to the identified problem and the “Guideline type” column is used to state whether the identified problem was an outcome of the cultural-context or e-Government heuristics.

Number in Figure 8.1	Usability issue	Recommendation	Guideline type
1	No menu available for navigation No option for language selection	Insert menu Insert language option (this does exist in the services side but it needs to apply to the whole site)	Culture-context e-Government
2	Limited images to enhance understanding	Insert more images and icons	Culture-context
3	Not clear that these items are links	Add the items to a menu list	Culture-context
4	Search box is required to find information	Insert a search box on the page	e-Government
5	Not clear that these items are links	Underline the links	Culture-context
6	Not clear that these items are links Not always clear what the item represents	Underline the links Provide a brief description and even an associated icon with each link Break the links into blocks of information	Culture-context
7	Not clear that these items are links	Underline the links Try keep link colours consistent	Culture-context e-Government

**Table 8.1: Areas for improvement on the South African Government portal**

Figure 8.2 will present an improved version of the portal. The changes included have been extrapolated from the recommendations for rectifying the usability issues discussed in Table 8.1. In terms of Figure 8.2, only six links are displayed instead of the original twelve under the Information category owing to the space limitations. However, this does not affect the prototype design in any way. If the alternative six links were included, they would simply be added into the Information category and have the same sort of look and appeal as the other six links that are included.

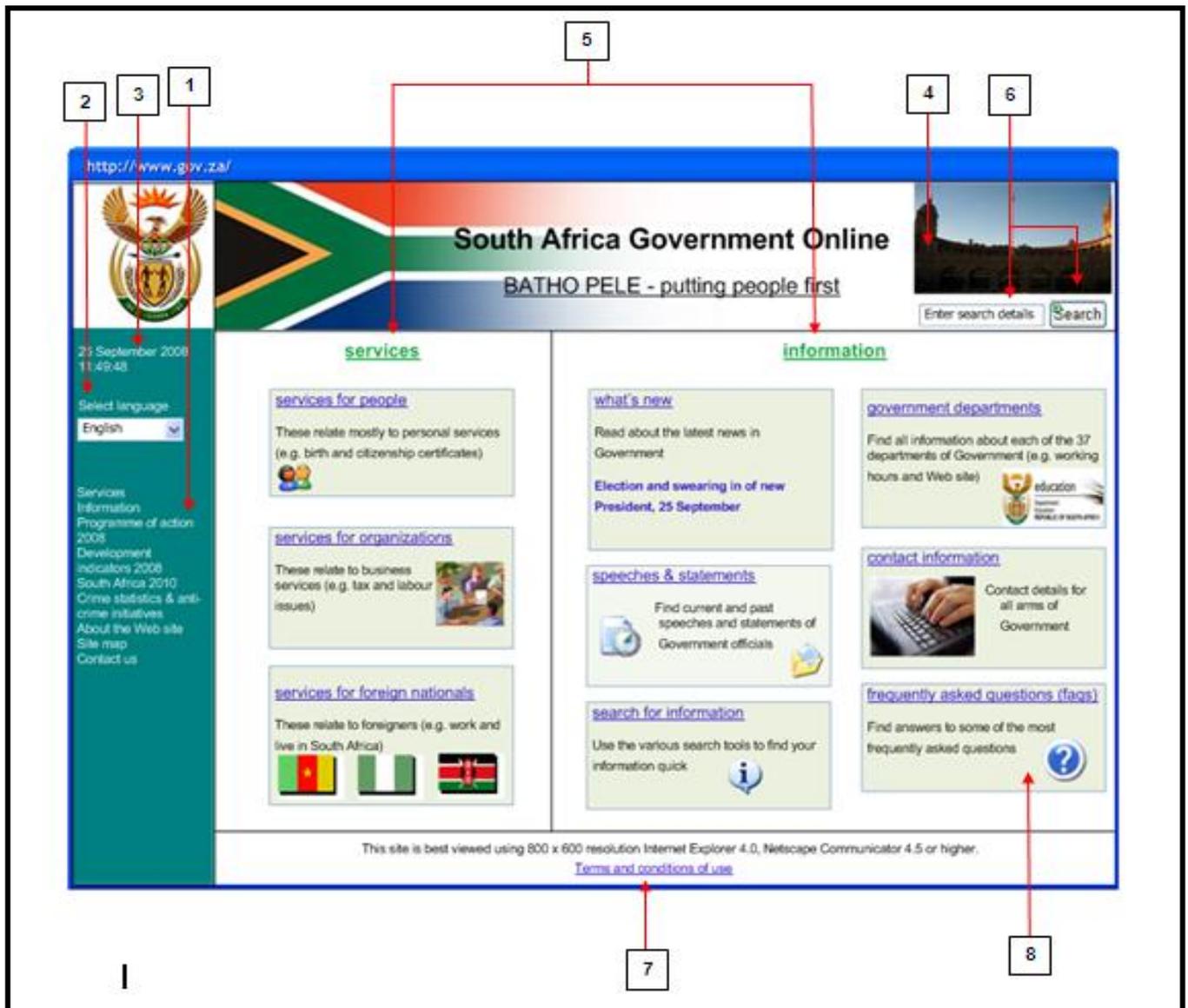


Figure 8.2: The re-designed South African Government portal

It should be noted that the numbered boxes in Figure 8.2 do not relate to the corresponding numbers in the boxes in Figure 8.1, although they do focus on the same problems. Each of the numbered boxes from Figure 8.2 will now briefly be explained:

1. A menu has now been inserted, which should assist users in achieving their functional and navigational goals more easily and faster. Figures 8.3 and 8.4 elaborate on the menu.
2. A language option has now been inserted which will make the site multilingual and accommodate all users irrespective of culture, language or colour.
3. Time and date have been inserted, which will indicate to the users that the site is up to date and well maintained.

4. An image has been inserted. This is just an example and a more formal picture could be included. This improves the aesthetics of the site and makes the site more credible and representative of government.
5. It has been made clearer that the Information and Services categories are also links. Green links have been provided in order to highlight the fact that they are a category. The rest of the links on the page are shown in blue. As mentioned previously, it is important to be consistent with the link colours.
6. A text area with a search button has been inserted. This provides the user with the ability to start searching for information immediately without having to enter the site.
7. It has been made clearer that is a link and that it has information relating to the terms and conditions of use when using the government site.
8. This is an example of one of the links. The link has now become a block of information, which includes a brief description of what the user will find when clicking on it. It is also associated with a small icon, which should make it quicker and easier for the user to find the required information. The same applies to the rest of the Information and Services links.

This was an example of how the knowledge would apply in practice. It is important to make everything easier and more understandable for the user (e.g. by adding multimedia), yet it should still be simple and be of a clear-cut design. Consequently, a balance is required between too much or too little to improve the usability.



Figure 8.3: Expanding the Services link

Figure 8.3 displays the menu that was inserted for the redesign of the portal. If the user were to click on the “Services” link, all the available services would be displayed (these services are also available on the page as links). However, when the user selects the option “Services for people”, this link could expand to a number of other services that relate directly to this link. As is, if one wanted to access any of these services they would have to use the “Services for people” link or use the “Services” website. Figure 8.4 displays the “Information” link when expanded. The same approach and concept should apply here as well. However, it is unrealistic to expect all information to be included in the links (e.g. have all the documents provided in the “Documents” link), but certainly some groups of information can be provided.



Figure 8.4: Expanding the Information link

#### 8.4 Contribution to knowledge

It is important a successful dissertation to try and make a contribution to the existing body of knowledge. This research has contributed to the field by examining the impact of the cultural-context dimension on Web design in order to improve the current South African e-Government website. In terms of the primary and secondary objectives that were set out in the beginning stages of this research, they have been accomplished, and are discussed in Table 8.2:

Research objectives	Objective type	Outcome	Result
Propose suggestions and recommendations that will improve the usability of the e-Government website in South Africa by studying the cultural-context profile of the South African society.	Primary	Usability problems and recommendations (Table 7.20)	<input checked="" type="checkbox"/>
Create a tool that will help collect the required information.	Primary	Two tools were created: a questionnaire (Appendix H) and an expert review (Appendix L)	<input checked="" type="checkbox"/>
Investigate the various e-Government websites and e-Government in general.	Secondary	Chapters 4 and 5	<input checked="" type="checkbox"/>
Thoroughly investigate the cultural-context dimension and its characteristics.	Secondary	Chapters 2 and 3	<input checked="" type="checkbox"/>
Test the current e-Government website as thoroughly as possible.	Secondary	Chapters 5 and 6	<input checked="" type="checkbox"/>
Investigate how culture can affect Web usage.	Secondary	Chapter 3	<input checked="" type="checkbox"/>
Provide cultural-context guidelines for Web development	Secondary	Observations of the HC and LC McDonald's websites (Table 3.3). High- and low-context features (Table 3.6). By providing more low-context design styles for the SA e-Government site the opposite would apply in the design of a more high-context site.	<input checked="" type="checkbox"/>

Table 8.2: Research objectives accomplished

The objectives in Table 8.2 are the results of the research in accordance with Table 1.1 (Chapter 1) and are more broadly defined. It is important, however, to review the objectives and the results from the two main research methods as well: the questionnaire and the expert review. The questionnaire tested three key questions:

- Does South Africa have a high- or low-context culture? The results suggest that South Africa is a more high-context culture (derived from the results of the items in Question 4).
- Do South African users prefer a more high- or low-context designed site for their all purpose websites? The results suggest that they prefer more low-context designed websites (derived from the results of the items in Question 2).
- Do South African users prefer a more high- or low-context designed site for their government websites? The results suggest that they prefer more low-context designed websites (derived from the results of the items in Question 3).
- Do South African users perceive and use government websites in the same manner as they do all purpose ones? The results suggest that they use both types of Websites in exactly the same way (derived by comparing the results of the corresponding items from Questions' 2 and 3).

Based on the outcome of the survey (online questionnaire) results, if one were to point out the most important and significant findings in a brief summary, they would include the following (Yeratziotis & Van Greunen, 2008a):

1. There is a need for an improved marketing strategy to promote e-Government in South Africa.
2. South African users do not require a different approach in terms of design for government websites compared with all-purpose ones.
3. South African users generally prefer more low-context design styles and features on a website.
4. South African users want to complete their objectives on a site in the simplest and quickest manner.

5. South African users prefer using search tools to find information rather than exploring a website.
6. South African users understand information better on a website that uses a combination of alphanumeric and multimedia forms.
7. South African users do not prefer a website that is overwhelmed with multimedia tools and colours.
8. South African people have preferences for polychronic aspects of time. This indicates that they are comfortable doing several things at once, yet they have a tendency not to adhere specific deadlines.
9. South African people have a long-term orientation towards the relationships they create in life and in the manner in which they achieve their goals.
10. South African people have more individualistic perceptions. Thus, there tends to be a lack of a group ethic.
11. The context and the actual transmitted message have equally important roles for a successful communication process in South Africa.

In terms of the heuristic evaluation, the survey asked two key questions:

- Does the South African e-Government website have characteristics in its design that conform to a more high- or low-context designed website? The results suggest that the site conforms more to low-context design styles (derived from the results of Section 2).
- Did the South African e-Government website follow the key guidelines for e-Government website development, as proposed by the UK government? The results suggest that the South African site did comply with many of the guidelines. Yet, it did not follow all of them, which are equally important, and the guidelines that it did adhere to can still be improved on.

This research also established that a number of cultural dimensions are interlinked here. In particular, Hofstede's and Hall's cultural frameworks are proof of this. Hofstede's individualism vs. collectivism and time orientation culture dimensions greatly influence Hall's cultural-context

dimension and vice versa. Even Hall's own polychronic vs monochronic culture dimension has an important bearing on his culture-context one.

Finally, this research proves that the cultural-context dimension does have an impact on the usability of a website. Thus, it supports the commonly proven theory that culture has an important and crucial role to play in the field of human-computer interaction.

### **8.5 Limitations of study**

It has to be noted that even though the sample population for this research reflects the composition of the South African population to a large extent, it would be dangerous to generalise the results to the South African population per se (Yeratziotis et al, 2008b). This is owing to the culture diversity (Yeratziotis et. al, 2008b). A possible solution to address this concern is discussed in section 8.6.

Another concern relates to the respondents profile and the technology that was used, with regards to the questionnaire. The majority of respondents were English and the manner in which the questionnaire was distributed could also have had an impact on the selection of respondents. This raises the question on whether or not the large percentage of English respondents had an influence on the results. A possible solution to address this concern is also mentioned in section 8.6.

A detailed analysis on the limitations of the online questionnaire and the expert review are discussed in sections' 6.3.3.4 and 6.3.2.3 respectively.

### **8.6 Future research**

This research may be regarded as a foundation on which other work may build and add to it. The tools created (questionnaire and expert review) may be used to asses other countries' profiles with regards to the culture-context status of their own society, the culture-context preferences of their users for their general Internet and government website usage, and to determine if their own government followed proper guidelines for e-Government development.

Further investigation will be needed on the fact that although South Africa has been proven to be a more high-context culture according to the way in which its citizens live and understand life within their society, they clearly prefer more low-context styles and elements in the design of websites, as

this improves their usability and user-experience. This contradicts the commonly held assumption that countries in Africa are high context and in reality should prefer and understand high-context medium styles (including ICT) over low-context ones.

Another significant aspect that was raised relates to one of Jacob Nielsen's ten usability heuristics. In particular, his eighth heuristic, aesthetic and minimalist design comes into question. He claims that only the relevant information should be included on a page. Other units of information will otherwise compete with the important information, which in turn distracts the users and diminishes the visibility of the required information. This would apply perfectly to individuals of a low-context culture but not necessarily to individuals from a high-context culture. In fact, high-context users would prefer extra information and a more complex design instead of a minimalist one.

There is another similar condition in the Xerox heuristic evaluation checklist. In the twelfth set of heuristics, pleasurable and respectful interaction with the user, heuristics relating to colour are aligned more to perceptions and preferences of low-context cultures. In high-context societies the opposite would apply (e.g. the use of more colours). In essence, although the Xerox and Nielsen's heuristics do improve usability, as has been thoroughly proven, certain heuristics might need to be re-examined now in order to accommodate high-context users. This is identified as a result of this research and from the analysis of the cultural-context dimension in relation to Web design.

The field of Web development was evaluated by means of the cultural-context dimension. It was discovered that this dimension does have a role to play in this field. However, would this also apply to software development? Can culture-context heuristics improve the usability and user experience of software packages? Logically, it should. However, this was not examined and is outside the scope of the research. Culture-context may also prove to have an impact in other industries and disciplines from which marketing and advertising could benefit (Yeratziotis & Van Gruenen, 2008b).

In terms of the limitations regarding the sample population, future research could include a controlled sample group with a specific respondent profile (e.g. Xhosa, English, Afrikaans), for a specific geographical area within South Africa with the emphasis on various application domains such as e-Government or e-Commerce for example (Yeratziotis et al, 2008b).

Despite the criticisms relating to the use of Hofstede's culture dimensions in user-interface design (Storm, 2005; Jones & Marsden, 2005), some were still used in this study. The reasons for this were highlighted in section 3.5.2. However, Ford & Kotze (2005) discovered that certain dimensions do favour interface design characteristics (e.g. high uncertainty avoidance, masculinity, short-term orientation). In other words, they claim that some of these dimensions would provide a more usable interface in comparison to their opposing sides (e.g. low uncertainty avoidance, femininity, long-term orientation). This study shows that culture context did have an impact in the design of a more usable interface according to the preferences of the intended user group. Yet, there is potential for future work in this area. More research is needed to determine the actual impact of Hall's culture-context dimension in the design and development of websites. This will also contribute towards the use of this dimension in the field or result in criticisms against the use of it, as is with Hofstede's dimensions.

### **8.7 Summary**

This chapter started by revising the purpose of this research, as well as highlighting the facts that prove that there is a need for it and that it has a place in the HCI field. It then discussed the work that was conducted in the dissertation by briefly summarising each chapter individually. The contribution of the research towards the body of knowledge was also emphasised, which was done by identifying the primary and secondary objectives that were accomplished. In addition, the objectives of the questionnaire and the expert review were discussed, as well as the outcomes from these research methods. The chapter ended by mentioning possible ways to continue and build on this research. Future research is essential for improving usability and to contribute to the field of HCI. This is becoming more and more evident as computers are now common appliances in many homes.

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## APPENDIX A: THE WORLD WIDE WEB

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### Definitions

The goal of this appendix is to try and explain the World Wide Web (WWW/the Web) as simply as possible. It will be helpful to look at some of the definitions of the Web:

- ‘It is a method of posting and accessing interactive multimedia information. The Web is a true “information highway”, allowing users all over the world to access a wealth of information quickly and easily’ (CenterSpan, 2001).
- ‘It is basically a lot of different files (all over the world) that are linked to each other, so that you can look at a file that has a link to another file and then follow that link to the next file (it is not just files but programs too)’ (Izawa, 1995).
- ‘World Wide Web: a computer network consisting of a collection of Internet sites that offer text and graphics and sound and animation resources through the hypertext transfer protocol (HTTP)’ (Google, 2007).
- ‘The World Wide Web is a system of interlinked, hypertext documents accessed via the Internet. With a Web browser, users view Web pages that may contain text, images and other multimedia and navigate between them using hyperlinks’ (Wikipedia-G, 2007).

For the first two definitions, very simple terms were used, to make clear the idea behind the Web. For the last two definitions, more computer-related terms were used in order to give a more accurate description of the term.

### Web 1.0

People often use the term “Web” as a synonym for the Internet itself. This is not the case; the Web is merely one of many services that operate over the Internet. Another, for example, is e-mail. The Internet is a much larger “service” and its history dates back much further than that of the World Wide Web (Wikipedia-A, 2006).

The Web was created in 1989 by Sir Tim Berners-Lee and Robert Cailliau, who were working together at CERN in Geneva, Switzerland. Since then, Berners-Lee has played a leading role in guiding the development of Web standards (Wikipedia-G, 2007). By the end of 1990, Berners-Lee finally developed all the necessary tools that were needed to work the Web. These tools included a Web browser, the World Wide Web, a Web server, and some Web pages (Wikipedia-A, 2006). In order to use the Web, a *Web browser*, which is a type of computer program, is needed (Izawa,

1995). This is a software program that enables one to surf the Web. Most browsers are graphical, which mean that they can display both text and graphics while modern ones also have multi-media capacities such as sound and video. Familiar Web browsers are Internet Explorer, Mozilla and Netscape.

All the files on the Web accessed through browsers are located on machines known as *Web servers* or just *servers*. The actual files themselves are called *pages*. These pages are part of a Web site. The primary personal page is often called the *home page*. Each Web server has a unique name. This will help the users get the information that they are seeking from the proper location. An example of a Web server name is [www.cnn.com](http://www.cnn.com) or [www.bbc.co.uk](http://www.bbc.co.uk). In order to get the proper file from the specific Web server, an URL (Universal Resource Locator) is used. This is basically the address where the file that one is searching for is located (Izawa, 1995).

Without getting into too much technical detail, here is a basic example of how the Web works and how people access files over it. It works just like on any normal computer. All computers use files and folders (directories). In terms of this example, the file that one is looking for is located on drive C of the local computer. Then one must find “Folder A”, inside which is “Folder B”. In “Folder B” is the document that is needed and its name is “FinalDocument.htm”. When accessing this document through the local computer, the address on the machine will be “C:\FolderA\FolderB\FinalDocument.htm. This will be the address when using a Windows machine. If one was using a UNIX machine, for example, the address would have certain differences but would still have a similar sort of format (Izawa, 1995).

The “.htm” part in “FinalDocument.htm” indicates that the file is written in HTML (Hyper Text Markup Language). This is a form of computer code. So, if this local computer now is a Web server by the name of [www.ExampleWebServerName.com](http://www.ExampleWebServerName.com), people on the Internet would be able to access certain files on this local computer or client. If one needs to access the file “FinalDocument.htm” over the Internet, the address would now be:

[www.ExampleWebServerName.com/FolderA/FolderB/FinalDocument.htm](http://www.ExampleWebServerName.com/FolderA/FolderB/FinalDocument.htm) (Izawa, 1995).



**Figure A.1: WWW's historical logo, designed by Robert Cailliau (Wikipedia-G, 2007)**

It is the two aspects of multimedia and hypertext that make the Web such a unique and useful innovation. Its use of open standards allows one to view Web pages through almost any computer

that has a Web browser and Internet connection. It also provides one with the ability to download software and data files. The Web is also easy to use, which is a great advantage too. That may be quite a debatable comment, as certain programs over the Internet may be very difficult to use. It depends on the design of the Web site and if it meets its users' needs. One can also distribute information on the Web. It is not that a difficult task and it is also cost-effective (CenterSpan, 2001).

## **Web 2.0**

The term Web 2.0 has been around for a couple of years now. This phrase was made popular by O'Reilly Media in 2003. It basically refers to the second generation of Web-based communities and hosted services. It is these services that permit sharing and collaboration between users. This term might suggest a new version of the World Wide Web (Web 1.0), but that is not actually true. There has not been any upgrade to the Web technical specifications themselves. The changes are in the way software developers and end-users now use the Web as a platform. It is the business revolution in the computer industry that has caused this change of name. Berners-Lee has questioned the correctness of this term because many of the technologies components that were used in the early days of the Web (Web 1.0) are still being used today in the Web 2.0 era (Wikipedia-E, 2007). Some of the characteristics of Web 2.0 are the following (Wikipedia-E, 2007):

- “Network as platform” – this focuses on the delivery and allows the users to use applications through a browser.
- Users own their data on a Web site. They have total control over the data and should exercise the appropriate actions on the data, e.g. updating.
- The architecture of Web 2.0 encourages users to add value to the applications as they are busy using them. This is quite the opposite from previously, when there was a type of hierarchical access-control in applications. Systems would categorize the users into roles with different degrees of functionality.
- The user-interfaces are richer, more user-friendly, and more interactive and are based on Ajax or similar frameworks.
- There are some social-networking aspects.

### Comparison between Web 1.0 and Web 2.0 services

People that have been using the Web from the late 90s and are currently using it today are more likely to recognize the differences in the services used now in Web 2.0 from the services used before in Web 1.0. There are a few examples of services that were being used for Web 1.0 compared to those used today in Web 2.0 in Table A1:

Web 1.0		Web 2.0
DoubleClick	--->	Google AdSense
Ofoto	--->	Flickr
Akamai	--->	BitTorrent
mp3.com	--->	Napster
Britannica Online	--->	Wikipedia
Personal Websites	--->	Blogging
evite	--->	upcoming.org and EVDB
domain name speculation	--->	search engine optimization
page views	--->	cost per click
screen scraping	--->	Web services
publishing	--->	participation
content management systems	--->	wikis
directories (taxonomy)	--->	tagging (“folksonomy”)
stickiness	--->	syndication

**Table A.1: Comparing services and characteristics of Web 1.0 with Web 2.0 (Reilly, 2005)**

### Semantic Web

Today, people are using the term “Semantic Web”. The Semantic Web provides a common framework which permits data to be shared and reused across application, enterprise and community boundaries. This effort is led by W3C with the participation of a large number of researchers and industrial partners. It is based on the Resource Description Framework (RDF) (Herman, 2007). The Semantic Web may be considered as an efficient way of representing data on the World Wide Web or as a global database. This idea was again thought up by Berners-Lee (Palmer, 2001).

The Semantic Web focuses on two main issues. It is about common formats for integration and combination of data collected from different sources, where on the original Web, it mainly concentrated on the interchange of documents. It is also about language for recording how the data relates to real-world objects. That allows a person, or a machine, to start off in one database and

then move through a never-ending set of databases, which are connected not by wires but by being about the same thing (Herman, 2007).

The problem with the Web was that data was hidden away in HTML files. This can be useful in certain contexts, but not in others. Most of the data which is in HTML format today is difficult to use on a large scale. This is because a type of global system for publishing data so that it can be used by anyone does not exist. If one looks at all the information that is available (e.g., sports statistics, TV guides, weather information, etc.), it can be found in many sites, yet it is all in HTML. This makes the information difficult to use in certain contexts or in the way that one would like to use the information. This is why the Semantic Web has been regarded as a massive engineering solution. It will make it easier to publish data that may be used in various forms. This will make people want to publish more data. This will also result in a modularity of applications on the Web (Palmer, 2001).

Berners-Lee's vision of the Semantic Web, in his own words, is "I have a dream for the Web [in which computers] become capable of analyzing all the data on the Web – the content, links, and transactions between people and computers. A 'Semantic Web', which should make this possible, has yet to emerge, but when it does, the day-to-day mechanisms of trade, bureaucracy and our daily lives will be handled by machines talking to machines. The 'intelligent agents' people have touted for ages will finally materialize" (Wikipedia-H, 2007).

In this appendix a general discussion about the Web was conducted to offer a broad idea and perception of what the Web is without getting into great technical detail. It looked at different definitions of the Web. Then it discussed its history and also explained its components and how they work and interrelate with one another. Then there was a brief comparison between the two generations of the Web, known both formally and popularly as Web 1.0 and Web 2.0. This topic ended off with a look at the new vision of the Web: the Semantic Web.

## APPENDIX B: WEB DESIGN

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Web design basically focuses on the design of the Web pages and the Web sites that are used on the Web. The main intention of Web design is to create Web sites. The proper design of a Web site is a significant contributor towards its success. There are many issues that are involved in the design phase and need to be considered.

### Definitions

Definitions of the term “Web design” will explain the concept more accurately and include the following:

- ‘Web design is a process of conceptualization, planning, modeling, and execution of electronic media delivery via Internet in the form of Markup language suitable for interpretation by a Web browser and display as graphical user interface (GUI)’ (Wikipedia-F, 2007).
- ‘Web Design is the art and process of creating a single Web page or entire Web sites and may involve both the aesthetics and the mechanics of a Web site's operation although primarily, it focuses on the look and feel of the Web site - the design elements’ (Bear, 2007).

### Design considerations

There are many design considerations when designing a Web site. The Internet is developing at such a rapid pace that there are constantly new design aspects emerging. At the moment, some of the most basic aspects include (Wikipedia-F, 2007):

- *Content*. The information of a site needs to be relevant to it. It also needs to target the right market – the public that is concerned with the Web site.
- *Usability*. It is essential that a Web site is user-friendly. There are a number of issues that will contribute to a user-friendly Web site, e.g., simple navigation, reliability, etc.
- *Appearance*. There should be a style in the Web site, which should be consistent throughout the site and should have a professional feel to it.
- *Visibility*. It should be easy to find the Web site: at least, through most of the popular search engines.

These are only certain aspects in Web design. There are many principles and guidelines that are related to the four aspects mentioned above.

## The stages of Web design

In any process, there are certain stages or phases that need to be accomplished in a particular order for the proper development of a product. The same applies to software development. This section will look at some of the models that are used when developing a software system.

### SDLC

Generally speaking, a well-known procedure for developing new systems is the Systems Development Life Cycle (SDLC). The SDLC is a process that includes five phases (Capron & Johnson, 2002):

- *Preliminary investigation.* This is basically a brief study of the problem at hand to decide whether the project should be pursued. Once the problem has been discovered, then one needs to figure out what to do about it.
- *Analysis.* This phase is concerned with gathering all the possible related data for the new system via data gathering or/and data analysis. The goal here is to establish system requirements.
- *Design.* It is in this phase where the actual plan of the new system is revealed. It includes two sub-phases: preliminary design, where the analyst establishes the new system concept; and detail design, where the analyst determines the exact design specifications.
- *System development.* In this phase the system is actually getting developed. The system analyst needs to monitor the various activities, which include scheduling, programming and testing.
- *Implementation.* This is the final phase but it still requires a lot of work. It basically focuses on getting the system up and running. This includes tasks such as training the new users, equipment conversion, file and system conversion, auditing, evaluation and maintenance.

In more simple terms, phase 1 (*Preliminary investigation*) focuses on determining the problem. Phase 2 (*Analysis*) is concerned with understanding the existing system. Phase 3 (*Design*) is about planning the new system. Phase 4 (*System development*) is about doing the required work to create the new system. Phase 5 (*Implementation*) focuses on converting to the new system (Capron et al., 2002).

The SDLC is a common process that is used to design systems. It is not only used to create Web sites, it may be used for the development of any type of system or project. One can follow those five phases to create a Web site. It will definitely assist a Web developer in creating better Web sites.

### **Stages used by two different companies for software development**

All the Web development companies have their own phases or stages that they follow when they design Web projects. They do tend to follow similar types of patterns in terms of their development, in order to achieve their goals. The stages of Web site design will now be discussed as visualised by two different Web designers.

### **Grantastic Designs**

Grantastic Designs declare that Web sites undergo four stages of evolution. These stages are the following (GRANTASTIC DESIGNS, 1997-2006):

- i. *Style over substance.* This first stage is about designing a site that anyone would like to see, from a CEO to an advertisement agency. This may include features like drop-down menus, mouseover effects or even making the Web site a Flash site. It is always nice to have a pretty design but it is vital to remember that style is more important than substance.
- ii. *Designing for online visibility.* The Web site must be visible to the users and also easy to find. In order to get the required traffic, the Web site needs to be indexed in the major search engines. Even if the Web site is indexed in the major search engines, it is also important to have the appropriate description next to the company name.
- iii. *Designing for your audience.* No matter how good the design of a Web site is, or the amount of money that was spent on the design, the Web site will be a failure and ineffective if it was not designed with the target audience in mind. It is vital that the relevant research is done to analyze the potential problems and audience, as this will save the company money in the long run.
- iv. *Site redesign.* This includes careful usability and search engine visibility analyses. If all is in place, then the Web site owners have an effective Web site. This Web site has been written, coded and designed for user friendliness.

These are the four stages of Web site design according to Grantastic Designs. They claim that it is the audience that will eventually establish the success or failure of a Web site.

### **ElegantWebs**

Another Web design company, ElegantWebs, breaks their Web design process into five main phases. In each one of these phases, there are multiple steps. The five phases include the following (ElegantWebs, 2002):

*Phase I – Preproduction.* This phase is very important. All the other stages will flow from this phase. This phase is composed with the following three stages:

1. *Project clarification.* At this stage, the goals are discovered along with the parameters that have been set to achieve those goals.
2. *Solution definition.* Once the project clarification stage has been well analyzed, a solution can be specified that will suite the relevant criteria.
3. *Project specification.* This will take the form of a formal proposal and will include the specifications of project.

*Phase II – Production.* This phase consists of three stages. They are:

1. *Content clarification.* Many various issues get resolved here such as content providers, content management, copyright issues, media acquisitions and overall style.
2. *Design and construction.* In this stage, the Web site is developed and all of the above steps have been used to develop it.
3. *Training.* All the relevant technical training concerning the new Web site is implemented.

*Phase III – Public testing and evaluation.* This phase is composed of two stages. This company regards this phase as an optional phase. Many designers may debate on whether this phase should be optional or not. The two stages are:

1. *Usability service evaluation.* This is an evaluation process of the newly developed Web site. An evaluation survey will be created to “field test” the Web site while it is still in production.

2. *Design modifications.* This stage will only happen if it is necessary for any changes to take place. The design changes are based on the results of the evaluations. Both these stages, usability service evaluation and design modifications, will be repeated until the desired results are achieved.

*Phase IV – Launch.* This will only include the following stage:

1. *Website launch.* This is where the Web site will go live and marketing campaigns are started.

*Phase IV – Post-launch analysis.* This is regarded as an optional phase. It includes the following stage:

1. *Post-launch analysis.* This is where Website statistics may be analyzed. This may help discover if anything on the Web site needs to be changed in order to improve or maximize results.

This was an overview of the stages that are involved in the design of a Web site. The examples were taken from two different companies and were used to explain the steps behind creating a Web site. The goal of these examples is to give one a better understanding of the Web design process. However, not all companies follow these procedures although they do use similar ones.

## APPENDIX C: WEB DESIGN GUIDELINES AND PRINCIPLES

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Guidelines and principles may be considered as techniques that have been proven to lead to success. They are extremely useful in guiding the behaviour of software developers. There are many people that will benefit from the use of guidelines and principles and these include both people with and without disabilities. The main goal of using guidelines and principles is for creating easy-to-use Web interfaces. Achieving ease of use is essential, especially for any site competing for business on the Web.

### **Accessibility guidelines**

There are many issues to consider regarding the users of a Web site. The principles and guidelines try to improve user satisfaction by trying to meet all users' needs. This is very difficult to do. Some of the accessibility issues that need to be considered and that relate to Web design are (Chisholm, Vanderheiden, & Jacobs, 1999), (George Mason University, 2007), (Lynch & Horton, 2001):

- Are the users able to hear, move and see properly? Is there a possibility that they are not able to process some types of information easily or at all?
- Consider the primary audience. (What are their needs, interests, their technology level and what type of computer equipment do they have at their disposal?)
- Do the users have any difficulties with reading and/or comprehending text?
- Do they speak the language or understand the language in which the documents are written?
- They may have slow Internet connection, a text-only screen or even a small screen.
- Consider the purpose of the site. (Is it a personal Web site, a profit-earning business, a non-profit organization, an educational or entertainment Web site?)
- Consider the location of the Web site. (Will it be on an ISP, an educational institution server, an organizational server or a personal server?)
- Clarity and consistency are essential. If there are different approaches towards navigation, users will need to re-learn them on every Web site. This will result in disorientation to the users.

This is merely an example of a few of the questions that one needs to ask when designing Web sites. There are plenty more questions that need to be asked. One can now understand what a difficult task it actually is to design a proper and successful Web site.

### **Jacob Nielsen's guidelines**

One of the most important figures in Web site design is Jakob Nielsen. Some of the phrases that have been associated with his name include “the king of usability” or “the smartest person on the Web” (useit.com, n.d.). According to him, the most important page on the Web site is the home page. For a company, the home page of their Web site is regarded as the company's face to the world, and it is this page that is mostly viewed on the Web site. Potential customers will look at this page, so it is vital to leave a good impression. He also suggests a number of guidelines that one should consider concerning the home page as this will enhance the Web site's business value. These guidelines are the following (Nielsen, 2002):

- *Make the Web site's purpose clear. Explain who you are and what you do.* This can be accomplished by doing the following three things:
  - *Include a one-sentence tag line.* This is merely to summarize what the company does, especially if the company is not famous.
  - *Write a window title with good visibility in search engines and bookmark lists.* The title tag must begin with the company's name, followed by a brief description of the site.
  - *Group all corporate information in one distinct area.* Finding out information about the company is not always the first task that the users do. Yet, there should be an *About <company name>* link on the home page, where the users can link to if they are interested in that type of information.
- *Help users find what they need.* This can be accomplished by doing the following two things:
  - *Emphasize the site's top high-priority tasks.* The home page must offer the users a clear starting point to do the available tasks on the site.
  - *Include a search input box.* This will help the users find what they need more quickly by typing a word in the input box. The Web site will then be scanned to find

any relative information. Keep in mind the number of characters that a user may enter in the search input box. It should be around 25 characters long.

- *Reveal site content.* This can be accomplished by doing the following three things:
  - *Show examples of real-site content.* The user must see some of the best and latest content that is available on the Web site at the home page. It is not good enough only to tell them what is available on the site, show them as well.
  - *Begin link names with the most important keyword.* Users tend to scan the pages searching for the information that they require. By starting each link with a relevant word, it makes it easier on the scanning eyes to differentiate the links on the page.
  - *Offer easy access to recent home page features.* Users will remember previous information that was on the home page and that was of interest to them. Once that information has become old and has been moved into the site, it must still be easy for the users to locate.
- *Use visuals to enhance, not define, interaction design.* This can be accomplished by doing the following two things:
  - *Do not over-format critical content, such as navigation areas.* Users tend to focus on parts of the home page that look more useful and often dismiss graphics and ads. One must be careful about the amount of colour and graphics that are used on the site.
  - *Use meaningful graphics.* Images can be very powerful communicators if used properly. On the other hand, they may backfire if they are used irrelevantly.

### **General guidelines on different areas of design**

There are so many guidelines and principles today that it is impossible to mention all of them. Some home page guidelines have been discussed above, so a brief look at guidelines concerning other areas of design will now follow.

### **Page design guidelines**

In terms of *page design*, one will need to consider the following (George Mason University, 2007, (Lynch et al., 2001):

- Include a “back to home” link.
- Contrast is essential. The balance and organization of the page is fundamental to drawing the reader into the content of the page (e.g., there must be a contrast between the background and the text).
- Consistency. It is important to establish a layout grid and a style for handling your text and graphics. This layout must then be applied to all the pages of the Web site to promote unity. Consistency comes in the form of colour schemes and the template of each page.
- Consider the type and the size of the fonts. Only use the bold feature when emphasizing is required. Do not over-use the bold feature.
- Important information should be placed near the top of the page (specifically on the top four inches of the page). This space needs to be used efficiently and effectively.
- Provide a table of contents.
- Try avoiding the use of a scroll bar to find content.
- Keep to the standard screen resolution (800 x 600) when designing.

### **Content design guidelines**

The content of a Web site may be in the form of text, graphics, videos, or even sound. In terms of the *content*, one should consider the following (George Mason University, 2007):

- It must match its purpose and be well organized.
- It must be spellchecked and use correct English (or whatever the appropriate language may be).
- The information needs to be updated regularly and also be appropriate for its intended audience.

### **Frames**

If possible, try and avoid the use of frames. They are out of favour for the following reasons (George Mason University, 2007), (Lynch et al., 2001):

- They are hard to bookmark and to navigate.
- It is hard to print content because the user does not know in which frame they actually are.

- Search engines cannot always index their contents.
- Frames have prescribed borders and are limited in terms of flexibility.
- Frames are useful if the content of a Web site is expected to change frequently.

These are some of the most key principles and guidelines that are recommended. They will provide a Web site with consistency, clarity and a user-friendliness appeal. The number of principles and guidelines is quite large and forever extending. One should try and consider as many as possible when designing a Web site.

## APPENDIX D: USABILITY

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When a software developer is designing software, either for the Web or for private use, there are two sets of goals that he or she must strive to achieve. These goals can be divided into two main categories: usability goals and user experience goals. These are helpful when considering any type of system where human interaction is involved.

### Usability and user experience goals

Usability goals are broken up into mainly six goals (Rogers, Sharp, & Preece, 2002):

- *Efficient to use (efficiency)*. This goal basically refers to the way a system will support its users in carrying out their tasks.
- *Effective to use (effectiveness)*. This is quite a general goal that relates to how good a system is at doing what it is supposed to do.
- *Safe to use (safety)*. This involves protecting the users from any undesirable situations or even protecting them from any dangerous conditions.
- *Have good utility (utility)*. This relates to the extent of which the system provides the users with the correct type of functionality that will enable them to do what they want or need to.
- *Easy to learn (learnability)*. This refers to how easy a system is to learn to use. People do not tend to spend a long time trying to learn how to use a system.
- *Easy to remember how to use (memorability)*. This focuses on how easy it is to remember how to use the system once it is learned. This is important, especially if the system is not used frequently.

In terms of user experience goals, one should consider the following goals as well when designing or creating systems. The systems should be (Rogers et al., 2002):

- Satisfying, rewarding and emotionally fulfilling to use.
- Enjoyable, fun and entertaining to use.
- Helpful and, at the same time, motivating to use.
- Aesthetically pleasing and should also support creativity.

These were the various usability and user experience goals that one needs to consider when designing any kind of system. Usability goals are more concerned in meeting specific usability criteria while user experience goals are vastly concerned with explicating the quality of the users' experiences (Rogers et al., 2002).

### **Benefits of usability planning**

It is apparent that usability in Web site design is very important. Usability should be considered throughout the design process and should not merely be an afterthought. It is not regarded good practice to fix a Web site after it has been built as this would most likely produce poor results and increase costs. Some benefits of planning usability into projects include the following (Foraker Design, 2002-2005):

- Increased end-user satisfaction.
- Increased end-user productivity, success, and completion.
- Reduced long-term development costs (from fixing poorly designed products).
- Reduced training and support costs.
- Return business to improve competitiveness.

### **The users**

One of the most important factors in developing successful applications is considering the users. After all, they are the people that will be using the application. Generally, most people are not very patient, and when it comes to using software, those patience levels tend to be much lower. It is vital that the users do not get frustrated when using an application. This may leave the users with a feeling of being slightly amused or exceptionally angry. Although it is quite impossible to keep all the users happy with no frustration, one can rather try and limit the factors that may lead the users to frustration. The designer needs to investigate the reasons that a user might get frustrated and try to respond to those reasons in an effective manner. Reasons that users might get frustrated are (Rogers et al., 2002):

- When the application does not work properly, or it crashes.
- When the application does not do what the user wants it to do.
- When the users' expectations are not met.

- When the system does not provide sufficient information that will let the user know what to do.
- When error messages pop up that are vague or condemning.
- When the appearance of the interface is too noisy, garnish or patronizing.
- When the application requires that the user needs to carry out a lot of steps to complete a task, or when the user discovers that a mistake was made during the process and that they then need to start all over again

## APPENDIX E: INTERACTION DESIGN

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Interaction design is defined as the design of interactive products that support people in their everyday lives. It is about designing products that will enhance the users' experience and improve the way people work, communicate and interact (Rogers et al., 2002). The design of a Web site can relate to the interaction design concept.

### **Activities of inteaction design**

The interaction design process is divided into four basic activities. These activities are (Rogers et al., 2002):

- *Identifying needs and establishing requirements.* This focuses on designing a product to support people. In order to achieve that, the designer needs to know who the users will be and what type of support the new product can offer them. These needs will form the basis of the product's requirements.
- *Developing alternative designs.* This is the core idea behind designing. It includes different ideas that meet the product's requirements. This activity may be broken up into two sub-activities: conceptual design and physical design. Alternatives are considered at every point of this activity.
- *Building interactive versions of the designs.* This will involve the design of interactive products. In order to evaluate the designs, users will need to interact with the products. This is regarded as a cheap and effective way to identify problems early in the design stages.
- *Evaluating designs.* This is the process of evaluating and determining the usability and acceptability of the new product. This is achieved by the measurement of a variety of criteria determined through usability tests.

### **Characteristics of inteaction design**

There are three characteristics that are regarded as fundamental and key parts in the interaction design process. The characteristics are (Rogers et al., 2002):

- *User focus.* It is essential to focus on the users. This has been repeatedly stated. This proves how significant this feature is in the design process. It is important to try and involve the users in the design process as they will provide important feedback that will improve the design of the product.

- *Specific usability criteria.* This includes the usability and user experience goals that were discussed in Appendix D. These goals must be clearly identified, documented and agreed upon at the beginning of the project.
- *Iteration.* This will allow the designs to be refined based on the feedback. Activities will need to be constantly repeated throughout the design of the product to achieve the desired results.

## APPENDIX F: SITE MAP OF SA GOVERNMENT WEB SITE

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The South African Government Web site design structure is four layers (or levels) in depth. All of these levels, along with each of their items, will be presented below. The site map was taken from the actual South African Government Web site (South Africa Government Online, 2000).

### The design styles

The design styles that are used to represent the different layers or levels in the site map are coded thus:

- Represents Layer-1 (or Level-1) items.
- Represents Layer-2 (or Level-2) items.
- Represents Layer-3 (or Level-3) and Layer-4 (or Level-4) items.

### The site map

#### [Home](#)

- [What's new](#)
- [Search](#)
- [Speeches and statements](#)
  - [State of the Nation address](#) (1990, 1994 - current)
  - [National Budget](#) (1996 - current)
  - [Parliamentary media briefings \(GCIS\)](#) (1996 - current)
  - [Statements on Cabinet meetings](#) (1996 - current)
  - [By year](#) (1994 - current)
  - [Delivered by government leaders](#) (1994 - current)
- [Documents](#)
  - [Documents for public comment](#)
  - [Constitution](#) (Act No 108 of 1996; Amendments to the Constitution; Previous constitutions)
  - [Acts](#) (1993 - current)
  - [Bills](#) (Progress on Bills in committees; Bills to be tabled; status of Bills; Bills 1996 - current; Draft Bills 1996 - current)

- [Notices](#) (1997 - current)
- [Regulations](#) (1997; 2000 - current)
- [White Papers](#) (1994 - current)
- [Green Papers](#) (1995 - 2000)
- [Tenders](#) (tenders; tender bulletin - 1999 - current, running tenders)
- [Statistical documents](#)
- [Parliamentary documents](#) (Parliamentary papers; Publications)
- [Annual reports](#) (1995/96 - current)
- [Provincial documents](#)
- [Other documents](#) (1993 - 2004)
- [International reports](#) (1999 - 2004)
- [All documents by subject](#)
  - [Organised by subject - all years](#) (e.g. all documents on health from 1993 to present)
  - [Organised by year and subject](#)
- [Search on documents](#)
- [Our leaders](#)
  - [The President](#)
  - [The Deputy President](#)
  - [Ministers](#)
    - [by name](#)
    - [by portfolio](#)
  - [Deputy Ministers](#)
    - [by name](#)
    - [by portfolio](#)
  - [Parliament](#)
  - [Heads of departments](#)
  - [Provincial governments](#)
    - [by name](#)
    - [by portfolio](#)
  - [All biographies](#)

- [Search on biographies](#)
- [Former leaders](#)
- [About Government](#)
  - [Programme of Action](#) (2003 - current)
  - [Government services](#)
    - [Services for people](#)
    - [Services for organisations](#)
    - [Services for foreign nationals](#)
    - [Batho Pele directory of government services](#) (DPSA)
  - [Contact information](#)
    - [Search on government contact information](#)
    - [Parliament](#) (GCIS contact directory)
    - [The Presidency](#)
    - [Ministries](#)
    - [Deputy Ministries](#)
    - [National departments](#)
    - [Provincial governments](#)
    - [Municipalities](#)
    - [Government bodies & institutions](#)
    - [Foreign representatives in SA](#)
    - [Representatives of SA abroad](#)
    - [Batho Pele directory of government services](#)
    - [Information Officers](#) (in terms of the Promotion of Access to Information Act - No. 2 of 2000)
      - [National government](#)
      - [Provincial government](#)
      - [Government bodies & institutions](#)
  - [National Budget](#) (2000 - current)
  - [Vacancies](#) (Public Service Vacancy circular; Vacancies advertised on departmental websites)
  - [National Symbols](#)
  - [National Orders](#)

- [Government structure](#)
  - [National legislature](#) (Parliament)
  - [Executive Authority](#) (President, Cabinet and Deputy Ministers)
  - [Justice system](#)
  - [State institutions supporting constitutional democracy](#)
  - [Traditional leadership](#)
  - [Provincial government](#)
  - [Local government](#)
  - [Co-operative governance](#)
  - [Elections](#)
  - [Public Administration](#)
  - [Security services](#)
  - [Finance](#)
  
- [About SA](#)
  - [The land & its people](#)
  - [History](#)
  - [Agriculture & Land Affairs](#)
  - [Arts & culture](#)
  - [Communications](#)
  - [Economy](#)
  - [Education](#)
  - [Environmental management](#)
  - [Finance](#)
  - [Foreign relations](#)
  - [Health](#)
  - [Housing](#)
  - [Minerals & energy](#)
  - [Public holidays](#)
  - [Safety, security & defence](#)
  - [School calendar](#)
  - [Science & technology](#)
  - [Social development](#)

- [Sport & recreation](#)
- [Tourism](#)
- [Transport](#)
- [Water affairs & forestry](#)
- [Events](#)
  - [View all events by date](#)
    - [2007](#)
    - [2006](#)
    - [2005](#)
    - [2004](#)
    - [2001 - 2003](#)
  - [View by event category](#)
    - [Commemorative days/weeks/months/years](#)
    - [Conferences, seminars & workshops](#)
    - [Government activities](#)
    - [Media briefings and conferences](#)
    - [Public holidays](#)
    - [Visits by foreign dignitaries](#)
    - [Visits to foreign countries](#)
  - [View by organisation](#)
  - [View by region](#)
    - [International](#)
    - [National](#)
    - [Provincial](#)
      - [Eastern Cape](#)
      - [Free State](#)
      - [Gauteng](#)
      - [KwaZulu-Natal](#)
      - [Limpopo](#)
      - [Mpumalanga](#)
      - [North West](#)
      - [Northern Cape](#)

- [Western Cape](#)
- [Search on events](#)
- [Links](#)
  - [Government & politics](#)
  - [Africa](#)
  - [Arts and culture](#)
  - [Business, finance and economy](#)
  - [Constitutional & legal affairs](#)
  - [Development](#)
  - [Education, training & skills development](#)
  - [Environment](#)
  - [Health](#)
  - [Housing](#)
  - [Human and social issues](#)
  - [Labour relations](#)
  - [Library and information services](#)
  - [Mining, minerals & energy](#)
  - [News and media](#)
  - [Research, science & technology](#)
  - [Sport & recreation](#)
  - [Tourism and travel](#)
  - [Transport](#)
- [Frequently asked questions \(FAQs\)](#)
  - [Business & finance](#)
  - [Contact information](#)
  - [Documents](#)
  - [Education](#)
  - [Employment](#)
  - [Genealogy](#)
  - [Government services](#)
  - [Guide to Government](#)
  - [HIV/AIDS](#)

- [History](#)
- [Holidays & special days](#)
- [National symbols](#)
- [Single Public Service](#)
- [Statistics](#)
- [Travel & tourism](#)
- [Wills, trusts and the distribution of the estates of deceased persons](#)
  
- [Key issues](#)
  - [Accelerated and Shared Growth Initiative for South Africa \(AsgiSA\)](#)
  - [Government's Programme of Action](#)
  - [Government programmes and economic opportunities](#)
  - [Imbizo](#)
  - [Partnership against HIV/AIDS](#)
  - [New Partnership for Africa's Development \(NEPAD\)](#)
  - [Budget](#)
  - [Implementation of anti-crime initiatives](#)
  - [African Peer Review Mechanism \(APRM\)](#)
  - [Towards Ten Years of Freedom](#)
  - [Community Development Workers \(CDW\)](#)
  - [Key issues 2001 - 2003](#)
    - [Growth and Development Summit \(GDS\)](#)
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## APPENDIX G: HOFSTEDE'S DIMENSIONS OF CULTURE

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From 1967 to 1973, Dutch anthropologist Geert Hofstede conducted many detailed interviews. At the time he was working as a psychologist at IBM and analyzed data from over 100 000 individuals. These interviews were carried out with IBM employees from over 50 countries and three regions. This research is regarded as one of the most comprehensive studies on how culture influences values in the work environment (Hofstede, 1987-2003).

Once all the data had been analysed, Hofstede was able to determine differences and similarities in terms of the subjects' replies. This guided him to the conclusion that world cultures differ along consistent and fundamental dimensions. Due to the fact that his subjects were constrained to one multinational corporation's world-wide employees, and thus to one company culture, he ascribed their differences to the effects of their national culture. A regarded weak point in his research is that he maintained that each country has but one dominant culture (Marcus & Gould, 2000).

Hofstede published a more accessible version of his research in the 1990s. His goal was to rather highlight patterns of feeling, acting and thinking that are embedded in an individual by late childhood instead of defining culture as a modification of the mind. These cultural differences that exist are apparent in terms of a culture's choice of symbols, values, rituals and heroes/heroines (Marcus et al., 2000).

Hofstede identified five dimensions of culture. He rated countries on indices for each dimension. These values are usually normalized from 0 to 100. The five dimensions are (Marcus et al., 2000):

- Power-distance
- Collectivism vs. Individualism
- Femininity vs. Masculinity
- Uncertainty avoidance
- Long- vs. Short-term orientation.

Two of Hofstede's dimensions, the long- vs. short-term orientation and collectivism vs. individualism dimensions, may closely relate to Hall's cultural-context dimension. Very apparent characteristics of high-context cultures are that they have a long-term orientation in terms of achieving objectives in life and the relationships that they create. They are also cooperative people and they highly value group sense. On the contrary, low-context cultures usually have a short-term orientation mentality in terms of achieving goals in life and with the relationships that they create.

They also tend to be more competitive societies which value individualism.

Throughout this research, literature relating to Hofstede's long- vs. short-term orientation and collectivism vs. individualism dimensions, in terms of their relation to Web design, proved to be very valuable and informative in the study of the cultural-context dimension and Web design.

In terms of the Table H1 below (Hofstede, 1987-2003):

- PDI: Power-distance index
- IDV: Individualism index
- MAS: Masculinity index
- UAI: Uncertainty avoidance index
- LTO: Long-term orientation index
- 'Arab World' = Egypt, Iraq, Kuwait, Lebanon, Libya, Saudi Arabia, United Arab Emirates
- 'East Africa' = Ethiopia, Kenya, Tanzania, Zambia
- 'West Africa' = Ghana, Nigeria, Sierra Leone
- \* Estimated values
- \*\* Regional estimated values

Country	PDI		IDV		MAS		UAI		LTO	
	rank	score	rank	score	rank	score	rank	score	rank	score
Arab World **	7	80	26/27	38	23	52	27	68		
Argentina	35/36	49	22/23	46	20/21	56	10/15	86		
Australia	41	36	2	90	16	61	37	51	15	31
Austria	53	11	18	55	2	79	24/25	70		
Bangladesh *		80		20		55		60	11	40
Belgium	20	65	8	75	22	54	5/6	94		
Brazil	14	69	26/27	38	27	49	21/22	76	6	65
Bulgaria *		70		30		40		85		
Canada	39	39	4/5	80	24	52	41/42	48	20	23
Chile	24/25	63	38	23	46	28	10/15	86		
China *		80		20		66		30	1	118
Colombia	17	67	49	13	11/12	64	20	80		
Costa Rica	42/44	35	46	15	48/49	21	10/15	86		
Czech Republic *		57		58		57		74		13
Denmark	51	18	9	74	50	16	51	23		
East Africa **	21/23	64	33/35	27	39	41	36	52		25
Ecuador	8/9	78	52	8	13/14	63	28	67		

Country	PDI		IDV		MAS		UAI		LTO	
El Salvador		66		19		40		94		
Estonia *		40		60		30		60		
Finland	46	33	17	63	47	26	31/32	59		
France	15/16	68	10/11	71	35/36	43	10/15	86		
Germany	42/44	35	15	67	9/10	66	29	65	14	31
Greece	27/28	60	30	35	18/19	57	1	112		
Guatemala	2/3	95	53	6	43	37	3	101		
Hong Kong	15/16	68	37	25	18/19	57	49/50	29	2	96
Hungary *		46		80		88		82		50
India	10/11	77	21	48	20/21	56	45	40	7	61
Indonesia	8/9	78	47/48	14	30/31	46	41/42	48		
Iran	29/30	58	24	41	35/36	43	31/32	59		
Ireland	49	28	12	70	7/8	68	47/48	35		
Israel	52	13	19	54	29	47	19	81		
Italy	34	50	7	76	4/5	70	23	75		
Jamaica	37	45	25	39	7/8	68	52	13		
Japan	33	54	22/23	46	1	95	7	92	4	80
Luxembourg *		40		60		50		70		
Malaysia	1	104	36	26	25/26	50	46	36		
Malta *		56		59		47		96		
Mexico	5/6	81	32	30	6	69	18	82		
Morocco *		70		46		53		68		
Netherlands	40	38	4/5	80	51	14	35	53	10	44
New Zealand	50	22	6	79	17	58	39/40	49	16	30
Nigeria									22	16
Norway	47/48	31	13	69	52	8	38	50		20
Pakistan	32	55	47/48	14	25/26	50	24/25	70	23	0
Panama	2/3	95	51	11	34	44	10/15	86		
Peru	21/23	64	45	16	37/38	42	9	87		
Philippines	4	94	31	32	11/12	64	44	44	21	19
Poland *		68		60		64		93	13	32
Portugal	24/25	63	33/35	27	45	31	2	104		
Romania *		90		30		42		90		
Russia *		93		39		36		95		
Salvador	18/19	66	42	19	40	40	5/6	94		
Singapore	13	74	39/41	20	28	48	53	8	9	48
Slovakia *		104		52		110		51		38
South Africa	35/36	49	16	65	13/14	63	39/40	49		
South Korea	27/28	60	43	18	41	39	16/17	85	5	75
Spain	31	57	20	51	37/38	42	10/15	86		
Surinam *		85		47		37		92		
Sweden	47/48	31	10/11	71	53	5	49/50	29	12	33
Switzerland	45	34	14	68	4/5	70	33	58		
Taiwan	29/30	58	44	17	32/33	45	26	69	3	87

<b>Country</b>	<b>PDI</b>		<b>IDV</b>		<b>MAS</b>		<b>UAI</b>		<b>LTO</b>	
Thailand	21/23	64	39/41	20	44	34	30	64	8	56
Trinidad *		47		16		58		55		
Turkey	18/19	66	28	37	32/33	45	16/17	85		
United Kingdom	42/44	35	3	89	9/10	66	47/48	35	18	25
United States	38	40	1	91	15	62	43	46	17	29
Uruguay	26	61	29	36	42	38	4	100		
Venezuela	5/6	81	50	12	3	73	21/22	76		
Vietnam *		70		20		40		30		80
West Africa	10/11	77	39/41	20	30/31	46	34	54		16
Yugoslavia	12	76	33/35	27	48/49	21	8	88		
Zimbabwe									19	25

**Table G1: Index values for Hofstede's five culture dimensions (Marcus et al., 2000), (Hofstede, 1987-2003).**

## APPENDIX H: “THE CULTURAL-CONTEXT DIMENSION AND USER-INTERFACE DESIGN” QUESTIONNAIRE

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This Appendix shows the actual online questionnaire that was sent to the participants in this study. The questionnaire was available for a total of 8 weeks, and was advertised to about 200+ individuals. It was accessible through the following URL:

<http://www.nmmu.ac.za/websurvey/q.asp?sid=127&k=vlylheded>

Dear Participant, we are conducting a research project to investigate the effects of the culture-context on web design and then specifically the design of government web sites.

The research aims to develop recommendations towards improving the South African Government web site ([www.gov.za](http://www.gov.za)) in terms of the different types of users that are required to use it.

This questionnaire will be used purely for research purposes and can in no way be linked to your personal identity. There are no right or wrong answers, merely give us your honest opinion.

Please answer each and every question to the best of your ability. Your input and time spent on answering this questionnaire is considered very valuable and is highly appreciated. Should you have any questions, you may contact the study leader, Ms Darelle van Greunen at [darelle.vangreunen@nmmu.ac.za](mailto:darelle.vangreunen@nmmu.ac.za).

### 1. BIOGRAPHICAL INFORMATION

Please choose your appropriate answer.

#### 1.1 Indicate your gender:

- [a] Male
- [b] Female

#### 1.2 What is your home language?

- [a] English
- [b] Afrikaans
- [c] Xhosa
- [d] Zulu
- [e] Sepedi
- [f] Sesotho
- [g] Setswana
- [h] Ndebele
- [i] SiSwati
- [j] Tsonga
- [k] Venda
- [l] Other

#### 1.3 Indicate your highest educational level completed:

- [a] Less than Matric (Grade 12)
- [b] Matric (Grade 12)

- [c] Undergraduate Degree/Diploma/Certificate
- [d] Postgraduate Degree
- [e] Other

**1.4** Please indicate your age group.

- [a] 18 or younger
- [b] 19 - 24
- [c] 25 - 29
- [d] 30 - 34
- [e] 35 - 39
- [f] 40 - 44
- [g] 45 or older

**1.5** Which category best describes your occupation?

- [a] Administrative position
- [b] Management
- [c] IT (software development)
- [d] Education sector
- [e] Student
- [f] Any other

**1.6** Please indicate the province where you are currently living.

- [a] Western Cape
- [b] Eastern Cape
- [c] Northern Cape
- [d] Free State
- [e] KwaZulu-Natal
- [f] North-West
- [g] Gauteng
- [h] Limpopo
- [i] Mpumalanga

**1.7** How often do you access the South African Government Web site?

- [a] Daily
- [b] Weekly
- [c] Monthly
- [d] Once or twice a year
- [e] Never

**2. CULTURE-RELATED BEHAVIOUR IN INTERNET USAGE**

For each of the following statements, please indicate how you feel about each one by selecting your appropriate answer.

- If you strongly agree with the statement, then select “Strongly Agree” as your answer.
- If you agree with the statement, but have no strong feelings about it, then select “Agree” as your answer.

- If you are not sure if you agree or disagree with the statement, then select “Not Sure” as your answer.
- If you disagree with the statement, but have no strong feelings about it, then select “Disagree” as your answer.
- If you strongly disagree with the statement, then select “Strongly Disagree” as your answer.

**2.1** I do not like browsing through a menu on a Web site: I want to go directly to the link containing the information I want to read or the task I need to do.

Strongly Agree [a]	Agree [b]	Not Sure [c]	Disagree [d]	Strongly Disagree [e]
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**2.2** I prefer a menu system on a Web site that has only one way to reach every page or link on it.

Strongly Agree [a]	Agree [b]	Not Sure [c]	Disagree [d]	Strongly Disagree [e]
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**2.3** On a Web site, I prefer using a menu system which has only one way to achieve an objective, rather than exploring different possibilities.

Strongly Agree [a]	Agree [b]	Not Sure [c]	Disagree [d]	Strongly Disagree [e]
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**2.4** Which of the three statements do you agree with most? Menu items should be:

- [a] Presented by text menus rather than icons
- [b] Presented by icons rather than text menus
- [c] Presented as a combination of both: text menus and icons

**2.5** The home page of a Web site should provide the exact information of what is available on the Web site, through each of the relevant links. A wide range of information about the content available on pages and links via the home page is desirable.

Strongly Agree [a]	Agree [b]	Not Sure [c]	Disagree [d]	Strongly Disagree [e]
-----------------------	--------------	-----------------	-----------------	--------------------------

**2.6** I prefer LESS use of animation on a Web site (e.g. banners, images, icons, flash features and logos). It should be used sparingly and only for highlighting effects and purposes (e.g. text).

Strongly Agree [a]	Agree [b]	Not Sure [c]	Disagree [d]	Strongly Disagree [e]
-----------------------	--------------	-----------------	-----------------	--------------------------

**2.7** On a Web site that advertises a certain product, it makes more sense to have images of individuals using that product rather than only images of the product itself.

Strongly Agree [a]	Agree [b]	Not Sure [c]	Disagree [d]	Strongly Disagree [e]
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**2.8** I prefer an exploratory approach on a Web site which must be designed in terms of a process-oriented style rather than a goal-oriented style.

Strongly Agree [a]	Agree [b]	Not Sure [c]	Disagree [d]	Strongly Disagree [e]
-----------------------	--------------	-----------------	-----------------	--------------------------

**2.9** I prefer a Web site that has many sidebars and menus.

Strongly Agree [a]	Agree [b]	Not Sure [c]	Disagree [d]	Strongly Disagree [e]
-----------------------	--------------	-----------------	-----------------	--------------------------

**2.10** I prefer a Web site that opens new browser windows for each new page rather than one which constantly opens new browser windows in the same browser window.

Strongly Agree [a]	Agree [b]	Not Sure [c]	Disagree [d]	Strongly Disagree [e]
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**2.11** I prefer a Web site that promotes the multiple uses of links (e.g. external links to other Web sites).

Strongly Agree [a]	Agree [b]	Not Sure [c]	Disagree [d]	Strongly Disagree [e]
-----------------------	--------------	-----------------	-----------------	--------------------------

**2.12** When using a Web site to buy a product, I prefer a Web site that creates a friendly approach and relationship with the customer (soft-sell approach) rather than one that uses a sales-orientated style (hard-sell approach).

Strongly Agree [a]	Agree [b]	Not Sure [c]	Disagree [d]	Strongly Disagree [e]
-----------------------	--------------	-----------------	-----------------	--------------------------

**2.13** I prefer a Web site that makes use of aesthetics to promote emotions (e.g. harmony, art, nature and designs) rather than one that makes use of direct communication (e.g. terms and conditions, focus on rank and prestige of company or organization).

Strongly Agree [a]	Agree [b]	Not Sure [c]	Disagree [d]	Strongly Disagree [e]
-----------------------	--------------	-----------------	-----------------	--------------------------

**2.14** A Web site must be designed with many bright colours, fonts and shapes.

Strongly Agree [a]	Agree [b]	Not Sure [c]	Disagree [d]	Strongly Disagree [e]
-----------------------	--------------	-----------------	-----------------	--------------------------

**2.15** A Web site should always have pop-up window features.

Strongly Agree [a]	Agree [b]	Not Sure [c]	Disagree [d]	Strongly Disagree [e]
-----------------------	--------------	-----------------	-----------------	--------------------------

**2.16** I would prefer using audio messaging or video conferencing technologies to communicate with people on a Web site rather than e-mail, text messaging or instant messaging technologies (if I had the choice).

Strongly Agree [a]	Agree [b]	Not Sure [c]	Disagree [d]	Strongly Disagree [e]
-----------------------	--------------	-----------------	-----------------	--------------------------

**2.17** I am very reluctant to provide any personal details or information when filling out forms on a certain Web site (e.g. when buying a product over the Internet) irrespective of whether the Web site is secure or not.

Strongly Agree [a]	Agree [b]	Not Sure [c]	Disagree [d]	Strongly Disagree [e]
-----------------------	--------------	-----------------	-----------------	--------------------------

**2.18** Symbolic or animated forms of information are easier and quicker to understand and comprehend on Web sites rather than text forms of information.

Strongly Agree [a]	Agree [b]	Not Sure [c]	Disagree [d]	Strongly Disagree [e]
-----------------------	--------------	-----------------	-----------------	--------------------------

**2.19** I like using emoticons to express my feelings when using instant messaging applications (or in any other applications where they are available).

Strongly Agree [a]	Agree [b]	Not Sure [c]	Disagree [d]	Strongly Disagree [e]
-----------------------	--------------	-----------------	-----------------	--------------------------

**2.20** I have multiple instant messaging conversations in parallel.

Strongly Agree [a]	Agree [b]	Not Sure [c]	Disagree [d]	Strongly Disagree [e]
-----------------------	--------------	-----------------	-----------------	--------------------------

**2.21** I prefer using search engines (e.g. search box) rather than browsing for information on a Web site.

Strongly Agree [a]	Agree [b]	Not Sure [c]	Disagree [d]	Strongly Disagree [e]
-----------------------	--------------	-----------------	-----------------	--------------------------

**2.22** I prefer a sales person to use communication tools when contacting me in order to sell a product (e.g. the sales person should personalize sales messages along with their offers).

Strongly Agree [a]	Agree [b]	Not Sure [c]	Disagree [d]	Strongly Disagree [e]
-----------------------	--------------	-----------------	-----------------	--------------------------

**2.23** Which of the three statements do you agree with most? You prefer using a Web site:

- [a] With a higher emphasis on icons rather text and numbers.
- [b] With a higher emphasis on text and numbers rather than icons.
- [c] That uses a combination of both.

### 3. CULTURE-RELATED BEHAVIOUR: GOVERNMENT WEB SITE

For each of the following statements, please indicate how you feel about each one by selecting your appropriate answer.

- If you strongly agree with the statement, then select “Strongly Agree” as your answer.
- If you agree with the statement, but have no strong feelings about it, then select “Agree” as your answer.
- If you are not sure if you agree or disagree with the statement, then select “Not Sure” as your answer.
- If you disagree with the statement, but have no strong feelings about it, then select “Disagree” as your answer.
- If you strongly disagree with the statement, then select “Strongly Disagree” as your answer.

**3.1** I do not like browsing through a menu on a Government Web site: I want to go directly to the link containing the information I want to read or the task I need to do.

Strongly Agree [a]	Agree [b]	Not Sure [c]	Disagree [d]	Strongly Disagree [e]
-----------------------	--------------	-----------------	-----------------	--------------------------

**3.2** I prefer a menu system on a Government Web site that has only one way to reach every page or link on it.

Strongly Agree [a]	Agree [b]	Not Sure [c]	Disagree [d]	Strongly Disagree [e]
-----------------------	--------------	-----------------	-----------------	--------------------------

**3.3** On a Government Web site, I prefer using a menu system which has only one way to achieve an objective, rather than exploring different possibilities (e.g. finding a specific form to complete or reading the latest news on Government issues)

Strongly Agree [a]	Agree [b]	Not Sure [c]	Disagree [d]	Strongly Disagree [e]
-----------------------	--------------	-----------------	-----------------	--------------------------

**3.4** Which of the three statements do you agree with most? Menu items on Government Web sites should be:

- [a] Presented by text menus rather than icons
- [b] Presented by icons rather than text menus
- [c] Presented as a combination of both: text menus and icons

**3.5** The home page of a Government Web site should provide the exact information of what is available on the Web site, through each of the relevant links. A wide range of information about the content available on pages and links via the home page is desirable.

Strongly Agree [a]	Agree [b]	Not Sure [c]	Disagree [d]	Strongly Disagree [e]
-----------------------	--------------	-----------------	-----------------	--------------------------

**3.6** I prefer LESS use of animation on a Government Web site (e.g. banners, images, icons, flash features and logos). It should be used sparingly and only for highlighting effects and purposes (e.g. text).

Strongly Agree [a]	Agree [b]	Not Sure [c]	Disagree [d]	Strongly Disagree [e]
-----------------------	--------------	-----------------	-----------------	--------------------------

**3.7** I prefer an exploratory approach on a Government Web site which must be designed in terms of a process-oriented style rather than a goal-oriented style.

Strongly Agree [a]	Agree [b]	Not Sure [c]	Disagree [d]	Strongly Disagree [e]
-----------------------	--------------	-----------------	-----------------	--------------------------

**3.8** I prefer a Government Web site that has many sidebars and menus.

Strongly Agree [a]	Agree [b]	Not Sure [c]	Disagree [d]	Strongly Disagree [e]
-----------------------	--------------	-----------------	-----------------	--------------------------

**3.9** I prefer a Government Web site that opens new browser windows for each new page rather than one which constantly opens new browser windows in the same browser window.

Strongly Agree [a]	Agree [b]	Not Sure [c]	Disagree [d]	Strongly Disagree [e]
-----------------------	--------------	-----------------	-----------------	--------------------------

**3.10** Government Web sites should promote the multiple uses of links (e.g. external links to other Web sites or institutions).

Strongly Agree [a]	Agree [b]	Not Sure [c]	Disagree [d]	Strongly Disagree [e]
-----------------------	--------------	-----------------	-----------------	--------------------------

**3.11** A Government Web site should make use of aesthetics to promote emotions (e.g. harmony, art, nature and designs) rather than make use of direct communication (e.g. terms and conditions and focus on rank and prestige).

Strongly Agree [a]	Agree [b]	Not Sure [c]	Disagree [d]	Strongly Disagree [e]
-----------------------	--------------	-----------------	-----------------	--------------------------

**3.12** A Government Web site must be designed using colours other than the official Government colours.

Strongly Agree [a]	Agree [b]	Not Sure [c]	Disagree [d]	Strongly Disagree [e]
-----------------------	--------------	-----------------	-----------------	--------------------------

**3.13** A Government Web site should always have pop-up window features.

Strongly Agree [a]	Agree [b]	Not Sure [c]	Disagree [d]	Strongly Disagree [e]
-----------------------	--------------	-----------------	-----------------	--------------------------

**3.14** I am very reluctant to provide any personal details or information when filling out forms on a Government Web site (e.g. completing a form for a passport application or identity document) irrespective of whether the Web site is secure or not.

Strongly Agree [a]	Agree [b]	Not Sure [c]	Disagree [d]	Strongly Disagree [e]
-----------------------	--------------	-----------------	-----------------	--------------------------

**3.15** Symbolic or animated forms of information are easier and quicker to understand and comprehend on Government Web sites rather than text forms of information.

Strongly Agree [a]	Agree [b]	Not Sure [c]	Disagree [d]	Strongly Disagree [e]
-----------------------	--------------	-----------------	-----------------	--------------------------

**3.16** I prefer using search engines (e.g. search box) rather than browsing for information on a Government Web site.

Strongly Agree [a]	Agree [b]	Not Sure [c]	Disagree [d]	Strongly Disagree [e]
-----------------------	--------------	-----------------	-----------------	--------------------------

**3.17** Which of the three statements do you agree with most? You prefer using a Government Web site:

- [a] With a higher emphasis on icons rather than text and numbers.
- [b] With a higher emphasis on text and numbers rather than on icons .
- [c] That uses a combination of both.

#### **4. GENERAL CULTURE-RELATED BEHAVIOUR**

For each of the following statements, please indicate how you feel about each one by selecting your appropriate answer.

- If you strongly agree with the statement, then select “Strongly Agree” as your answer.
- If you agree with the statement, but have no strong feelings about it, then select “Agree” as your answer.
- If you are not sure if you agree or disagree with the statement, then select “Not Sure” as your answer.

- If you disagree with the statement, but have no strong feelings about it, then select “Disagree” as your answer.
- If you strongly disagree with the statement, then select “Strongly Disagree” as your answer.

**4.1** I like doing more than one thing at a time and do not always finish one task before attempting the next.

Strongly Agree [a]	Agree [b]	Not Sure [c]	Disagree [d]	Strongly Disagree [e]
-----------------------	--------------	-----------------	-----------------	--------------------------

**4.2** I understand that peoples plans change and that time schedules should be adapted accordingly.

Strongly Agree [a]	Agree [b]	Not Sure [c]	Disagree [d]	Strongly Disagree [e]
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**4.3** If a friend keeps me waiting, I will be most unhappy about them wasting my time.

Strongly Agree [a]	Agree [b]	Not Sure [c]	Disagree [d]	Strongly Disagree [e]
-----------------------	--------------	-----------------	-----------------	--------------------------

**4.4** I believe in living my life for the moment, rather than planning for the future.

Strongly Agree [a]	Agree [b]	Not Sure [c]	Disagree [d]	Strongly Disagree [e]
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**4.5** If I do a favour for someone, I expect that person to return the favour when I need it (e.g. if I give a lift to a friend, I expect that friend to give me a lift when I need one).

Strongly Agree [a]	Agree [b]	Not Sure [c]	Disagree [d]	Strongly Disagree [e]
-----------------------	--------------	-----------------	-----------------	--------------------------

**4.6** I would prefer to work on a project on my own, rather than in a group, if there was the same amount of work for me if I worked on the project in a group or on my own.

Strongly Agree [a]	Agree [b]	Not Sure [c]	Disagree [d]	Strongly Disagree [e]
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**4.7** When doing a project as a group, each member should get the same mark for the project, rather than each member getting assessed individually.

Strongly Agree [a]	Agree [b]	Not Sure [c]	Disagree [d]	Strongly Disagree [e]
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**4.8** If a lecturer (or manager) disagrees with the work that I have submitted and I feel that I am in the right, I will take it up with them and stand up for my point of view.

Strongly Agree [a]	Agree [b]	Not Sure [c]	Disagree [d]	Strongly Disagree [e]
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**4.9** Social acceptance is more important to me than self-respect.

Strongly Agree [a]	Agree [b]	Not Sure [c]	Disagree [d]	Strongly Disagree [e]
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**4.10** When I am learning something new and difficult (e.g. a new software program), I persevere until I understand it, even if the software is not essential to me at the moment.

Strongly Agree [a]	Agree [b]	Not Sure [c]	Disagree [d]	Strongly Disagree [e]
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**4.11** Listeners should be able to understand what a speaker is trying to express, even when the speaker does not say everything they intend to communicate.

Strongly Agree [a]	Agree [b]	Not Sure [c]	Disagree [d]	Strongly Disagree [e]
-----------------------	--------------	-----------------	-----------------	--------------------------

**4.12** Speakers should NOT expect listeners will figure out what they really mean unless the intended message is stated precisely.

Strongly Agree [a]	Agree [b]	Not Sure [c]	Disagree [d]	Strongly Disagree [e]
-----------------------	--------------	-----------------	-----------------	--------------------------

**4.13** A listener should understand the intent of the speaker from the way the person talks.

Strongly Agree [a]	Agree [b]	Not Sure [c]	Disagree [d]	Strongly Disagree [e]
-----------------------	--------------	-----------------	-----------------	--------------------------

**4.14** Even if not stated exactly, a speaker's intent will rarely be misunderstood.

Strongly Agree [a]	Agree [b]	Not Sure [c]	Disagree [d]	Strongly Disagree [e]
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**4.15** People should be able to understand the meaning of a statement by reading between the lines.

Strongly Agree [a]	Agree [b]	Not Sure [c]	Disagree [d]	Strongly Disagree [e]
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**4.16** Intentions not explicitly stated can often be inferred from the context.

Strongly Agree [a]	Agree [b]	Not Sure [c]	Disagree [d]	Strongly Disagree [e]
-----------------------	--------------	-----------------	-----------------	--------------------------

**4.17** A speaker can assume that listeners will know what they really mean.

Strongly Agree [a]	Agree [b]	Not Sure [c]	Disagree [d]	Strongly Disagree [e]
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**4.18** People understand many things that are left unsaid.

Strongly Agree [a]	Agree [b]	Not Sure [c]	Disagree [d]	Strongly Disagree [e]
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**4.19** Fewer words can often lead to better understanding.

Strongly Agree [a]	Agree [b]	Not Sure [c]	Disagree [d]	Strongly Disagree [e]
-----------------------	--------------	-----------------	-----------------	--------------------------

**4.20** The context in which a statement is made conveys as much, or more, information than the message itself.

Strongly Agree [a]	Agree [b]	Not Sure [c]	Disagree [d]	Strongly Disagree [e]
-----------------------	--------------	-----------------	-----------------	--------------------------

**4.21** Misunderstandings are more often caused by the listener's failure to draw reasonable inferences, rather than the speaker's failure to speak clearly.

Strongly Agree [a]	Agree [b]	Not Sure [c]	Disagree [d]	Strongly Disagree [e]
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**4.22** You can often convey more information with fewer words.

Strongly Agree [a]	Agree [b]	Not Sure [c]	Disagree [d]	Strongly Disagree [e]
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**4.23** Some ideas are better understood when left unsaid.

Strongly Agree [a]	Agree [b]	Not Sure [c]	Disagree [d]	Strongly Disagree [e]
-----------------------	--------------	-----------------	-----------------	--------------------------

**4.24** The meaning of a statement often turns more on the context than the actual words.

Strongly Agree [a]	Agree [b]	Not Sure [c]	Disagree [d]	Strongly Disagree [e]
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Thank you for your time and participation.

## APPENDIX I: THE RAW DATA OF THE QUESTIONNAIRE

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The purpose of this appendix is to explain the raw data from the “*THE CULTURAL-CONTEXT DIMENSION AND USER-INTERFACE DESIGN*” Questionnaire. It will be explained via means of Table I.1. This table is separated into three columns:

- The “*Key to Questions*” column describes the question number as it is portrayed in the questionnaire.
- The “*Description*” column describes the actual question.
- The “*Choice List Description (value)*” column describes the options the participants have when answering a specific question.

There are four main questions in this questionnaire. These questions were then broken up into many items. The four main questions are:

1. Question 1: Biographical Information (includes 7 items)
2. Question 2: Culture-Related Behaviour in Internet Usage (includes 23 items)
3. Question 3: Culture-Related Behaviour: Government Web Site (includes 17 items)
4. Question 4: General Culture-Related Behaviour (includes 24 items)

Three examples of how Table I.1 works will now be provided:

1. If a participant selected the option “**Male**” as an answer to question “*Q1-1: Indicate your gender*”, that means that on the results page of the questionnaire, for this specific participant, it will display the number “**1**” as a value for question “*Q1-1*”.
2. If a participant selected the options “**Afrikaans**” and “**Xhosa**” as an answer to question “*Q1-2: What is your home language?*”, that means on the results page of the questionnaire, for this specific participant, it will display the numbers “**2**” and “**3**” as values for question “*Q1-2*”.
3. If a participant selected the option “**Strongly Agree**” as an answer to question “*Q2-9: I prefer a Web site that has many sidebars and menus*”, that means on the results page of the questionnaire, for this specific participant, it will display the number “**1**” as a value for question “*Q2-9*”.

Key to Questions	Description	Choice List Description (value)
	<b>Question 1 – Biographical Information</b>	
Q1-1	Indicate your gender:	1 = Male 2 = Female
Q1-2	What is your home language?	1 = English 2 = Afrikaans 3 = Xhosa 4 = Zulu 5 = Sepedi 6 = Sesotho 7 = Setswana 8 = Ndebele 9 = SiSwati 10 Tsonga 11 = Venda 12 = Other
Q1-3	Indicate your highest educational level completed:	1 = Less than Matric (Grade 12) 2 = Matric (Grade 12) 3 = Undergraduate Degree/ Diploma/Certificate 4 = Postgraduate Degree 5 = Other
Q1-4	Please indicate your age group.	1 = 18 or younger 2 = 19 - 24 3 = 25 - 29 4 = 30 - 34 5 = 35 - 39 6 = 40 - 44 7 = 45 or older
Q1-5	Which category best describes your occupation?	1 = Administrative position 2 = Management 3 = IT (software development) 4 = Education sector 5 = Student 6 = Any other
Q1-6	Please indicate the province where you are currently living.	1 = Western Cape 2 = Eastern Cape 3 = Northern Cape 4 = Free State 5 = KwaZulu-Natal 6 = North-West 7 = Gauteng 8 = Limpopo 9 = Mpumalanga
Q1-7	How often do you access the South African	1 = Daily

Key to Questions	Description	Choice List Description (value)
	Government Web site?	2 = Weekly 3 = Monthly 4 = Once or twice a year 5 = Never
<b>Question 2 – Culture-Related Behaviour in Internet Usage</b>		
Q2-1	I do not like browsing through a menu on a Web site: I want to go directly to the link containing the information I want to read or the task I need to do.	1 = Strongly Agree 2 = Agree 3 = Not Sure 4 = Disagree 5 = Strongly Disagree
Q2-2	I prefer a menu system on a Web site that has only one way to reach every page or link on it.	1 = Strongly Agree 2 = Agree 3 = Not Sure 4 = Disagree 5 = Strongly Disagree
Q2-3	On a Web site, I prefer using a menu system which has only one way to achieve an objective, rather than exploring different possibilities.	1 = Strongly Agree 2 = Agree 3 = Not Sure 4 = Disagree 5 = Strongly Disagree
Q2-4	Which of the three statements do you agree with most? Menu items should be:	1 = Presented by text menus rather than icons 2 = Presented by icons rather than text menus 3 = Presented as a combination of both: text menus and icons
Q2-5	The home page of a Web site should provide the exact information of what is available on the Web site, through each of the relevant links. A wide range of information about the content available on pages and links via the home page is desirable.	1 = Strongly Agree 2 = Agree 3 = Not Sure 4 = Disagree 5 = Strongly Disagree
Q2-6	I prefer LESS use of animation on a Web site (e.g. banners, images, icons, flash features and logos). It should be used sparingly and only for highlighting effects and purposes (e.g. text).	1 = Strongly Agree 2 = Agree 3 = Not Sure 4 = Disagree 5 = Strongly Disagree
Q2-7	On a Web site that advertises a certain product, it makes more sense to have images of individuals using that product rather than only images of the product itself.	1 = Strongly Agree 2 = Agree 3 = Not Sure 4 = Disagree 5 = Strongly Disagree
Q2-8	I prefer an exploratory approach on a Web site which must be designed in terms of a process-	1 = Strongly Agree 2 = Agree

Key to Questions	Description	Choice List Description (value)
	oriented style rather than a goal-oriented style.	3 = Not Sure 4 = Disagree 5 = Strongly Disagree
Q2-9	I prefer a Web site that has many sidebars and menus.	1 = Strongly Agree 2 = Agree 3 = Not Sure 4 = Disagree 5 = Strongly Disagree
Q2-10	I prefer a Web site that opens new browser windows for each new page rather than one which constantly opens new browser windows in the same browser window.	1 = Strongly Agree 2 = Agree 3 = Not Sure 4 = Disagree 5 = Strongly Disagree
Q2-11	I prefer a Web site that promotes the multiple uses of links (e.g. external links to other Web sites).	1 = Strongly Agree 2 = Agree 3 = Not Sure 4 = Disagree 5 = Strongly Disagree
Q2-12	When using a Web site to buy a product, I prefer a Web site that creates a friendly approach and relationship with the customer (soft-sell approach) rather than one that uses a sales-orientated style (hard-sell approach).	1 = Strongly Agree 2 = Agree 3 = Not Sure 4 = Disagree 5 = Strongly Disagree
Q2-13	I prefer a Web site that makes use of aesthetics to promote emotions (e.g. harmony, art, nature and designs) rather than one that makes use of direct communication (e.g. terms and conditions, focus on rank and prestige of company or organization).	1 = Strongly Agree 2 = Agree 3 = Not Sure 4 = Disagree 5 = Strongly Disagree
Q2-14	A Web site must be designed with many bright colours, fonts and shapes.	1 = Strongly Agree 2 = Agree 3 = Not Sure 4 = Disagree 5 = Strongly Disagree
Q2-15	A Web site should always have pop-up window features.	1 = Strongly Agree 2 = Agree 3 = Not Sure 4 = Disagree 5 = Strongly Disagree
Q2-16	I would prefer using audio messaging or video conferencing technologies to communicate with people on a Web site rather than e-mail, text messaging or instant messaging technologies (if I had the choice).	1 = Strongly Agree 2 = Agree 3 = Not Sure 4 = Disagree 5 = Strongly Disagree
Q2-17	I am very reluctant to provide any personal details or information when filling out forms on a certain	1 = Strongly Agree 2 = Agree

Key to Questions	Description	Choice List Description (value)
	Web site (e.g. when buying a product over the Internet) irrespective of whether the Web site is secure or not.	3 = Not Sure 4 = Disagree 5 = Strongly Disagree
Q2-18	Symbolic or animated forms of information are easier and quicker to understand and comprehend on Web sites rather than text forms of information.	1 = Strongly Agree 2 = Agree 3 = Not Sure 4 = Disagree 5 = Strongly Disagree
Q2-19	I like using emoticons to express my feelings when using instant messaging applications (or in any other applications where they are available).	1 = Strongly Agree 2 = Agree 3 = Not Sure 4 = Disagree 5 = Strongly Disagree
Q2-20	I have multiple instant messaging conversations in parallel.	1 = Strongly Agree 2 = Agree 3 = Not Sure 4 = Disagree 5 = Strongly Disagree
Q2-21	I prefer using search engines (e.g. search box) rather than browsing for information on a Web site.	1 = Strongly Agree 2 = Agree 3 = Not Sure 4 = Disagree 5 = Strongly Disagree
Q2-22	I prefer a sales person to use communication tools when contacting me in order to sell a product (e.g. the sales person should personalize sales messages along with their offers).	1 = Strongly Agree 2 = Agree 3 = Not Sure 4 = Disagree 5 = Strongly Disagree
Q2-23	Which of the three statements do you agree with most? You prefer using a Web site:	1 = With a higher emphasis on icons rather text and numbers 2 = With a higher emphasis on text and numbers rather than icons 3 = That uses a combination of both
	<b>Question 3 – Culture-Related Behaviour: Government Web Site</b>	
Q3-1	I do not like browsing through a menu on a Government Web site: I want to go directly to the link containing the information I want to read or the task I need to do.	1 = Strongly Agree 2 = Agree 3 = Not Sure 4 = Disagree 5 = Strongly Disagree
Q3-2	I prefer a menu system on a Government Web site that has only one way to reach every page or link on it.	1 = Strongly Agree 2 = Agree 3 = Not Sure

Key to Questions	Description	Choice List Description (value)
		4 = Disagree 5 = Strongly Disagree
Q3-3	On a Government Web site, I prefer using a menu system which has only one way to achieve an objective, rather than exploring different possibilities (e.g. finding a specific form to complete or reading the latest news on Government issues).	1 = Strongly Agree 2 = Agree 3 = Not Sure 4 = Disagree 5 = Strongly Disagree
Q3-4	Which of the three statements do you agree with most? Menu items on Government Web sites should be:	1 = Presented by text menus rather than icons 2 = Presented by icons rather than text menus 3 = Presented as a combination of both: text menus and icons
Q3-5	The home page of a Government Web site should provide the exact information of what is available on the Web site, through each of the relevant links. A wide range of information about the content available on pages and links via the home page is desirable.	1 = Strongly Agree 2 = Agree 3 = Not Sure 4 = Disagree 5 = Strongly Disagree
Q3-6	I prefer LESS use of animation on a Government Web site (e.g. banners, images, icons, flash features and logos). It should be used sparingly and only for highlighting effects and purposes (e.g. text).	1 = Strongly Agree 2 = Agree 3 = Not Sure 4 = Disagree 5 = Strongly Disagree
Q3-7	I prefer an exploratory approach on a Government Web site which must be designed in terms of a process-oriented style rather than a goal-oriented style.	1 = Strongly Agree 2 = Agree 3 = Not Sure 4 = Disagree 5 = Strongly Disagree
Q3-8	I prefer a Government Web site that has many sidebars and menus.	1 = Strongly Agree 2 = Agree 3 = Not Sure 4 = Disagree 5 = Strongly Disagree
Q3-9	I prefer a Government Web site that opens new browser windows for each new page rather than one which constantly opens new browser windows in the same browser window.	1 = Strongly Agree 2 = Agree 3 = Not Sure 4 = Disagree 5 = Strongly Disagree
Q3-10	Government Web sites should promote the multiple uses of links (e.g. external links to other Web sites or institutions).	1 = Strongly Agree 2 = Agree 3 = Not Sure 4 = Disagree

Key to Questions	Description	Choice List Description (value)
		5 = Strongly Disagree
Q3-11	A Government Web site should make use of aesthetics to promote emotions (e.g. harmony, art, nature and designs) rather than make use of direct communication (e.g. terms and conditions and focus on rank and prestige).	1 = Strongly Agree 2 = Agree 3 = Not Sure 4 = Disagree 5 = Strongly Disagree
Q3-12	A Government Web site must be designed using colours other than the official Government colours.	1 = Strongly Agree 2 = Agree 3 = Not Sure 4 = Disagree 5 = Strongly Disagree
Q3-13	A Government Web site should always have pop-up window features.	1 = Strongly Agree 2 = Agree 3 = Not Sure 4 = Disagree 5 = Strongly Disagree
Q3-14	I am very reluctant to provide any personal details or information when filling out forms on a Government Web site (e.g. completing a form for a passport application or identity document) irrespective of whether the Web site is secure or not.	1 = Strongly Agree 2 = Agree 3 = Not Sure 4 = Disagree 5 = Strongly Disagree
Q3-15	Symbolic or animated forms of information are easier and quicker to understand and comprehend on Government Web sites rather than text forms of information.	1 = Strongly Agree 2 = Agree 3 = Not Sure 4 = Disagree 5 = Strongly Disagree
Q3-16	I prefer using search engines (e.g. search box) rather than browsing for information on a Government Web site.	1 = Strongly Agree 2 = Agree 3 = Not Sure 4 = Disagree 5 = Strongly Disagree
Q3-17	Which of the three statements do you agree with most? You prefer using a Government Web site:	1 = With a higher emphasis on icons rather than text and numbers 2 = With a higher emphasis on text and numbers rather than on icons 3 = That uses a combination of both
	<b>Question 4 – General Culture-Related Behaviour</b>	
Q4-1	I like doing more than one thing at a time and do not always finish one task before attempting the next.	1 = Strongly Agree 2 = Agree 3 = Not Sure

Key to Questions	Description	Choice List Description (value)
		4 = Disagree 5 = Strongly Disagree
Q4-2	I understand that peoples plans change and that time schedules should be adapted accordingly.	1 = Strongly Agree 2 = Agree 3 = Not Sure 4 = Disagree 5 = Strongly Disagree
Q4-3	If a friend keeps me waiting, I will be most unhappy about them wasting my time.	1 = Strongly Agree 2 = Agree 3 = Not Sure 4 = Disagree 5 = Strongly Disagree
Q4-4	I believe in living my life for the moment, rather than planning for the future.	1 = Strongly Agree 2 = Agree 3 = Not Sure 4 = Disagree 5 = Strongly Disagree
Q4-5	If I do a favour for someone, I expect that person to return the favour when I need it (e.g. if I give a lift to a friend, I expect that friend to give me a lift when I need one).	1 = Strongly Agree 2 = Agree 3 = Not Sure 4 = Disagree 5 = Strongly Disagree
Q4-6	I would prefer to work on a project on my own, rather than in a group, if there was the same amount of work for me if I worked on the project in a group or on my own.	1 = Strongly Agree 2 = Agree 3 = Not Sure 4 = Disagree 5 = Strongly Disagree
Q4-7	When doing a project as a group, each member should get the same mark for the project, rather than each member getting assessed individually.	1 = Strongly Agree 2 = Agree 3 = Not Sure 4 = Disagree 5 = Strongly Disagree
Q4-8	If a lecturer (or manager) disagrees with the work that I have submitted and I feel that I am in the right, I will take it up with them and stand up for my point of view.	1 = Strongly Agree 2 = Agree 3 = Not Sure 4 = Disagree 5 = Strongly Disagree
Q4-9	Social acceptance is more important to me than self-respect.	1 = Strongly Agree 2 = Agree 3 = Not Sure 4 = Disagree 5 = Strongly Disagree
Q4-10	When I am learning something new and difficult (e.g. a new software program), I persevere until I understand it, even if the software is not essential	1 = Strongly Agree 2 = Agree 3 = Not Sure

<b>Key to Questions</b>	<b>Description</b>	<b>Choice List Description (value)</b>
	to me at the moment.	4 = Disagree 5 = Strongly Disagree
Q4-11	Listeners should be able to understand what a speaker is trying to express, even when the speaker does not say everything they intend to communicate.	1 = Strongly Agree 2 = Agree 3 = Not Sure 4 = Disagree 5 = Strongly Disagree
Q4-12	Speakers should NOT expect listeners will figure out what they really mean unless the intended message is stated precisely.	1 = Strongly Agree 2 = Agree 3 = Not Sure 4 = Disagree 5 = Strongly Disagree
Q4-13	A listener should understand the intent of the speaker from the way the person talks.	1 = Strongly Agree 2 = Agree 3 = Not Sure 4 = Disagree 5 = Strongly Disagree
Q4-14	Even if not stated exactly, a speaker's intent will rarely be misunderstood.	1 = Strongly Agree 2 = Agree 3 = Not Sure 4 = Disagree 5 = Strongly Disagree
Q4-15	People should be able to understand the meaning of a statement by reading between the lines.	1 = Strongly Agree 2 = Agree 3 = Not Sure 4 = Disagree 5 = Strongly Disagree
Q4-16	Intentions not explicitly stated can often be inferred from the context.	1 = Strongly Agree 2 = Agree 3 = Not Sure 4 = Disagree 5 = Strongly Disagree
Q4-17	A speaker can assume that listeners will know what they really mean.	1 = Strongly Agree 2 = Agree 3 = Not Sure 4 = Disagree 5 = Strongly Disagree
Q4-18	People understand many things that are left unsaid.	1 = Strongly Agree 2 = Agree 3 = Not Sure 4 = Disagree 5 = Strongly Disagree
Q4-19	Fewer words can often lead to better understanding.	1 = Strongly Agree 2 = Agree 3 = Not Sure

<b>Key to Questions</b>	<b>Description</b>	<b>Choice List Description (value)</b>
		4 = Disagree 5 = Strongly Disagree
Q4-20	The context in which a statement is made conveys as much, or more, information than the message itself.	1 = Strongly Agree 2 = Agree 3 = Not Sure 4 = Disagree 5 = Strongly Disagree
Q4-21	Misunderstandings are more often caused by the listener's failure to draw reasonable inferences, rather than the speaker's failure to speak clearly.	1 = Strongly Agree 2 = Agree 3 = Not Sure 4 = Disagree 5 = Strongly Disagree
Q4-22	You can often convey more information with fewer words.	1 = Strongly Agree 2 = Agree 3 = Not Sure 4 = Disagree 5 = Strongly Disagree
Q4-23	Some ideas are better understood when left unsaid.	1 = Strongly Agree 2 = Agree 3 = Not Sure 4 = Disagree 5 = Strongly Disagree
Q4-24	The meaning of a statement often turns more on the context than the actual words.	1 = Strongly Agree 2 = Agree 3 = Not Sure 4 = Disagree 5 = Strongly Disagree

Table I.1: The raw data

## APPENDIX J: SUMMARY OF QUESTIONNAIRE RESULTS

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The purpose of this appendix is to summarize the results of the on-line questionnaire. This will assist with the objective of making the results more sensible and understandable. In terms of the tables below:

- The “*Question*” column represents the actual question as it is displayed in the on-line Questionnaire. There are four main questions and each question has its own number of items.
- The “*Answer Value of Participant’s Selection*” column represents the actual value of the participant’s selection. Each choice the user had, when answering a question, is assigned a specific value for the specific question. This was discussed in Appendix I.
- The “*Total Responses*” column represents the actual number of participants that answered the specific question.
- The “*Total Participants*” column represents the actual number of participants that completed the questionnaire.
- The “*Total Not Answered*” column represents the actual number of participants that did not answer the specific question.
- Wherever there is a “-” in a table, it means that those answer values do not apply to the specific question (e.g., in the case of Question 1-1, “*Indicate your gender*”, the number “*1*” represents “*Male*” and the number “*2*” represents “*Female*”. In this case, 52 of the participants were male and 19 were female. The rest of the answer values do not apply to this particular question. That is why in Question 1-2, “*What is your home language?*” there are 12 answer values available for the participants.
- The total number of individuals that participated in this Questionnaire was 71.

**Question 1 values (Biographical Information)**

The values for these questions are available in Appendix I.

Q1	Answer Value of Participant's Selection												Total Responses	Total Participants	Total Not Answered
	1	2	3	4	5	6	7	8	9	10	11	12			
<b>1-1</b>	52	19	-	-	-	-	-	-	-	-	-	-	71	71	0
<b>1-2</b>	48	16	8	1	0	0	1	0	0	0	0	8	*82	71	0
<b>1-3</b>	0	4	24	43	0	-	-	-	-	-	-	-	71	71	0
<b>1-4</b>	0	17	27	12	3	4	8	-	-	-	-	-	71	71	0
<b>1-5</b>	6	11	21	9	12	12	-	-	-	-	-	-	71	71	0
<b>1-6</b>	6	44	0	3	0	0	17	1	0	-	-	-	71	71	0
<b>1-7</b>	1	2	9	30	28	-	-	-	-	-	-	-	70	71	1

**Table J1: Results summary for Question 1**

\*The reason that question 1-2 has a total of 82 responses when there was only a total of 71 participants is because some of the participants had more than one home language. All the participants had answered the question and selected at least one home language.

**Question 2 values (Culture-Related Behaviour in Internet Usage)**

The values for these questions are:

1 = Strongly Agree

2 = Agree

3 = Not Sure

4 = Disagree

5 = Strongly Disagree

Question 2-4 has three different values. They are:

1 = Presented by text menus rather than icons

2 = Presented by icons rather than text menus

3 = Presented as a combination of both: text menus and icons

Question 2-23 has three different values. They are:

1 = With a higher emphasis on icons rather than text and numbers

2 = With a highr emphasis on text and numbers rather than icons

3 = that uses a combination of both

Question 2	Answer Value of Participant's Selection					Total Responses	Total Participants	Total Not Answered
	1	2	3	4	5			
2-1	14	27	6	21	2	70	71	1
2-2	12	31	7	13	7	70	71	1
2-3	11	26	4	22	7	70	71	1
2-4	8	6	55	-	-	69	71	2
2-5	34	26	3	4	2	69	71	2
2-6	31	26	2	9	2	70	71	1
2-7	4	24	13	24	5	70	71	1
2-8	4	23	20	19	4	70	71	1
2-9	2	14	8	32	13	69	71	2
2-10	6	8	7	19	27	67	71	4
2-11	6	31	13	19	1	70	71	1
2-12	29	31	7	3	0	70	71	1
2-13	13	30	14	10	2	69	71	2
2-14	4	6	6	36	18	70	71	1
2-15	0	6	3	31	30	70	71	1
2-16	7	10	10	36	7	70	71	1
2-17	21	29	4	15	1	70	71	1
2-18	8	32	5	23	2	70	71	1
2-19	10	36	6	13	4	69	71	2
2-20	17	24	5	16	6	68	71	3
2-21	32	32	3	2	0	69	71	2
2-22	13	39	9	4	3	68	71	3
2-23	5	7	58	-	-	70	71	1

Table J2: Results summary for Question 2

### Question 3 values (Culture-Related Behaviour: Government Web Site)

The values for these questions are:

1 = Strongly Agree

2 = Agree

3 = Not Sure

4 = Disagree

5 = Strongly Disagree

Question 3-4 has three different values. They are:

1 = Presented by text menus rather than icons

2 = Presented by icons rather than text menus

3 = Presented as a combination of both: text menus and icons

Question 3-17 has three different values. They are:

1 = With a higher emphasis on icons rather than text and numbers

2 = With a highr emphasis on text and numbers rather than icons

3 = that uses a combination of both

Question 3	Answer Value of Participant's Selection					Total Responses	Total Participants	Total Not Answered
	1	2	3	4	5			
<b>3-1</b>	21	29	11	7	0	68	71	3
<b>3-2</b>	10	29	8	20	3	70	71	1
<b>3-3</b>	12	30	10	13	3	68	71	3
<b>3-4</b>	17	4	49	-	-	70	71	1
<b>3-5</b>	29	32	2	4	2	69	71	2
<b>3-6</b>	26	30	4	4	2	66	71	5
<b>3-7</b>	4	31	15	14	4	68	71	3
<b>3-8</b>	2	12	11	28	15	68	71	3
<b>3-9</b>	4	16	4	18	27	69	71	2
<b>3-10</b>	10	26	11	17	3	67	71	4
<b>3-11</b>	7	30	12	14	6	69	71	2
<b>3-12</b>	3	21	14	22	9	69	71	2
<b>3-13</b>	1	8	6	31	22	68	71	3
<b>3-14</b>	21	29	3	15	1	69	71	2
<b>3-15</b>	3	30	13	14	7	67	71	4
<b>3-16</b>	26	29	9	5	0	69	71	2
<b>3-17</b>	6	9	54	-	-	69	71	2

**Table J3: Results summary for Question 3**

#### **Question 4 values (General Culture-Related Behaviour)**

The values for these questions are:

1 = Strongly Agree

2 = Agree

3 = Not Sure

4 = Disagree

5 = Strongly Disagree

Question 4	Answer Value of Participant's Selection					Total Responses	Total Participants	Total Not Answered
	1	2	3	4	5			
4-1	23	34	1	8	4	70	71	1
4-2	19	50	1	1	0	71	71	0
4-3	19	32	5	13	0	69	71	2
4-4	4	18	6	30	12	70	71	1
4-5	5	16	8	24	18	71	71	0
4-6	13	23	6	21	7	70	71	1
4-7	8	19	11	22	11	71	71	0
4-8	21	38	7	4	0	70	71	1
4-9	0	3	7	26	33	69	71	2
4-10	8	47	8	4	2	69	71	2
4-11	6	43	2	17	2	70	71	1
4-12	15	48	2	4	0	69	71	2
4-13	1	40	12	14	3	70	71	1
4-14	0	19	14	28	9	70	71	1
4-15	5	15	6	28	16	70	71	1
4-16	5	42	9	12	2	70	71	1
4-17	0	11	4	34	21	70	71	1
4-18	1	23	9	27	10	70	71	1
4-19	7	28	14	13	8	70	71	1
4-20	8	39	15	5	3	70	71	1
4-21	4	21	19	20	6	70	71	1
4-22	8	33	16	10	3	70	71	1
4-23	4	11	14	32	9	70	71	1
4-24	6	43	12	8	1	70	71	1

Table J4: Results summary for Question 4

## APPENDIX K: FREQUENCY TABLES ANALYSIS

The tables below display the actual responses on all the items in the questionnaire in the form of frequency tables. Each item is grouped within its corresponding Question section. The purpose of the frequency tables is to construct frequency counts and percentages for the different levels of each item. Frequency tables, also referred to as one-way tables, are the simplest method in which one may represent categorical and ordinal data. They are commonly used as one of the exploratory procedures, with an attempt to establish how the different categories of values are distributed within the sample (AnalysSoft, 2001 – 2008).

### Question 1: Biographical information

In this section, the analysis will focus on the biographical information of the participants. There are seven related items in this section. In terms of these items, the biographical aspect that is being evaluated is displayed at the top of the table (e.g. Frequency table: Home language).

Frequency table: Gender			
Category	Count	Cumulative Count	Percent
Male	52	52	73.23944
Female	19	71	26.76056

Frequency table: Home language			
Category	Count	Cumulative Count	Percent
English	37	37	52.11268
Afrikaans	13	50	18.30986
Xhosa	6	56	8.45070
Setsw ana	1	57	1.40845
Other	3	60	4.22535
Eng & Afr	3	63	4.22535
Eng & Xhosa	1	64	1.40845
Eng, Xhosa & Zulu	1	65	1.40845
Eng & Other	6	71	8.45070

Frequency table: Education			
Category	Count	Cumulative Count	Percent
Matric	4	4	5.63380
Undergraduate deg/dip/cert	24	28	33.80282
Postgraduate degree	43	71	60.56338

Frequency table: Age group			
Category	Count	Cumulative Count	Percent
19 - 24 years	17	17	23.94366
25 - 29 years	27	44	38.02817
30 - 34 years	12	56	16.90141
35 - 39 years	3	59	4.22535
40 - 44 years	4	63	5.63380
45 or older	8	71	11.26761

Frequency table: Occupation			
Category	Count	Cumulative Count	Percent
Administrative	6	6	8.45070
Management	11	17	15.49296
IT	21	38	29.57746
Education	9	47	12.67606
Student	12	59	16.90141
Other	12	71	16.90141

Frequency table: Province			
Category	Count	Cumulative Count	Percent
WC	6	6	8.45070
EC	44	50	61.97183
FS	3	53	4.22535
GT	17	70	23.94366
Lim	1	71	1.40845

Frequency table: Access SA Gov Web site			
Category	Count	Cumulative Count	Percent
Daily	1	1	1.42857
Weekly	2	3	2.85714
Monthly	9	12	12.85714
Once or twice a year	30	42	42.85714
Never	28	70	40.00000

## Question 2: Culture-related behaviour in Internet usage

In this section, the focus is on the South African participants' cultural behaviour when using the Internet in general. This includes the use of any type of Web site (e.g. sports, commercial, etc.). The section includes 23 items. In terms of these items, the item that is being evaluated is displayed at the top of the table (e.g. Frequency table: Q2-1). The items are displayed in numerical order from left to right. The same concept applies for the items in Questions 3 and 4.

Frequency table: Q2-1			
Category	Count	Cumulative Count	Percent
Strongly agree	14	14	20.00000
Agree	27	41	38.57143
Not sure	6	47	8.57143
Disagree	21	68	30.00000
Strongly disagree	2	70	2.85714

Frequency table: Q2-2			
Category	Count	Cumulative Count	Percent
Strongly agree	12	12	17.14286
Agree	31	43	44.28571
Not sure	7	50	10.00000
Disagree	13	63	18.57143
Strongly disagree	7	70	10.00000

Frequency table: Q2-3			
Category	Count	Cumulative Count	Percent
Strongly agree	11	11	15.71429
Agree	26	37	37.14286
Not sure	4	41	5.71429
Disagree	22	63	31.42857
Strongly disagree	7	70	10.00000

Frequency table: Q2-4			
Category	Count	Cumulative Count	Percent
Text rather than icons	8	8	11.59420
Icons rather than text	6	14	8.69565
Combination	55	69	79.71014

Frequency table: Q2-5			
Category	Count	Cumulative Count	Percent
Strongly agree	34	34	49.27536
Agree	26	60	37.68116
Not sure	3	63	4.34783
Disagree	4	67	5.79710
Strongly disagree	2	69	2.89855

Frequency table: Q2-6			
Category	Count	Cumulative Count	Percent
Strongly agree	31	31	44.28571
Agree	26	57	37.14286
Not sure	2	59	2.85714
Disagree	9	68	12.85714
Strongly disagree	2	70	2.85714

Category	Frequency table: Q2-7		
	Count	Cumulative Count	Percent
Strongly agree	4	4	5.71429
Agree	24	28	34.28571
Not sure	13	41	18.57143
Disagree	24	65	34.28571
Strongly disagree	5	70	7.14286

Category	Frequency table: Q2-8		
	Count	Cumulative Count	Percent
Strongly agree	4	4	5.71429
Agree	23	27	32.85714
Not sure	20	47	28.57143
Disagree	19	66	27.14286
Strongly disagree	4	70	5.71429

Category	Frequency table: Q2-9		
	Count	Cumulative Count	Percent
Strongly agree	2	2	2.89855
Agree	14	16	20.28986
Not sure	8	24	11.59420
Disagree	32	56	46.37681
Strongly disagree	13	69	18.84058

Category	Frequency table: Q2-10		
	Count	Cumulative Count	Percent
Strongly agree	6	6	8.95522
Agree	8	14	11.94030
Not sure	7	21	10.44776
Disagree	19	40	28.35821
Strongly disagree	27	67	40.29851

Category	Frequency table: Q2-11		
	Count	Cumulative Count	Percent
Strongly agree	6	6	8.57143
Agree	31	37	44.28571
Not sure	13	50	18.57143
Disagree	19	69	27.14286
Strongly disagree	1	70	1.42857

Category	Frequency table: Q2-12		
	Count	Cumulative Count	Percent
Strongly agree	29	29	41.42857
Agree	31	60	44.28571
Not sure	7	67	10.00000
Disagree	3	70	4.28571

Category	Frequency table: Q2-13		
	Count	Cumulative Count	Percent
Strongly agree	13	13	18.84058
Agree	30	43	43.47826
Not sure	14	57	20.28986
Disagree	10	67	14.49275
Strongly disagree	2	69	2.89855

Category	Frequency table: Q2-14		
	Count	Cumulative Count	Percent
Strongly agree	4	4	5.71429
Agree	6	10	8.57143
Not sure	6	16	8.57143
Disagree	36	52	51.42857
Strongly disagree	18	70	25.71429

Category	Frequency table: Q2-15		
	Count	Cumulative Count	Percent
Agree	6	6	8.57143
Not sure	3	9	4.28571
Disagree	31	40	44.28571
Strongly disagree	30	70	42.85714

Category	Frequency table: Q2-16		
	Count	Cumulative Count	Percent
Strongly agree	7	7	10.00000
Agree	10	17	14.28571
Not sure	10	27	14.28571
Disagree	36	63	51.42857
Strongly disagree	7	70	10.00000

Category	Frequency table: Q2-17		
	Count	Cumulative Count	Percent
Strongly agree	21	21	30.00000
Agree	29	50	41.42857
Not sure	4	54	5.71429
Disagree	15	69	21.42857
Strongly disagree	1	70	1.42857

Category	Frequency table: Q2-18		
	Count	Cumulative Count	Percent
Strongly agree	8	8	11.42857
Agree	32	40	45.71429
Not sure	5	45	7.14286
Disagree	23	68	32.85714
Strongly disagree	2	70	2.85714

Category	Frequency table: Q2-19		
	Count	Cumulative Count	Percent
Strongly agree	10	10	14.49275
Agree	36	46	52.17391
Not sure	6	52	8.69565
Disagree	13	65	18.84058
Strongly disagree	4	69	5.79710

Category	Frequency table: Q2-20		
	Count	Cumulative Count	Percent
Strongly agree	17	17	25.00000
Agree	24	41	35.29412
Not sure	5	46	7.35294
Disagree	16	62	23.52941
Strongly disagree	6	68	8.82353

Category	Frequency table: Q2-21		
	Count	Cumulative Count	Percent
Strongly agree	32	32	46.37681
Agree	32	64	46.37681
Not sure	3	67	4.34783
Disagree	2	69	2.89855

Category	Frequency table: Q2-22		
	Count	Cumulative Count	Percent
Strongly agree	13	13	19.11765
Agree	39	52	57.35294
Not sure	9	61	13.23529
Disagree	4	65	5.88235
Strongly disagree	3	68	4.41176

Category	Frequency table: Q2-23		
	Count	Cumulative Count	Percent
Higher emphasis on icons	5	5	7.14286
Higher emphasis on text and numbers	7	12	10.00000
Combination	58	70	82.85714

### Question 3: Culture-related behaviour: Government Web sites

In this section, the focus is on the South African participants' cultural behaviour when using the Government Web site in particular ([www.gov.za](http://www.gov.za)). The section includes 17 items.

Category	Frequency table: Q3-1		
	Count	Cumulative Count	Percent
Strongly agree	21	21	30.88235
Agree	29	50	42.64706
Not sure	11	61	16.17647
Disagree	7	68	10.29412

Category	Frequency table: Q3-2		
	Count	Cumulative Count	Percent
Strongly agree	10	10	14.28571
Agree	29	39	41.42857
Not sure	8	47	11.42857
Disagree	20	67	28.57143
Strongly disagree	3	70	4.28571

Category	Frequency table: Q3-3		
	Count	Cumulative Count	Percent
Strongly agree	12	12	17.64706
Agree	30	42	44.11765
Not sure	10	52	14.70588
Disagree	13	65	19.11765
Strongly disagree	3	68	4.41176

Category	Frequency table: Q3-4		
	Count	Cumulative Count	Percent
Text rather than icons	17	17	24.28571
Icons rather than text	4	21	5.71429
Combination	49	70	70.00000

Category	Frequency table: Q3-5		
	Count	Cumulative Count	Percent
Strongly agree	29	29	42.02899
Agree	32	61	46.37681
Not sure	2	63	2.89855
Disagree	4	67	5.79710
Strongly disagree	2	69	2.89855

Category	Frequency table: Q3-6		
	Count	Cumulative Count	Percent
Strongly agree	26	26	39.39394
Agree	30	56	45.45455
Not sure	4	60	6.06061
Disagree	4	64	6.06061
Strongly disagree	2	66	3.03030

Category	Frequency table: Q3-7		
	Count	Cumulative Count	Percent
Strongly agree	4	4	5.88235
Agree	31	35	45.58824
Not sure	15	50	22.05882
Disagree	14	64	20.58824
Strongly disagree	4	68	5.88235

Category	Frequency table: Q3-8		
	Count	Cumulative Count	Percent
Strongly agree	2	2	2.94118
Agree	12	14	17.64706
Not sure	11	25	16.17647
Disagree	28	53	41.17647
Strongly disagree	15	68	22.05882

Category	Frequency table: Q3-9		
	Count	Cumulative Count	Percent
Strongly agree	4	4	5.79710
Agree	16	20	23.18841
Not sure	4	24	5.79710
Disagree	18	42	26.08696
Strongly disagree	27	69	39.13043

Category	Frequency table: Q3-10		
	Count	Cumulative Count	Percent
Strongly agree	10	10	14.92537
Agree	26	36	38.80597
Not sure	11	47	16.41791
Disagree	17	64	25.37313
Strongly disagree	3	67	4.47761

Category	Frequency table: Q3-11		
	Count	Cumulative Count	Percent
Strongly agree	7	7	10.14493
Agree	30	37	43.47826
Not sure	12	49	17.39130
Disagree	14	63	20.28986
Strongly disagree	6	69	8.69565

Category	Frequency table: Q3-12		
	Count	Cumulative Count	Percent
Strongly agree	3	3	4.34783
Agree	21	24	30.43478
Not sure	14	38	20.28986
Disagree	22	60	31.88406
Strongly disagree	9	69	13.04348

Category	Frequency table: Q3-13		
	Count	Cumulative Count	Percent
Strongly agree	1	1	1.47059
Agree	8	9	11.76471
Not sure	6	15	8.82353
Disagree	31	46	45.58824
Strongly disagree	22	68	32.35294

Category	Frequency table: Q3-14		
	Count	Cumulative Count	Percent
Strongly agree	21	21	30.43478
Agree	29	50	42.02899
Not sure	3	53	4.34783
Disagree	15	68	21.73913
Strongly disagree	1	69	1.44928

Category	Frequency table: Q3-15		
	Count	Cumulative Count	Percent
Strongly agree	3	3	4.47761
Agree	30	33	44.77612
Not sure	13	46	19.40299
Disagree	14	60	20.89552
Strongly disagree	7	67	10.44776

Category	Frequency table: Q3-16		
	Count	Cumulative Count	Percent
Strongly agree	26	26	37.68116
Agree	29	55	42.02899
Not sure	9	64	13.04348
Disagree	5	69	7.24638

Category	Frequency table: Q3-17		
	Count	Cumulative Count	Percent
Higher emphasis on icons	6	6	8.69565
Higher emphasis on text and numbers	9	15	13.04348
Combination	54	69	78.26087

#### Question 4: General culture-related behaviour

The focus on this section is on the South African participants' cultural behaviour in everyday life. This section has no relation to ICT and typically describes aspects on how South Africans live and understand life (however, the questions are connected to the cultural-context dimension). The section includes 24 items.

Category	Frequency table: Q4-1		
	Count	Cumulative Count	Percent
Strongly agree	23	23	32.85714
Agree	34	57	48.57143
Not sure	1	58	1.42857
Disagree	8	66	11.42857
Strongly disagree	4	70	5.71429

Category	Frequency table: Q4-2		
	Count	Cumulative Count	Percent
Strongly agree	19	19	26.76056
Agree	50	69	70.42254
Not sure	1	70	1.40845
Disagree	1	71	1.40845

Category	Frequency table: Q4-3		
	Count	Cumulative Count	Percent
Strongly agree	19	19	27.53623
Agree	32	51	46.37681
Not sure	5	56	7.24638
Disagree	13	69	18.84058

Category	Frequency table: Q4-4		
	Count	Cumulative Count	Percent
Strongly agree	4	4	5.71429
Agree	18	22	25.71429
Not sure	6	28	8.57143
Disagree	30	58	42.85714
Strongly disagree	12	70	17.14286

Category	Frequency table: Q4-5		
	Count	Cumulative Count	Percent
Strongly agree	5	5	7.04225
Agree	16	21	22.53521
Not sure	8	29	11.26761
Disagree	24	53	33.80282
Strongly disagree	18	71	25.35211

Category	Frequency table: Q4-6		
	Count	Cumulative Count	Percent
Strongly agree	13	13	18.57143
Agree	23	36	32.85714
Not sure	6	42	8.57143
Disagree	21	63	30.00000
Strongly disagree	7	70	10.00000

Category	Frequency table: Q4-7		
	Count	Cumulative Count	Percent
Strongly agree	8	8	11.26761
Agree	19	27	26.76056
Not sure	11	38	15.49296
Disagree	22	60	30.98592
Strongly disagree	11	71	15.49296

Category	Frequency table: Q4-8		
	Count	Cumulative Count	Percent
Strongly agree	21	21	30.00000
Agree	38	59	54.28571
Not sure	7	66	10.00000
Disagree	4	70	5.71429

Category	Frequency table: Q4-9		
	Count	Cumulative Count	Percent
Agree	3	3	4.34783
Not sure	7	10	10.14493
Disagree	26	36	37.68116
Strongly disagree	33	69	47.82609

Category	Frequency table: Q4-10		
	Count	Cumulative Count	Percent
Strongly agree	8	8	11.59420
Agree	47	55	68.11594
Not sure	8	63	11.59420
Disagree	4	67	5.79710
Strongly disagree	2	69	2.89855

Category	Frequency table: Q4-11		
	Count	Cumulative Count	Percent
Strongly agree	6	6	8.57143
Agree	43	49	61.42857
Not sure	2	51	2.85714
Disagree	17	68	24.28571
Strongly disagree	2	70	2.85714

Category	Frequency table: Q4-12		
	Count	Cumulative Count	Percent
Strongly agree	15	15	21.73913
Agree	48	63	69.56522
Not sure	2	65	2.89855
Disagree	4	69	5.79710

Category	Frequency table: Q4-13		
	Count	Cumulative Count	Percent
Strongly agree	1	1	1.42857
Agree	40	41	57.14286
Not sure	12	53	17.14286
Disagree	14	67	20.00000
Strongly disagree	3	70	4.28571

Category	Frequency table: Q4-14		
	Count	Cumulative Count	Percent
Agree	19	19	27.14286
Not sure	14	33	20.00000
Disagree	28	61	40.00000
Strongly disagree	9	70	12.85714

Category	Frequency table: Q4-15		
	Count	Cumulative Count	Percent
Strongly agree	5	5	7.14286
Agree	15	20	21.42857
Not sure	6	26	8.57143
Disagree	28	54	40.00000
Strongly disagree	16	70	22.85714

Category	Frequency table: Q4-16		
	Count	Cumulative Count	Percent
Strongly agree	5	5	7.14286
Agree	42	47	60.00000
Not sure	9	56	12.85714
Disagree	12	68	17.14286
Strongly disagree	2	70	2.85714

Category	Frequency table: Q4-17		
	Count	Cumulative Count	Percent
Agree	11	11	15.71429
Not sure	4	15	5.71429
Disagree	34	49	48.57143
Strongly disagree	21	70	30.00000

Category	Frequency table: Q4-18		
	Count	Cumulative Count	Percent
Strongly agree	1	1	1.42857
Agree	23	24	32.85714
Not sure	9	33	12.85714
Disagree	27	60	38.57143
Strongly disagree	10	70	14.28571

Category	Frequency table: Q4-19		
	Count	Cumulative Count	Percent
Strongly agree	7	7	10.00000
Agree	28	35	40.00000
Not sure	14	49	20.00000
Disagree	13	62	18.57143
Strongly disagree	8	70	11.42857

Category	Frequency table: Q4-20		
	Count	Cumulative Count	Percent
Strongly agree	8	8	11.42857
Agree	39	47	55.71429
Not sure	15	62	21.42857
Disagree	5	67	7.14286
Strongly disagree	3	70	4.28571

Category	Frequency table: Q4-21		
	Count	Cumulative Count	Percent
Strongly agree	4	4	5.71429
Agree	21	25	30.00000
Not sure	19	44	27.14286
Disagree	20	64	28.57143
Strongly disagree	6	70	8.57143

Category	Frequency table: Q4-22		
	Count	Cumulative Count	Percent
Strongly agree	8	8	11.42857
Agree	33	41	47.14286
Not sure	16	57	22.85714
Disagree	10	67	14.28571
Strongly disagree	3	70	4.28571

Category	Frequency table: Q4-23		
	Count	Cumulative Count	Percent
Strongly agree	4	4	5.71429
Agree	11	15	15.71429
Not sure	14	29	20.00000
Disagree	32	61	45.71429
Strongly disagree	9	70	12.85714

Category	Frequency table: Q4-24		
	Count	Cumulative Count	Percent
Strongly agree	6	6	8.57143
Agree	43	49	61.42857
Not sure	12	61	17.14286
Disagree	8	69	11.42857
Strongly disagree	1	70	1.42857

## APPENDIX L: THE “SA e-GOVERNMENT WEB SITE” EXPERT REVIEW

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This Appendix shows the actual expert review that was designed and then submitted to the expert reviewers. The reviewers had two weeks to complete the heuristic evaluation. The number of evaluations completed in the two weeks would be the final number of evaluations used for the analysis (as long as there were at least 3 evaluations completed, according to usability expert, Jacob Nielsen). The expert review was completed by six individuals and is presented below:

This expert review serves two main purposes namely to determine if the South African Government Web site (also referred to as the Batho Pele Gateway Portal) is designed for a more high- or low-context culture and further, to determine if the South African Government Web site followed e-Government guidelines and recommendations for its development. The heuristics that are used are based on the UK Government design guidelines.

Please answer each and every question to the best of your ability. Your input and time spent on answering this expert review is considered very valuable and is highly appreciated. Should you have any questions, you may contact the study leader, Ms Darelle van Greunen at [darelle.vangreunen@nmmu.ac.za](mailto:darelle.vangreunen@nmmu.ac.za). In order to access the South African e-Government Web site, the following URL must be used: [www.gov.za](http://www.gov.za)

### 1. EXPERT BIOGRAPHICAL INFORMATION

Name & surname:	
Home language:	
Gender:	
Email address:	
Company/institution:	
Years of experience in UI design:	

### 2. CULTURAL-CONTEXT HEURISTICS

These heuristics will help determine if the South African e-Government Web site was designed for a high- or low-context culture.

**The following options may be used to answer the questions:**

- **Yes:** if you agree with the statement/question in relation to the SA Government Web site.
- **No:** If you disagree with the statement/question in relation to the SA Government Web site.

- **N/A:** If you believe that the statement/question is not applicable to the SA Government Web site.
- **Comments:** available to enter any comments relating to the specific statement/question and how it relates to the SA Government Web site. Can also be used to make suggestions for improvement.

Checkpoint	Yes	No	N/A	Comments
<b>1. Links</b>				
1.1 Do the internal links open pages-up in the same browser window?				
1.2 Do external links open pages-up in the same browser window?				
1.3 Are external links limited within the site (e.g. links to other private and public sector institutions)?				
<b>2. Navigation</b>				
2.1 Are the menus and links redundant and clear for the users to find their required information?				
2.2 Are the menus and links redundant and clear for the users to accomplish their tasks?				
2.3 Are there alternative paths to find information or accomplish tasks?				
2.4 Does the site follow a goal-oriented approach rather than a process-oriented one?				
<b>3. Searching</b>				
3.1 Are there multiple search mechanisms available to the user?				
3.2 Do the search specifications available accommodate different skill levels and preferences?				
<b>4. Home Page</b>				
4.1 Does the home page give a detailed overview of the content available within the site?				
4.2 Do the links on the home page have clear descriptions?				
<b>5. Colours</b>				
5.1 Is the use of bright colours limited within the site?				
5.2 Is the use of multiple colours (not bright ones) avoided within the site?				
<b>6. Fonts</b>				
6.1 Is there a standard font colour used throughout the site?				
6.2 Is there a standard font size used throughout the site?				
6.3 Is there a standard font type used throughout the site?				
<b>7. Privacy</b>				
7.1 Is it clearly stated what the users rights are, when using the site?				
7.2 Is it clear that the site is legitimate and that it represents the SA Government?				
7.3 Is it safe for the user to provide their personal information where necessary?				
<b>8. General – Design Features</b>				

8.1 Are the multimedia elements very limited within the site (e.g. animation, images, audio, flash features, video etc.)?				
8.2 Do the sizes of the media objects and files make it heavy to download?				
8.3 Does the site have a crisp layout with a clean functional design (e.g. information is never hidden or congested on a page)?				
8.4 Does the site use a formal language (e.g. legal language)?				
8.5 Are pop-up features avoided within the site?				
8.6 Are sidebars limited within the site?				
8.7 Are there multiple menus within the site?				
8.8 Is the site multilingual; at least with the crucial information?				

### 3. e-GOVERNMENT HEURISTICS

These heuristics will help determine if the South African e-Government Web site followed the UK e-Government Web site development guidelines. The severity rating scale is used to measure the impact on usability.

**The following 0 to 4 rating scale can be used to rate the severity of usability problems:**

- 0:** I do not agree that this is a usability problem at all
- 1:** Cosmetic problem only – need not to be fixed unless extra time is available
- 2:** Minor usability problem – fixing this should be given low priority
- 3:** Major usability problem – important to fix, so should be given high priority
- 4:** Usability catastrophe – imperative to fix this immediately

Checkpoint	Rating	Comments
<b>1. Design for Accessibility</b>		
1.1 Does the site state if the W3C accessibility guidelines were followed for its development?		
<b>2. Promote Unity</b>		
2.1 Are all the various Government entities electronically connected (e.g. is it possible to access any Government Department’s site through this one)?		
2.2 Is Government portrayed as one entity?		
<b>3. Information and Services</b>		
3.1 Does the site clarify if all Government information is available online?		
3.2 Does the site clarify the type of services that it provides to its users?		
3.3 Is there metadata associated with all Government information?		
<b>4. Analysis</b>		
4.1 Are there any evident reporting tools in place that will help improve the site (e.g. are the number of users displayed)?		

4.2 Does the site specify if it uses any user information for analytical purposes?		
<b>5. Privacy</b>		
5.1 Does the site evidently state its position in terms of legalities?		
5.2 Is it evident that the users’ personal information is always protected and respected?		
<b>6. Technological Adaption</b>		
6.1 Does the site clarify if it provides any other technological means of accessibility (e.g. mobile phones, digital interaction TV, etc.)?		
6.2 Does the site state its adaptability towards the latest and upcoming technologies?		
<b>7. Content</b>		
7.1 Is the content relevant to the users’ expectation when a link is accessed?		
7.2 Is the content current (this is more complex than just being recent - older information is still acceptable at times, as long as it is falls under the appropriate and specific field or topic)?		
<b>8. General - Design Features</b>		
8.1 Does the site have a consistent look and feel about it?		
8.2 Does the site promote two-way communication (e.g. users may make enquiries or contact officials etc.)?		
8.3 Is the site easy to find?		
8.4 Is the overall site well-maintained?		

Thank you for your time and participation. Please return the expert review to

[Darelle.vanGreunen@nmmu.ac.za](mailto:Darelle.vanGreunen@nmmu.ac.za) by the end of July 2008.

## APPENDIX M: EXPERT REVIEW RESULTS

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This appendix displays all the results from the expert reviews that were conducted. It includes all the information that was provided by each reviewer. There were a total of six reviewers.

### **Expert reviewer 1**

This expert review serves two main purposes namely to determine if the South African Government Web site (also referred to as the Batho Pele Gateway Portal) is designed for a more high- or low-context culture and further, to determine if the South African Government Web site followed e-Government guidelines and recommendations for its development. The heuristics that are used are based on the UK Government design guidelines.

Please answer each and every question to the best of your ability. Your input and time spent on answering this expert review is considered very valuable and is highly appreciated. Should you have any questions, you may contact the study leader, Ms Darelle van Greunen at [darelle.vangreunen@nmmu.ac.za](mailto:darelle.vangreunen@nmmu.ac.za). In order to access the South African e-Government Web site, the following URL must be used: [www.gov.za](http://www.gov.za)

### **1. EXPERT BIOGRAPHICAL INFORMATION**

Name & surname:	Dalenca Pottas
Home language:	Afrikaans
Gender:	Female
Email address:	<a href="mailto:dalenca@nmmu.ac.za">dalenca@nmmu.ac.za</a>
Company/institution:	NMMU
Years of experience in UI design:	0 (expert in IT Security and Health Informatics)

### **2. CULTURAL-CONTEXT HEURISTICS**

These heuristics will help determine if the South African e-Government Web site was designed for a high- or low-context culture.

**The following options may be used to answer the questions:**

- **Yes:** if you agree with the statement/question in relation to the SA Government Web site.
- **No:** If you disagree with the statement/question in relation to the SA Government Web site.
- **N/A:** If you believe that the statement/question is not applicable to the SA Government Web site.
- **Comments:** available to enter any comments relating to the specific statement/question and how it relates to the SA Government Web site. Can also be used to make suggestions for improvement.

Checkpoint	Yes	No	N/A	Comments
<b>1. Links</b>				
1.1 Do the internal links open pages-up in the same browser window?	X	X		Some open in same browser window (e.g. “services for people”) and some in new window (e.g. “speeches and statements”).
1.2 Do external links open pages-up in the same browser window?		X		
1.3 Are external links limited within the site (e.g. links to other private and public sector institutions)?	X			Definitely limited with private sector.
<b>2. Navigation</b>				
2.1 Are the menus and links redundant and clear for the users to find their required information?	X			
2.2 Are the menus and links redundant and clear for the users to accomplish their tasks?	X			
2.3 Are there alternative paths to find information or accomplish tasks?	X			Eg FAQs or Search
2.4 Does the site follow a goal-oriented approach rather than a process-oriented one?	X			
<b>3. Searching</b>				
3.1 Are there multiple search mechanisms available to the user?	X			
3.2 Do the search specifications available accommodate different skill levels and preferences?	X			
<b>4. Home Page</b>				
4.1 Does the home page give a detailed overview of the content available within the site?	X			High-level, yes
4.2 Do the links on the home page have clear descriptions?	X			
<b>5. Colours</b>				
5.1 Is the use of bright colours limited within the site?	X			
5.2 Is the use of multiple colours (not bright ones) avoided within the site?	X			
<b>6. Fonts</b>				
6.1 Is there a standard font colour used throughout the site?		X		
6.2 Is there a standard font size used throughout the site?		X		
6.3 Is there a standard font type used throughout the site?		X		
<b>7. Privacy</b>				
7.1 Is it clearly stated what the users rights are, when using the site?	X			Terms and conditions of use
7.2 Is it clear that the site is legitimate and that it represents the SA Government?	X			

7.3 Is it safe for the user to provide their personal information where necessary?	X			Safety can never be guaranteed or assumed but the terms and conditions of use do address security and privacy
<b>8. General – Design Features</b>				
8.1 Are the multimedia elements very limited within the site (e.g. animation, images, audio, flash features, video etc.)?	X			
8.2 Do the sizes of the media objects and files make it heavy to download?	X			Some. Depends also on user's connection type.
8.3 Does the site have a crisp layout with a clean functional design (e.g. information is never hidden or congested on a page)?		X		
8.4 Does the site use a formal language (e.g. legal language)?		X		
8.5 Are pop-up features avoided within the site?	X			
8.6 Are sidebars limited within the site?	X			
8.7 Are there multiple menus within the site?	X			
8.8 Is the site multilingual; at least with the crucial information?		X		

### 3. CULTURAL-CONTEXT HEURISTICS

These heuristics will help determine if the South African e-Government Web site followed the UK e-Government Web site development guidelines. The severity rating scale is used to measure the impact on usability.

**The following 0 to 4 rating scale can be used to rate the severity of usability problems:**

- **0:** I do not agree that this is a usability problem at all
- **1:** Cosmetic problem only – need not to be fixed unless extra time is available
- **2:** Minor usability problem – fixing this should be given low priority
- **3:** Major usability problem – important to fix, so should be given high priority
- **4:** Usability catastrophe – imperative to fix this immediately

Checkpoint	Rating	Comments
<b>1. Design for Accessibility</b>		
1.1 Does the site state if the W3C accessibility guidelines were followed for its development?	4	
<b>2. Promote Unity</b>		
2.1 Are all the various Government entities electronically connected (e.g. is it possible to access any Government Department's site through this one)?	0	
2.2 Is Government portrayed as one entity?	3	
<b>3. Information and Services</b>		
3.1 Does the site clarify if all Government information is available online?	3	

3.2 Does the site clarify the type of services that it provides to its users?	3	
3.3 Is there metadata associated with all Government information?	4	
<b>4. Analysis</b>		
4.1 Are there any evident reporting tools in place that will help improve the site (e.g. are the number of users displayed)?	0	
4.2 Does the site specify if it uses any user information for analytical purposes?	0	In terms and conditions of use
<b>5. Privacy</b>		
5.1 Does the site evidently state its position in terms of legalities?	0	In terms and conditions of use
5.2 Is it evident that the users' personal information is always protected and respected?	0	In terms and conditions of use
<b>6. Technological Adaption</b>		
6.1 Does the site clarify if it provides any other technological means of accessibility (e.g. mobile phones, digital interaction TV, etc.)?	2	
6.2 Does the site state its adaptability towards the latest and upcoming technologies?	2	
<b>7. Content</b>		
7.1 Is the content relevant to the users' expectation when a link is accessed?	2	
7.2 Is the content current (this is more complex than just being recent - older information is still acceptable at times, as long as it is falls under the appropriate and specific field or topic)?	3	
<b>8. General - Design Features</b>		
8.1 Does the site have a consistent look and feel about it?	4	
8.2 Does the site promote two-way communication (e.g. users may make enquiries or contact officials etc.)?	2	
8.3 Is the site easy to find?	0	
8.4 Is the overall site well-maintained?	1	

Thank you for your time and participation. Please return the expert review to

[Darelle.vanGreunen@nmmu.ac.za](mailto:Darelle.vanGreunen@nmmu.ac.za) by the end of July 2008.

### **Expert reviewer 2**

This expert review serves two main purposes namely to determine if the South African Government Web site (also referred to as the Batho Pele Gateway Portal) is designed for a more high- or low-context culture and further, to determine if the South African Government Web site followed e-Government guidelines and recommendations for its development. The heuristics that are used are based on the UK Government design guidelines.

Please answer each and every question to the best of your ability. Your input and time spent on answering this expert review is considered very valuable and is highly appreciated. Should you have any questions, you may contact the study leader, Ms Darelle van Greunen at [darelle.vangreunen@nmmu.ac.za](mailto:darelle.vangreunen@nmmu.ac.za). In order to access the South African e-Government Web site, the following URL must be used: [www.gov.za](http://www.gov.za)

### 1. EXPERT BIOGRAPHICAL INFORMATION

Name & surname:	Eric Brindeau
Home language:	English
Gender:	Male
Email address:	eric.brindeau@gmail.com
Company/institution:	Brindeau Web Simplicity
Years of experience in UI design:	Six

### 2. CULTURAL-CONTEXT HEURISTICS

These heuristics will help determine if the South African e-Government Web site was designed for a high- or low-context culture.

The following options may be used to answer the questions:				
<ul style="list-style-type: none"> <li>• <b>Yes:</b> if you agree with the statement/question in relation to the SA Government Web site.</li> <li>• <b>No:</b> If you disagree with the statement/question in relation to the SA Government Web site.</li> <li>• <b>N/A:</b> If you believe that the statement/question is not applicable to the SA Government Web site.</li> <li>• <b>Comments:</b> available to enter any comments relating to the specific statement/question and how it relates to the SA Government Web site. Can also be used to make suggestions for improvement.</li> </ul>				
Checkpoint	Yes	No	N/A	Comments
<b>[1] Links</b>				
1.1 Do the internal links open pages-up in the same browser window?	x			On the portal homepage however, links under the 'information' heading open in new windows. Links back to the portal from the 'Government services' and 'Government information' pages open in a new window as do some links on the 'documents' page
1.2 Do external links open pages-up in the same browser window?		x		External links open up in new windows, but not consistent throughout site. Mostly external links are indicated in href or img title attributes

				“ <i>outside link - opens in new window</i> ”. Not all links to external websites on the 'links' page open in new window
1.3 Are external links limited within the site (e.g. links to other private and public sector institutions)?		x		There are links to commercial websites like craft markets, museums, festivals, theaters on the 'links' page
<b>[2] Navigation</b>				
2.1 Are the menus and links redundant and clear for the users to find their required information?	x			I think the website links are clear and to the point
2.2 Are the menus and links redundant and clear for the users to accomplish their tasks?	x			I think the website links are clear, task links are highlighted
2.3 Are there alternative paths to find information or accomplish tasks?	x			Site map, breadcrumb trail, RSS feed, within site search functionality
2.4 Does the site follow a goal-oriented approach rather than a process-oriented one?	x			Navigation labels are mainly focussed on getting to content
<b>[3] Searching</b>				
3.1 Are there multiple search mechanisms available to the user?	x			
3.2 Do the search specifications available accommodate different skill levels and preferences?	x			Simple and advanced search available. There is also a 'VQL' search option, but there is no explanation what that is
<b>[4] Home Page</b>				
4.1 Does the home page give a detailed overview of the content available within the site?		x		(I'm assuming the portal home page) Not easy to see at a glance what content is available and that the content is divided into two web sites ('Government services' and 'Gov information')
4.2 Do the links on the home page have clear descriptions?		x		(I'm assuming the portal home page) Labels like 'documents' and 'key issues' are vague. The home page does not give one an overview of all the types of information and content that is available in the websites – the homepage should be link-rich
<b>[5] Colours</b>				
5.1 Is the use of bright colours limited within the site?	x			Brighter colours like red and orange are used for headings
5.2 Is the use of multiple colours (not bright ones) avoided within the site?	x			A consistent colour palette of less saturated and muted colours

				of green has been used throughout the sites
<b>[6] Fonts</b>				
6.1 Is there a standard font colour used throughout the site?	x			Mostly body text is black, but not consistent (e.g. footer text). Hyperlink colours are not standard throughout (underlined blue or underlined green or black)
6.2 Is there a standard font size used throughout the site?	x			Body text size seems to be consistent. Navigation and heading font sizes are not standard throughout
6.3 Is there a standard font type used throughout the site?		x		There is a mixture of serif and sans-serif type fonts throughout. The font type of body text is consistent, but not standard throughout (e.g. search forms). The portal home page uses a sans-serif font for navigation, which differs from the other navigation within the site
<b>[7] Privacy</b>				
7.1 Is it clearly stated what the users rights are, when using the site?	x			Found under on the 'Terms and conditions of use' pages
7.2 Is it clear that the site is legitimate and that it represents the SA Government?	x			Credibility of the content, kind of content, clear contact details
7.3 Is it safe for the user to provide their personal information where necessary?	x			Clear privacy and disclosure statements
<b>[8] General – Design Features</b>				
8.1 Are the multimedia elements very limited within the site (e.g. animation, images, audio, flash features, video etc.)?	x			I could find very few multimedia elements. I was pleased to find plain text transcripts of television interviews
8.2 Do the sizes of the media objects and files make it heavy to download?	x			There is no indication as to file sizes of PDF files
8.3 Does the site have a crisp layout with a clean functional design (e.g. information is never hidden or congested on a page)?	x			I think the layout is functional, the various navigation and content areas are well defined
8.4 Does the site use a formal language (e.g. legal language)?	x			My understanding of 'formal language' is content that is appropriate for a government site
8.5 Are pop-up features avoided within the site?	x			Other than websites opening up in new windows, I found no pop-ups
8.6 Are sidebars limited within the site?		x		Sidebars are used consistently throughout the 'Government information' pages, but not

				consistently in the 'Government services' pages
8.7 Are there multiple menus within the site?	x			Top navigation, breadcrumb navigation, left-hand navigation, footer navigation, related navigation on sidebars
8.8 Is the site multilingual; at least with the crucial information?		x		'Government services' has a clear language menu selection option, but not on the 'Government information' site. There some content is available in several languages, but I think there is more crucial information too that should be multilingual

### 3. e-GOVERNMENT HEURISTICS

These heuristics will help determine if the South African e-Government Web site followed the UK e-Government Web site development guidelines. The severity rating scale is used to measure the impact on usability.

**The following 0 to 4 rating scale can be used to rate the severity of usability problems:**

- **0:** I do not agree that this is a usability problem at all
- **1:** Cosmetic problem only – need not to be fixed unless extra time is available
- **2:** Minor usability problem – fixing this should be given low priority
- **3:** Major usability problem – important to fix, so should be given high priority
- **4:** Usability catastrophe – imperative to fix this immediately

Checkpoint	Rating	Comments
<b>[1] Design for Accessibility</b>		
1.1 Does the site state if the W3C accessibility guidelines were followed for its development?	0	The website could be fully accessible without requiring a statement affirming that. The site however, could be made much more accessible and basic W3C guidelines have not been followed
<b>[2] Promote Unity</b>		
2.1 Are all the various Government entities electronically connected (e.g. is it possible to access any Government Department's site through this one)?	0	I think it is possible to access any department website easily
2.2 Is Government portrayed as one entity?	2	Although the government is portrayed as one entity, the lack of consistency between the websites breaks that unity
<b>[3] Information and Services</b>		
3.1 Does the site clarify if all Government information is available online?	2	The site does not seem to explicitly state what information is available, but important information does seem to be listed and linked to

3.2 Does the site clarify the type of services that it provides to its users?	2	Although there is extensive 'services' information, I think there could be more clarity upfront before having to dig deeper into the site
3.3 Is there metadata associated with all Government information?	1	I'm not sure adding more metadata would make the site more usable, depending how the information is used. For the average visitor, the current document metadata should be sufficient (department, title, file type, date etc.)
<b>[4] Analysis</b>		
4.1 Are there any evident reporting tools in place that will help improve the site (e.g. are the number of users displayed)?	0	I don't think that it is important to display such information, which could also bring into question the credibility of the data (i.e. counting hits vs. unique visitors). On the 'Government services' site, I can see reporting tools have been implemented (urchinTracker), but not on the 'Government information' site
4.2 Does the site specify if it uses any user information for analytical purposes?	0	The site does specify that information is collected (like cookies) to help analyse website usage
<b>[5] Privacy</b>		
5.1 Does the site evidently state its position in terms of legalities?	0	The 'terms and conditions of use' provides a full disclosure
5.2 Is it evident that the users' personal information is always protected and respected?	0	The 'terms and conditions of use' provides a full disclosure
<b>[6] Technological Adaption</b>		
6.1 Does the site clarify if it provides any other technological means of accessibility (e.g. mobile phones, digital interaction TV, etc.)?	2	The site provides no clarification on device accessibility. Only some pages have proper doctypes that detail any web standards conformance, therefore much the website is not forward-compatible
6.2 Does the site state its adaptability towards the latest and upcoming technologies?	2	The site does not state its position regarding future technologies
<b>[7] Content</b>		
7.1 Is the content relevant to the users' expectation when a link is accessed?	2	I found the content met my expectations. I sometimes found there were too many pathway pages with navigation before I got to the content I was looking for e.g. services pages
7.2 Is the content current (this is more complex than just being recent - older information is still acceptable at times, as long as it is falls under the appropriate and specific field or topic)?	0	Content is dated accordingly and archived information is available
<b>[8] General - Design Features</b>		
8.1 Does the site have a consistent look and feel about it?	3	The government websites are too different and not portrayed as one entity. Each site – Portal, Government Services, Government Information - is

		too different in terms of consistency (design, layout, colours, navigation etc.)
8.2 Does the site promote two-way communication (e.g. users may make enquiries or contact officials etc.)?	2	Contact information is clearly displayed like phone numbers, addresses – but could be made clearer
8.3 Is the site easy to find?	0	Easy to type, comes up first on google
8.4 Is the overall site well-maintained?	0	I think the site is well maintained – last updated dates are indicated and some pages were updated while I was busy with this review

Thank you for your time and participation. Please return the expert review to

[Darelle.vanGreunen@nmmu.ac.za](mailto:Darelle.vanGreunen@nmmu.ac.za) by the end of July 2008.

### **Expert reviewer 3**

This expert review serves two main purposes namely to determine if the South African Government Web site (also referred to as the Batho Pele Gateway Portal) is designed for a more high- or low-context culture and further, to determine if the South African Government Web site followed e-Government guidelines and recommendations for its development. The heuristics that are used are based on the UK Government design guidelines.

Please answer each and every question to the best of your ability. Your input and time spent on answering this expert review is considered very valuable and is highly appreciated. Should you have any questions, you may contact the study leader, Ms Darelle van Greunen at [darelle.vangreunen@nmmu.ac.za](mailto:darelle.vangreunen@nmmu.ac.za). In order to access the South African e-Government Web site, the following URL must be used: [www.gov.za](http://www.gov.za)

#### **1. EXPERT BIOGRAPHICAL INFORMATION**

Name & surname:	Joan Kalk
Home language:	English
Gender:	Female
Email address:	<a href="mailto:jnkalk@gmail.com">jnkalk@gmail.com</a>
Company/institution:	Private Usability Consultant
Years of experience in UI design:	± 15

#### **2. CULTURAL-CONTEXT HEURISTICS**

These heuristics will help determine if the South African e-Government Web site was designed for a high- or low-context culture.

**The following options may be used to answer the questions:**

- **Yes:** if you agree with the statement/question in relation to the SA Government Web site.
- **No:** If you disagree with the statement/question in relation to the SA Government Web site.
- **N/A:** If you believe that the statement/question is not applicable to the SA Government

Web site.				
<ul style="list-style-type: none"> <li>• <b>Comments:</b> available to enter any comments relating to the specific statement/question and how it relates to the SA Government Web site. Can also be used to make suggestions for improvement.</li> </ul>				
Checkpoint	Yes	No	N/A	Comments
<b>1. Links</b>				
1.1 Do the internal links open pages-up in the same browser window?	X	X		Only the <b>Services</b> links open in the same browser window. The <b>Information</b> and all other internal links open in a separate window.. However, if you click the word <b>Services</b> , then a separate window opens
1.2 Do external links open pages-up in the same browser window?		X		
1.3 Are external links limited within the site (e.g. links to other private and public sector institutions)?	X			There are only two external links i.e. South Africa 2010 and Development Indicators 2008.
<b>2. Navigation</b>				
2.1 Are the menus and links redundant and clear for the users to find their required information?	X			This is two questions in one. The menus and links are very clear. Initially thought that the headings <b>Services</b> and <b>Information</b> were just headings but found that these were also links. On one hand, it's a good idea to provide a link directly to a specific page and then to look for relevant info. On the other hand, it wasn't immediately obvious that the headings are links, so these may possibly be redundant
2.2 Are the menus and links redundant and clear for the users to accomplish their tasks?	X			The comment in 2.1 applies here as well it the 'tasks' being referred to are the 'gathering of information'.
2.3 Are there alternative paths to find information or accomplish tasks?	X			Either clicking on a specific link or by clicking a page/category link and then a specific link.
2.4 Does the site follow a goal-oriented approach rather than a process-oriented one?	X			
<b>3. Searching</b>				
3.1 Are there multiple search mechanisms available to the user?	X			There is search link on the Home page but this is not standard. Search usually stands out and is depicted by a Search box. There is a search mechanism on the <b>Services</b> page and a different

				type of search facility on the <b>Information</b> page
3.2 Do the search specifications available accommodate different skill levels and preferences?		X		The search mechanism on the <b>Services</b> page isn't clearly marked and if you are not computer literate, you wouldn't know that you can use the text-box provided to search for information. The error message displayed when clicking the search arrow without entering any information is too technical – it refers to a 'string'. The <b>Search</b> facility on the <b>Information</b> page differs from that on the Services page and this inconsistency could be confusing. The Information Search facility seems to be a bit of overkill and I think will be confusing to a novice. I have not idea what a VQL query is – this is too technical.
<b>4. Home Page</b>				
4.1 Does the home page give a detailed overview of the content available within the site?	X			
4.2 Do the links on the home page have clear descriptions?	X			I would write faqs in full within brackets after 'faqs'. Many people won't know what this means.
<b>5. Colours</b>				
5.1 Is the use of bright colours limited within the site?	X			
5.2 Is the use of multiple colours (not bright ones) avoided within the site?	X			
<b>6. Fonts</b>				
6.1 Is there a standard font colour used throughout the site?	X			
6.2 Is there a standard font size used throughout the site?		X		Font size 10 and 8 is used.
6.3 Is there a standard font type used throughout the site?		X		Both Arial and Verdana are used on different pages
<b>7. Privacy</b>				
7.1 Is it clearly stated what the users rights are, when using the site?	X			Each section of the site has a terms and conditions link.
7.2 Is it clear that the site is legitimate and that it represents the SA Government?	X			Depicted by URL, flag and content.
7.3 Is it safe for the user to provide their personal information where necessary?	X			According to the terms and conditions.

<b>8. General – Design Features</b>				
8.1 Are the multimedia elements very limited within the site (e.g. animation, images, audio, flash features, video etc.)?	X			
8.2 Do the sizes of the media objects and files make it heavy to download?				‘Too large’ would be a better description than ‘heavy’. I didn’t assess all of these as I have limited bandwidth.
8.3 Does the site have a crisp layout with a clean functional design (e.g. information is never hidden or congested on a page)?	X			The odd page is congested e.g. Information Home page. Some info is only accessible via several clicks e.g. Events – not well laid out.
8.4 Does the site use a formal language (e.g. legal language)?		X		Most of the sections I read were in clear, simple English. I didn’t encounter legalese
8.5 Are pop-up features avoided within the site?	X			
8.6 Are sidebars limited within the site?		X		Only appears on Home pages of each section
8.7 Are there multiple menus within the site?	X			
8.8 Is the site multilingual; at least with the crucial information?	X	X		Only government services

### 3. CULTURAL-CONTEXT HEURISTICS

These heuristics will help determine if the South African e-Government Web site followed the UK e-Government Web site development guidelines. The severity rating scale is used to measure the impact on usability.

#### The following 0 to 4 rating scale can be used to rate the severity of usability problems:

- **0:** I do not agree that this is a usability problem at all
- **1:** Cosmetic problem only – need not to be fixed unless extra time is available
- **2:** Minor usability problem – fixing this should be given low priority
- **3:** Major usability problem – important to fix, so should be given high priority
- **4:** Usability catastrophe – imperative to fix this immediately

Checkpoint	Rating	Comments
<b>1. Design for Accessibility</b>		
1.1 Does the site state if the W3C accessibility guidelines were followed for its development?	3	I didn’t find any reference to W3C except in a search with a link that didn’t work.
<b>2. Promote Unity</b>		
2.1 Are all the various Government entities electronically connected (e.g. is it possible to access	0	Seems so.

any Government Department's site through this one)?		
2.2 Is Government portrayed as one entity?	0	Seems to be.
<b>3. Information and Services</b>		
3.1 Does the site clarify if all Government information is available online?	0	About the Website states what info is available and what links to other sites are available
3.2 Does the site clarify the type of services that it provides to its users?	0	
3.3 Is there metadata associated with all Government information?		Couldn't answer this as I've no idea what metadata is?
<b>4. Analysis</b>		
4.1 Are there any evident reporting tools in place that will help improve the site (e.g. are the number of users displayed)?		Not that I noticed and I'm not sure why the number of users displayed would help improve the site.
4.2 Does the site specify if it uses any user information for analytical purposes?		I didn't find anything.
<b>5. Privacy</b>		
5.1 Does the site evidently state its position in terms of legalities?	0	In the terms and conditions.
5.2 Is it evident that the users' personal information is always protected and respected?	0	According to the terms and conditions
<b>6. Technological Adaption</b>		
6.1 Does the site clarify if it provides any other technological means of accessibility (e.g. mobile phones, digital interaction TV, etc.)?	3	I didn't see anything.
6.2 Does the site state its adaptability towards the latest and upcoming technologies?		I didn't find anything.
<b>7. Content</b>		
7.1 Is the content relevant to the users' expectation when a link is accessed?	0	Appears to be, although I didn't read through every bit of info.
7.2 Is the content current (this is more complex than just being recent - older information is still acceptable at times, as long as it is falls under the appropriate and specific field or topic)?	0	Seems to be as supposed to be updated daily.
<b>8. General - Design Features</b>		
8.1 Does the site have a consistent look and feel about it?	2	
8.2 Does the site promote two-way communication (e.g. users may make enquiries or contact officials etc.)?	0	
8.3 Is the site easy to find?	0	
8.4 Is the overall site well-maintained?	1	

Thank you for your time and participation. Please return the expert review to [Darelle.vanGreunen@nmmu.ac.za](mailto:Darelle.vanGreunen@nmmu.ac.za) by the end of July 2008.

#### **Expert reviewer 4**

This expert review serves two main purposes namely to determine if the South African Government Web site (also referred to as the Batho Pele Gateway Portal) is designed for a more high- or low-context culture and further, to determine if the South African Government Web site followed e-Government guidelines and recommendations for its development. The heuristics that are used are based on the UK Government design guidelines.

Please answer each and every question to the best of your ability. Your input and time spent on answering this expert review is considered very valuable and is highly appreciated. Should you have any questions, you may contact the study leader, Ms Darelle van Greunen at [darelle.vangreunen@nmmu.ac.za](mailto:darelle.vangreunen@nmmu.ac.za). In order to access the South African e-Government Web site, the following URL must be used: [www.gov.za](http://www.gov.za)

#### **1. EXPERT BIOGRAPHICAL INFORMATION**

Name & surname:	Marco Pretorius
Home language:	Afrikaans
Gender:	Male
Email address:	marco.pretorius@gmail.com
Company/institution:	UNISA
Years of experience in UI design:	4

#### **2. CULTURAL-CONTEXT HEURISTICS**

These heuristics will help determine if the South African e-Government Web site was designed for a high- or low-context culture.

##### **The following options may be used to answer the questions:**

- **Yes:** if you agree with the statement/question in relation to the SA Government Web site.
- **No:** If you disagree with the statement/question in relation to the SA Government Web site.
- **N/A:** If you believe that the statement/question is not applicable to the SA Government Web site.
- **Comments:** available to enter any comments relating to the specific statement/question and how it relates to the SA Government Web site. Can also be used to make suggestions for improvement.

Checkpoint	Yes	No	N/A	Comments
<b>1. Links</b>				
1.1 Do the internal links open pages-up in the same browser window?		x		Only the links under “services” on the main page.

1.2 Do external links open pages-up in the same browser window?	x			It is however difficult to distinguish between internal and external links.
1.3 Are external links limited within the site (e.g. links to other private and public sector institutions)?		x		
<b>2. Navigation</b>				
2.1 Are the menus and links redundant and clear for the users to find their required information?	x			I tried to find “dual citizenship” and “renew motor vehicle license” and “municipality contact” information. All were easy to find. A specific task list with a list of things to do, may have proven otherwise.
2.2 Are the menus and links redundant and clear for the users to accomplish their tasks?	x			
2.3 Are there alternative paths to find information or accomplish tasks?	x			For example, links under services, are all available on the services page again.
2.4 Does the site follow a goal-oriented approach rather than a process-oriented one?	x			
<b>3. Searching</b>				
3.1 Are there multiple search mechanisms available to the user?	x			There is a “search for information” on the main page. This should be made more clear however, with a searchbox and a search button on the main page.
3.2 Do the search specifications available accommodate different skill levels and preferences?	x			It does accommodate different skill levels. However, clicking on the search link, takes one to an advanced search immediately. A “one-liner” search box should be available for novice users. The search results seem only to return matched words in documents and speeches. In my opinion one would typically search for where information can be found on the site (for example, link to license renewal details, etc).
<b>4. Home Page</b>				
4.1 Does the home page give a detailed overview of the content available within the site?		x		Only links
4.2 Do the links on the home page have clear descriptions?	x			
<b>5. Colours</b>				
5.1 Is the use of bright colours limited within the site?	x			
5.2 Is the use of multiple colours (not bright	x			However, the main page is not

ones) avoided within the site?				consistent with the pages opened by the links.
<b>6. Fonts</b>				
6.1 Is there a standard font colour used throughout the site?	x			Except as explained above.
6.2 Is there a standard font size used throughout the site?		x		Links are indicated differently throughout the site. Some are underlined, some not. Some are black, some are green, some are blue. Different font sizes also used.
6.3 Is there a standard font type used throughout the site?		x		See above.
<b>7. Privacy</b>				
7.1 Is it clearly stated what the users rights are, when using the site?	x			The “terms and conditions of use” is very visible. Probably the one link that should open in a new page, but does not.
7.2 Is it clear that the site is legitimate and that it represents the SA Government?	x	x		Not the main page. The links on the main pages do though.
7.3 Is it safe for the user to provide their personal information where necessary?			x	Did not come across this functionality.
<b>8. General – Design Features</b>				
8.1 Are the multimedia elements very limited within the site (e.g. animation, images, audio, flash features, video etc.)?	x			
8.2 Do the sizes of the media objects and files make it heavy to download?		x		
8.3 Does the site have a crisp layout with a clean functional design (e.g. information is never hidden or congested on a page)?		x		Information is congested on many pages, however, it all seems to be grouped and easy to find if you know what you are looking for.
8.4 Does the site use a formal language (e.g. legal language)?	x			
8.5 Are pop-up features avoided within the site?	x			
8.6 Are sidebars limited within the site?		x		There are sidebars everywhere. Ignored those on the right.
8.7 Are there multiple menus within the site?	x			
8.8 Is the site multilingual; at least with the crucial information?		x		English is the main language used. If there are multilingual options, I could not find it (did search for it).

### 3. e-GOVERNMENT HEURISTICS

These heuristics will help determine if the South African e-Government Web site followed the UK e-Government Web site development guidelines. The severity rating scale is used to measure the impact on usability.

**The following 0 to 4 rating scale can be used to rate the severity of usability problems:**

- **0:** I do not agree that this is a usability problem at all
- **1:** Cosmetic problem only – need not to be fixed unless extra time is available
- **2:** Minor usability problem – fixing this should be given low priority
- **3:** Major usability problem – important to fix, so should be given high priority
- **4:** Usability catastrophe – imperative to fix this immediately

Checkpoint	Rating	Comments
<b>1. Design for Accessibility</b>		
1.1 Does the site state if the W3C accessibility guidelines were followed for its development?	1	The “about us” website is not available from the main page. They have an “about government”, which confuses the two. On the “about the site” page, the purpose of the website is given. No mention of W3C.
<b>2. Promote Unity</b>		
2.1 Are all the various Government entities electronically connected (e.g. is it possible to access any Government Department’s site through this one)?	0	
2.2 Is Government portrayed as one entity?	3	No, with all the different windows opening, it is not portrayed as one entity.
<b>3. Information and Services</b>		
3.1 Does the site clarify if all Government information is available online?	1	
3.2 Does the site clarify the type of services that it provides to its users?	2	It is clear that you can find a range of services. It is not clear what they are.
3.3 Is there metadata associated with all Government information?	2	
<b>4. Analysis</b>		
4.1 Are there any evident reporting tools in place that will help improve the site (e.g. are the number of users displayed)?	2	
4.2 Does the site specify if it uses any user information for analytical purposes?	0	
<b>5. Privacy</b>		
5.1 Does the site evidently state its position in terms of legalities?	0	
5.2 Is it evident that the users’ personal information is always protected and respected?	na	

<b>6. Technological Adaption</b>		
6.1 Does the site clarify if it provides any other technological means of accessibility (e.g. mobile phones, digital interaction TV, etc.)?	3	
6.2 Does the site state its adaptability towards the latest and upcoming technologies?	1	The website does state that they continuously update their information and website.
<b>7. Content</b>		
7.1 Is the content relevant to the users' expectation when a link is accessed?	1	
7.2 Is the content current (this is more complex than just being recent - older information is still acceptable at times, as long as it falls under the appropriate and specific field or topic)?	0	
<b>8. General - Design Features</b>		
8.1 Does the site have a consistent look and feel about it?	4	Links need to be made consistent. The main page needs to be made with the same look and feel as the other pages.
8.2 Does the site promote two-way communication (e.g. users may make enquiries or contact officials etc.)?	0	Official contact numbers are available.
8.3 Is the site easy to find?	0	Searching for "South African government" in Google, this is the first link given.
8.4 Is the overall site well-maintained?	2	Consistency issues. All the links seems to be working.

Thank you for your time and participation. Please return the expert review to

[Darelle.vanGreunen@nmmu.ac.za](mailto:Darelle.vanGreunen@nmmu.ac.za) by the end of July 2008.

### **Expert reviewer 5**

This expert review serves two main purposes namely to determine if the South African Government Web site (also referred to as the Batho Pele Gateway Portal) is designed for a more high- or low-context culture and further, to determine if the South African Government Web site followed e-Government guidelines and recommendations for its development. The heuristics that are used are based on the UK Government design guidelines.

Please answer each and every question to the best of your ability. Your input and time spent on answering this expert review is considered very valuable and is highly appreciated. Should you have any questions, you may contact the study leader, Ms Darelle van Greunen at [darelle.vangreunen@nmmu.ac.za](mailto:darelle.vangreunen@nmmu.ac.za). In order to access the South African e-Government Web site, the following URL must be used: [www.gov.za](http://www.gov.za)

## 1. EXPERT BIOGRAPHICAL INFORMATION

Name & surname:	Sam Ssemugabi
Home language:	African (other -- non-South African)
Gender:	Male
Email address:	ssemus@unisa.ac.za
Company/institution:	UNISA
Years of experience in UI design:	7

## 2. CULTURAL-CONTEXT HEURISTICS

These heuristics will help determine if the South African e-Government Web site was designed for a high- or low-context culture.

**The following options may be used to answer the questions:**

- **Yes:** if you agree with the statement/question in relation to the SA Government Web site.
- **No:** If you disagree with the statement/question in relation to the SA Government Web site.
- **N/A:** If you believe that the statement/question is not applicable to the SA Government Web site.
- **Comments:** available to enter any comments relating to the specific statement/question and how it relates to the SA Government Web site. Can also be used to make suggestions for improvement.

Checkpoint	Yes	No	N/A	Comments
<b>1. Links</b>				
1.1 Do the internal links open pages-up in the same browser window?	√			
1.2 Do external links open pages-up in the same browser window?	√			
1.3 Are external links limited within the site (e.g. links to other private and public sector institutions)?		√		
<b>2. Navigation</b>				
2.1 Are the menus and links redundant and clear for the users to find their required information?	√			
2.2 Are the menus and links redundant and clear for the users to accomplish their tasks?	√			
2.3 Are there alternative paths to find information or accomplish tasks?	√			
2.4 Does the site follow a goal-oriented approach rather than a process-oriented one?	√			
<b>3. Searching</b>				
3.1 Are there multiple search mechanisms available to the user?	√			
3.2 Do the search specifications available accommodate different skill levels and preferences?				

<b>4. Home Page</b>				
4.1 Does the home page give a detailed overview of the content available within the site?		√		
4.2 Do the links on the home page have clear descriptions?	√			
<b>5. Colours</b>				
5.1 Is the use of bright colours limited within the site?	√			
5.2 Is the use of multiple colours (not bright ones) avoided within the site?	√			
<b>6. Fonts</b>				
6.1 Is there a standard font colour used throughout the site?	√			
6.2 Is there a standard font size used throughout the site?		√		
6.3 Is there a standard font type used throughout the site?		√		
<b>7. Privacy</b>				
7.1 Is it clearly stated what the users rights are, when using the site?	√			
7.2 Is it clear that the site is legitimate and that it represents the SA Government?	√			
7.3 Is it safe for the user to provide their personal information where necessary?			√	I did not perform any task where there was a need for this.
<b>8. General – Design Features</b>				
8.1 Are the multimedia elements very limited within the site (e.g. animation, images, audio, flash features, video etc.)?	√			
8.2 Do the sizes of the media objects and files make it heavy to download?	√			
8.3 Does the site have a crisp layout with a clean functional design (e.g. information is never hidden or congested on a page)?	√			
8.4 Does the site use a formal language (e.g. legal language)?	√			
8.5 Are pop-up features avoided within the site?	√			
8.6 Are sidebars limited within the site?		√		
8.7 Are there multiple menus within the site?	√			
8.8 Is the site multilingual; at least with the crucial information?			√	I could not determine this.

### 3. e-GOVERNMENT HEURISTICS

These heuristics will help determine if the South African e-Government Web site followed the UK e-Government Web site development guidelines. The severity rating scale is used to measure the impact on usability.

**The following 0 to 4 rating scale can be used to rate the severity of usability problems:**

- **0:** I do not agree that this is a usability problem at all
- **1:** Cosmetic problem only – need not to be fixed unless extra time is available
- **2:** Minor usability problem – fixing this should be given low priority
- **3:** Major usability problem – important to fix, so should be given high priority
- **4:** Usability catastrophe – imperative to fix this immediately

Checkpoint	Rating	Comments
<b>[1] Design for Accessibility</b>		
1.1 Does the site state if the W3C accessibility guidelines were followed for its development?	1	
<b>[2] Promote Unity</b>		
2.1 Are all the various Government entities electronically connected (e.g. is it possible to access any Government Department's site through this one)?	3	
2.2 Is Government portrayed as one entity?	2	
<b>[3] Information and Services</b>		
3.1 Does the site clarify if all Government information is available online?	2	
3.2 Does the site clarify the type of services that it provides to its users?	2	
3.3 Is there metadata associated with all Government information?	2	
<b>[4] Analysis</b>		
4.1 Are there any evident reporting tools in place that will help improve the site (e.g. are the number of users displayed)?	1	
4.2 Does the site specify if it uses any user information for analytical purposes?	1	
<b>[5] Privacy</b>		
5.1 Does the site evidently state its position in terms of legalities?	2	
5.2 Is it evident that the users' personal information is always protected and respected?	4	
<b>[6] Technological Adaption</b>		
6.1 Does the site clarify if it provides any other technological means of accessibility (e.g. mobile phones, digital interaction TV, etc.)?	2	
6.2 Does the site state its adaptability towards the latest and upcoming technologies?	2	
<b>[7] Content</b>		
7.1 Is the content relevant to the users' expectation when a link is accessed?	3	
7.2 Is the content current (this is more complex than just being recent - older information is still acceptable at times, as long as it is falls under the appropriate and specific field or topic)?	3	

<b>[8] General - Design Features</b>		
8.1 Does the site have a consistent look and feel about it?	3	
8.2 Does the site promote two-way communication (e.g. users may make enquiries or contact officials etc.)?	3	
8.3 Is the site easy to find?	2	
8.4 Is the overall site well-maintained?	3	

Thank you for your time and participation. Please return the expert review to

[Darelle.vanGreunen@nmmu.ac.za](mailto:Darelle.vanGreunen@nmmu.ac.za) by the end of July 2008.

### **Expert reviewer 6**

This expert review serves two main purposes namely to determine if the South African Government Web site (also referred to as the Batho Pele Gateway Portal) is designed for a more high- or low-context culture and further, to determine if the South African Government Web site followed e-Government guidelines and recommendations for its development. The heuristics that are used are based on the UK Government design guidelines.

Please answer each and every question to the best of your ability. Your input and time spent on answering this expert review is considered very valuable and is highly appreciated. Should you have any questions, you may contact the study leader, Ms Darelle van Greunen at [darelle.vangreunen@nmmu.ac.za](mailto:darelle.vangreunen@nmmu.ac.za). In order to access the South African e-Government Web site, the following URL must be used: [www.gov.za](http://www.gov.za)

#### **1. EXPERT BIOGRAPHICAL INFORMATION**

Name & surname:	Akash Singh
Home language:	English
Gender:	Male
Email address:	AKASH.SING@SAP.COM
Company/institution:	SAP
Years of experience in UI design:	6

#### **2. CULTURAL-CONTEXT HEURISTICS**

These heuristics will help determine if the South African e-Government Web site was designed for a high- or low-context culture.

##### **The following options may be used to answer the questions:**

- **Yes:** if you agree with the statement/question in relation to the SA Government Web site.
- **No:** If you disagree with the statement/question in relation to the SA Government Web site.
- **N/A:** If you believe that the statement/question is not applicable to the SA Government Web site.

<ul style="list-style-type: none"> <li>• <b>Comments:</b> available to enter any comments relating to the specific statement/question and how it relates to the SA Government Web site. Can also be used to make suggestions for improvement.</li> </ul>				
Checkpoint	Yes	No	N/A	Comments
<b>1. Links</b>				
1.1 Do the internal links open pages-up in the same browser window?	x			
1.2 Do external links open pages-up in the same browser window?		x		External links open up in a new window
1.3 Are external links limited within the site (e.g. links to other private and public sector institutions)?		x		Sufficient external links to outside companies
<b>2. Navigation</b>				
2.1 Are the menus and links redundant and clear for the users to find their required information?		x		Menus and links are not redundant
2.2 Are the menus and links redundant and clear for the users to accomplish their tasks?			x	Sufficient clarity for users to accomplish tasks
2.3 Are there alternative paths to find information or accomplish tasks?		x		
2.4 Does the site follow a goal-oriented approach rather than a process-oriented one?			x	goal
<b>3. Searching</b>				
3.1 Are there multiple search mechanisms available to the user?	x			Yes. Simple, advanced, and VQL searches are possible
3.2 Do the search specifications available accommodate different skill levels and preferences?	x			
<b>4. Home Page</b>				
4.1 Does the home page give a detailed overview of the content available within the site?	x			
4.2 Do the links on the home page have clear descriptions?		x		No descriptions are available
<b>5. Colours</b>				
5.1 Is the use of bright colours limited within the site?	x			
5.2 Is the use of multiple colours (not bright ones) avoided within the site?	x			
<b>6. Fonts</b>				
6.1 Is there a standard font colour used throughout the site?	x			
6.2 Is there a standard font size used throughout the site?	x			
6.3 Is there a standard font type used throughout the site?	x			
<b>7. Privacy</b>				
7.1 Is it clearly stated what the users rights are, when using the site?	x			Under terms and conditions
7.2 Is it clear that the site is legitimate and that	x			

it represents the SA Government?				
7.3 Is it safe for the user to provide their personal information where necessary?			x	
<b>8. General – Design Features</b>				
8.1 Are the multimedia elements very limited within the site (e.g. animation, images, audio, flash features, video etc.)?	x			
8.2 Do the sizes of the media objects and files make it heavy to download?			x	
8.3 Does the site have a crisp layout with a clean functional design (e.g. information is never hidden or congested on a page)?	x			
8.4 Does the site use a formal language (e.g. legal language)?	x			
8.5 Are pop-up features avoided within the site?	x			
8.6 Are sidebars limited within the site?	x			
8.7 Are there multiple menus within the site?		x		
8.8 Is the site multilingual; at least with the crucial information?	x			I could not determine this.

### 3. e-GOVERNMENT HEURISTICS

These heuristics will help determine if the South African e-Government Web site followed the UK e-Government Web site development guidelines. The severity rating scale is used to measure the impact on usability.

**The following 0 to 4 rating scale can be used to rate the severity of usability problems:**

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- **1:** Cosmetic problem only – need not to be fixed unless extra time is available
- **2:** Minor usability problem – fixing this should be given low priority
- **3:** Major usability problem – important to fix, so should be given high priority
- **4:** Usability catastrophe – imperative to fix this immediately

Checkpoint	Rating	Comments
<b>[1] Design for Accessibility</b>		
1.1 Does the site state if the W3C accessibility guidelines were followed for its development?	0	NO
<b>[2] Promote Unity</b>		
2.1 Are all the various Government entities electronically connected (e.g. is it possible to access any Government Department's site through this one)?	0	YES
2.2 Is Government portrayed as one entity?	0	YES
<b>[3] Information and Services</b>		
3.1 Does the site clarify if all Government information is available online?	0	NO
3.2 Does the site clarify the type of services that it	0	YES

provides to its users?		
3.3 Is there metadata associated with all Government information?	0	YES
<b>[4] Analysis</b>		
4.1 Are there any evident reporting tools in place that will help improve the site (e.g. are the number of users displayed)?	0	NO
4.2 Does the site specify if it uses any user information for analytical purposes?	0	NO
<b>[5] Privacy</b>		
5.1 Does the site evidently state its position in terms of legalities?	0	YES
5.2 Is it evident that the users' personal information is always protected and respected?	0	YES
<b>[6] Technological Adaption</b>		
6.1 Does the site clarify if it provides any other technological means of accessibility (e.g. mobile phones, digital interaction TV, etc.)?	0	NO
6.2 Does the site state its adaptability towards the latest and upcoming technologies?	0	NO
<b>[7] Content</b>		
7.1 Is the content relevant to the users' expectation when a link is accessed?	0	YES
7.2 Is the content current (this is more complex than just being recent - older information is still acceptable at times, as long as it is falls under the appropriate and specific field or topic)?	0	YES
<b>[8] General - Design Features</b>		
8.1 Does the site have a consistent look and feel about it?	0	YES
8.2 Does the site promote two-way communication (e.g. users may make enquiries or contact officials etc.)?	0	YES
8.3 Is the site easy to find?	0	YES
8.4 Is the overall site well-maintained?	0	YES

Thank you for your time and participation. Please return the expert review to

[Darelle.vanGreunen@nmmu.ac.za](mailto:Darelle.vanGreunen@nmmu.ac.za) by the end of July 2008.

## APPENDIX N: TECHNIQUES TO REDUCE ITPOSMO GAPS

There are ways in which the dimension gaps (ITPOSMO) may be reduced and these will also reduce the risk of failure of an e-Government project. These techniques are displayed in Table N.1 below and are divided into specific dimensions (Heeks, 2003).

<b>Dimension</b>	<b>Techniques</b>
Information	<ol style="list-style-type: none"> <li>1. It is required to do a professional analysis, to collect true information needs of the stakeholders.</li> <li>2. Use prototyping - There should first be a test version of the e-Government application. This will help users explain what type of information they really need.</li> </ol>
Technology	<ol style="list-style-type: none"> <li>1. Try to discover other means to deliver government reforms, without using ICTs.</li> <li>2. Try to discover ways to deliver government reforms with the currently existing ICT infrastructure.</li> <li>3. Avoid leading-edge technologies in your design.</li> <li>4. Try to discover opportunities by using donated or recycled equipment.</li> </ol>
Process	<ol style="list-style-type: none"> <li>1. Follow the normal procedure of doing things and then slowly add some new technology.</li> <li>2. Try to avoid reengineering the business process. Rather focus on optimization and slight modifications of the existing processes, when it comes to the design of the e-Government application.</li> <li>3. It is worth considering the two-stage approach. The first stage just focuses on optimizing the processes without any changes to ICTs. Later, in the second stage, new ICTs are applied.</li> </ol>
Objectives and values	<ol style="list-style-type: none"> <li>1. Try making use of incentives to modify the stakeholder objectives and values (better pay and working conditions, management support, etc.).</li> <li>2. Punishments are also useful in altering the stakeholder objectives and values (threats, reprimands, transfers, etc.).</li> <li>3. Honest and constant communication with the stakeholders, concerning the system, is essential. This includes discussing both the benefits and negative aspects.</li> </ol>

<b>Dimension</b>	<b>Techniques</b>
	<ol style="list-style-type: none"> <li>4. Get the main stakeholders (those that are for and highly against e-Government) involved in the analysis and/or design of the e-Government application.</li> <li>5. The design of the e-Government application should be based on a consent view of all main stakeholders.</li> <li>6. Use prototyping. This will help integrate the stakeholder's objectives in the design and also make these objectives more realistic.</li> <li>7. If possible (cost, time, motivation and skill considerations), try get the users involved when building the e-Government application.</li> </ol>
Staffing and skills	<ol style="list-style-type: none"> <li>1. To improve the current reality of available competencies it may require outsourcing contracts (though this may increase other gaps).</li> <li>2. It is important to train staff in order to improve the current reality of competencies.</li> <li>3. Recruitment and retention techniques will also need to be improved to reduce competency (staff) turnover.</li> <li>4. External consultants may be used (though this may increase other gaps).</li> <li>5. Hiring new staff may expand the quantity of current competencies.</li> </ol>
Management systems and structures	<ol style="list-style-type: none"> <li>6. There must be a clear and uncompromising commitment to maintain the current management systems and structures within the e-Government application design.</li> </ol>
Other resources	<ol style="list-style-type: none"> <li>7. The e-Government applications should be prioritized according to maximizing revenue generation for government (paying tax, fees, fines, etc).</li> <li>8. Search for extra financing from donor or central government agencies.</li> <li>9. Loans should be taken from private sector institutions.</li> <li>10. Get private firms involved in developing, owning and operating the e-Government application.</li> <li>11. Charge businesses or wealthier users of the e-Government system.</li> <li>12. Ambitions of the e-Government project should be scaled-down.</li> <li>13. Extend the timescales for the e-Government project.</li> </ol>

Dimension	Techniques
	<p>14. Negotiate central/shared agency IT agreements to reduce the hardware and software costs.</p> <p>15. Use 'one for all' contracts that are reusable.</p> <p>16. Project management techniques will help to reduce waste and delays.</p> <p>17. Outsource contracts in order to reduce time (and possibly costs) gaps.</p> <p>18. Make use of open source software (though cost savings are often less than anticipated).</p>

**Table N.1: Techniques to reduce the dimension gaps (Heeks, 2003)**

## APPENDIX O: SUBMITTED PAPERS

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It is required that at least one paper is submitted to a conference as one of the prerequisites to complete a Masters degree. Two such papers were written and submitted. Both papers were based on work that was conducted as part of this dissertation. The dissertation was still a work in progress when these papers were submitted. The papers include:

- *e-Government: the challenge of delivering best value to the people*. This paper was submitted for the ZA-WWW conference, which was held in September of 2008 in Cape Town, South Africa.
- *e-Government: living up to the challenge of culture context*. This paper was submitted for the SAICSIT conference, which was held in October of 2008 in Wilderness, South Africa.

Both the papers are presented below:

### **e-Government: the challenge of delivering best value to the people**

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 Nelson Mandela Metropolitan University  
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### **Abstract**

In spite of rapid globalization of new Information and Communication Technologies, there are considerable differences between nations in terms of their adoption and use of them. Several studies exploring factors including national cultures' adoptions of information and communication technology

have been conducted. The focus of this paper differs from other studies in that it considers a specific cultural dimension, namely culture context. Using Hofstede's cultural model of cultural difference, this research conducted an analysis of a sample of the South African population to determine their culture context and their preferences in terms of general purpose Web usage versus Government Web site usage. The findings indicate to what extent culture context should be considered when designing the South African Government Web site. The result has both theoretical and practical implications.

**Keywords: e-Government, culture, Web design, usability, culture-context**

## **1. Introduction**

Electronic Government has become a global phenomenon and is an essential requisite for all governments in both developed and developing societies. All governments, therefore, have mounted initiatives that seek to strengthen their institutional capacities to take full advantage of the emerging global knowledge economy as well as meet the diverse and varying problems and challenges that it poses to their own national social and economic development.

In South Africa, as in other countries, expectations of government and its agencies have risen dramatically. Citizens not only want the privacy and security protection that are part of the government mission, they have also come to insist on the same efficiency, convenience, and service orientation that they experience when dealing with private-sector companies. In 2004, the South African Government launched phase one of its "people first" Internet gateway, giving individuals, organisations and foreigners a single entry point to government services and information, organised according to user needs rather than government structures.

Differences in culture, as found by Hofstede (1980,2001), show that there are significant differences between nations leading, in turn, to differences between national groups within a single organisation. These can cause particular groups either to understand knowledge differently or to have significant barriers to participating in knowledge sharing. We must understand that culture is a unique component that is so deeply embedded in people's lives that our ignorance of it usually leads to failures. Systems created to improve an organisation's performance should use all possible information about culture to escape mistakes being made due to a lack of cultural awareness and understanding.

The South African e-Government gateway ([www.gov.za](http://www.gov.za)) has the dual purpose of information and service provision. The developers aimed to organise services intuitively, in a citizen-centric way,

according to “life events” - housing, working, relationships and dealing with the law, etc. The question is whether it delivers best value to its citizens.

This paper will focus on the importance and role of culture context in interface design. Davenport and Prusak (1998) view information and access to information as an evolving mix of framed experience, values, contextual information, and expert insight that provides a framework for evaluating and incorporating new experiences and information. They found that in organisations, information often becomes embedded in documents or repositories and in organisational routines, processes, practices, and norms. They add that for information to have value, it must include the elements of human context experience and interpretation. This implies that information users must understand and have experience of the context (surrounding conditions and influences) in which the information is generated and used in order for it to be meaningful. This suggests that for an information repository to be useful, it must also store the context in which the information was generated.

This paper discusses how the cultural-context dimension affects the design of e-Government Web sites in general. The paper elaborates on how the culture context of a society is determined and how this should be accommodated from a Web design perspective. The results of a survey on the culture-context classification of South African citizens will be presented. The paper concludes with specific recommendations for culture-context design for the South African e-Government based on the results of the survey.

## **2. Culture**

The term ‘culture’ has multiple meanings in various disciplines and within different contexts (Samovar, Porter, & McDaniel, 2007). There is no specific agreement on the definition of culture (Ford, 2005); however, two commonly used ones include:

1. ‘Culture is communication, and communication is culture’ (Hall, 1959, p 186).
2. ‘Culture refers to the cumulative deposit of knowledge, experience, beliefs, values, attitudes, meanings, hierarchies, religion, notions of time, roles, spatial relations, concepts of the universe, and material objects and possessions acquired by a group of people in the course of generations through individual and group striving’ (Hofstede, 1997).

## 2.1 Dimensions

Culture dimensions provide a way to help examine and understand a new culture that one might have to operate in. They also assist in recognizing one's own values, beliefs and prejudices that exist in one's own culture. These dimensions are used to examine cultural values by making use of extensive statistical data (Trompenaars, 1993).

Hofstede's research has led to the discovery of five cultural dimensions that exist within a culture. They are (Hofstede, 1987-2003):

1. **Power Distance Index (PDI).** This refers to the extent to which the less powerful members of organizations and institutions accept the fact that power is distributed unequally (inequality).
2. **Individualism (IDV).** The opposite of this would be collectivism. Collectivism can be described as the degree to which individuals are integrated into groups. In individualist societies, everyone is expected to look after themselves and their immediate family.
3. **Masculinity (MAS).** The opposite of this is femininity. This dimension refers to the distribution of roles between males and females. This plays a fundamental role as to how solutions can be arrived at within a society.
4. **Uncertainty Avoidance Index (UAI).** This relates to a society's tolerance for uncertainty and ambiguity and focuses on how a culture programmes its members to feel either comfortable or uncomfortable in unstructured situations.
5. **Long-Term Orientation (LTO).** This determines how people achieve their goals within a society. Work is done in terms of either a long- or a short-term orientation.

On the other hand, Hall's model of culture focuses on mainly three concepts (ChangingMinds.org, 2002-2007), (Ford, 2005):

1. **Context.** This cultural dimension refers to the extent to which communicators depend on factors other than explicit speech to convey their messages. The information that is given within a communication depends on the context in which it occurs.
2. **Time.** Hall classifies time in terms of being either polychronic or monochronic. In monochronic time (or M-time), the focus is on performing one action at a time. It is associated with careful planning and scheduling. It is a characteristic of a western civilization. Monochronic people tend to be from a low-context culture. In polychronic time (or P-time), human interaction is

valued above time and material objects. Actions are done in their own time. People also tend to do many things simultaneously, and this is a feature of a high-context culture.

3. **Space.** Hall has identified four different senses of space or ‘invisible boundaries’, as they are also known. These boundaries exist in all cultures and are specified as territoriality, personal space, multisensory space and reactions to spatial differences.

## **2.2 Culture context**

The dimension of culture context is regarded as a communication tool that helps in understanding cultures. It is not a comprehensive way in which to understand culture and its relationship to communication and conflict but it does assist in understanding how different groups of people make sense of their own worlds (LeBaron, 2003). This cultural dimension basically focuses on two concepts: communication and context.

Hall classifies a culture as being either high or low-context. This will depend on the degree to which meaning comes from the words that are being exchanged in a communication, or from the setting (context) in which the communication is taking place (Samovar et al., 2007). Again, there are many definitions available and most tend to be very similar. Two such definitions of culture context include:

1. ‘High-context and low-context communication refers to the degree to which speakers rely on factors other than explicit speech to convey their messages’ (LeBaron, 2003).
2. ‘Context is probably the most important cultural dimension and the most difficult to define. It refers to the entire range of stimuli surrounding every communication event - the context - and how much of the stimuli is meaningful’ (O'Hara-Devereaux & Johansen, 2000).

### **2.2.1 Low-context culture**

In a low-context culture, the surrounding context has no influence at all in the communication event. It is the message itself that provides all the meaning (O'Hara-Devereaux et al., 2000). In these cultures, communication occurs predominantly through explicit statements in text and speech. In a low-context society, cultures will ignore many of the stimuli surrounding an explicit message and rather focus on the objective communication event. Such a communication event can be a word, sentence, or even a physical gesture (O'Hara-Devereaux et al., 2000).

In low-context societies, people tend to have many more connections with other people. These connections, though, are of very short durations and/or for certain and specific reasons. In these

societies, it is essential that cultural beliefs and behaviours are explicitly spelled out to new members so that they will know how to behave in that environment (Beer, 1997-2003).

An important aspect of a low-context culture is the freedom of the individual to openly question or challenge any type of authority. In these cultures, one exhibits behaviours of personal power, and individuals are encouraged to seek answers and change when necessary. A common feature in low-context cultures is a tendency to drastic changes in the culture from one generation to the next. It is as if the people of these cultures move with the times. They adapt culturally to what is happening in the world at that specific moment in time.

### **2.2.2 High-context culture**

In a high-context society, cultures will assign great value and meaning to many of the stimuli that surround an explicit message (O'Hara-Devereaux et al., 2000) and verbal messages, on their own, have very little meaning. It is, rather, the surrounding context that will provide the messages' meaning. The context can be the people that are participating in the communication event and the relationships that exist between them.

The cultures where the communication messages include other elements, such as silence and body language, are regarded to be high-context. In a high-context communication, it is often the aim to pass a message that essentially is not spoken. This is accomplished through the situation, behaviour and para-verbal cues that are passed along with the communicated message (Wurtz, 2006).

In high-context societies, groups of people have close relationships with each other established over long periods of time. It is not necessary to make the aspects of cultural behaviour known in these situations. This is because most members will know what to think and what to do from the years of interaction with one another (Beer 1997-2003).

Cultures that are of a high-context nature have a very strong sense of tradition and history and change very little over time. They are regarded as static cultures that will keep their traditions throughout the different generations. In high-context societies, people prefer group harmony rather than individual achievements, so it is unlikely that authority will be questioned in these cultures. This is a characteristic of a collectivist society (Timbrook, 2001).

### 2.2.3 Comparison of high- and low-context cultural values

Table 1 summarizes the values and characteristics that are integrated in both high- and low- context cultures and which may be considered to be the opposite of each other.

Table 1: Values and characteristics of low- and high-context cultures (Timbrook, 2001), (Beer, 1997-2003)

High-Context	Low-Context
Relational and intuitive	Logical and linear
Love and harmony with nature	Personal control over the environment
Past oriented	Present and future oriented
Reliance on nonverbal codes over verbal messages	Reliance on the verbal over the nonverbal messages
Cooperative (value group sense)	Competitive (value individualism)
Traditions over change	Change over tradition
Less verbally explicit communication, less written/formal information	Rule oriented, people play by external rules
More internalized understandings of what is communicated	More knowledge is codified, public, external and accessible
Multiple cross-cutting ties and intersections with others	Sequencing, separation – of time, of space, of activities, of relationships
Long-term relationships	More interpersonal connections of shorter duration
Strong boundaries - who is accepted as belonging vs. who is considered an “outsider”	Open boundaries – people do not have to belong
Knowledge is situational, relational	Knowledge is more often transferable
Decisions and activities focus around personal face-to-face relationships, often around a central person who has authority	Task-centred. Decisions and activities focus around what needs to be done, division of responsibilities

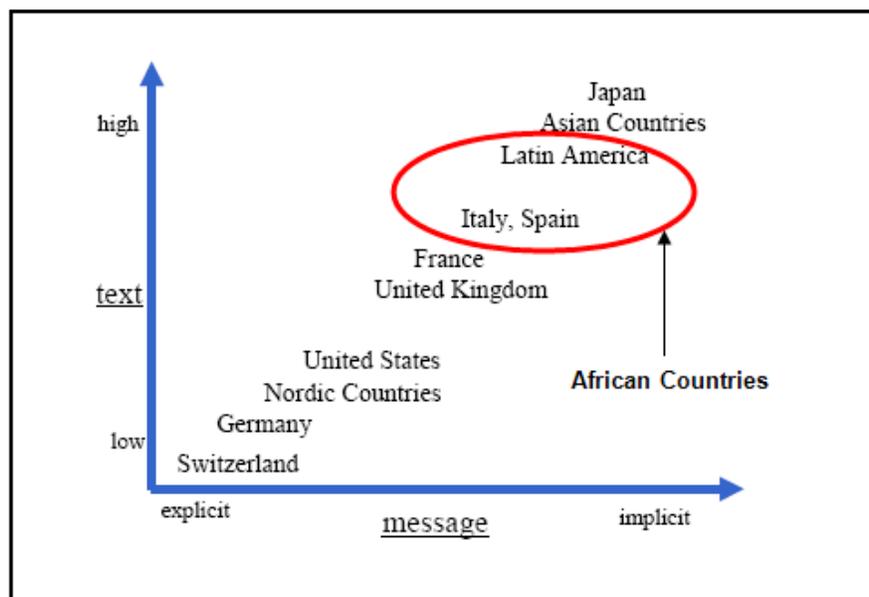
### 2.2.4 Country classification

There is a general idea as to which countries are classified as high-context cultures and which are classified as low-context ones (described in Table 2). High-context cultures are more common in eastern cultures and in countries of racial diversity whereas low-context cultures are more common in western cultures. Tribal and native societies are also examples of high-context cultures. Low-context countries primarily consist of countries from North America and much of Western Europe. High-context cultures primarily consist of countries from Asia, Africa, South America and much of the Middle East (Timbrook, 2001).

Figure 1 displays the communication pattern that is adopted in high- and low-context cultures. A message that is being transmitted needs to be explicitly explained in low-context cultures. The higher

the cultural-context of a culture, the more implicit the transmitted message becomes. In terms of Figure 1, Switzerland is the lowest cultural-context culture on the high- and low-context continuum. Thus, the transmitted message here will be in its most explicit form. On the other hand, Japan is the highest cultural-context culture on the same continuum. Hence, the transmitted message there will be in its most implicit form. If African countries were to be positioned on the “Communication Patterns” diagram, they would reside somewhere within the indicated circle. This conclusion was reached by a study of the relevant literature.

Figure 1: Communication patterns (Köszegi, Vetschera & Kersten, 2003)



In particular, South Africa should also fit somewhere within the red circle, between Italy and Spain and below the Asian countries. This is because African countries, in general, are regarded as high-context. South Africa, nonetheless, has a fair amount of westernized values and characteristics that influence its society accordingly. Yet, these should be less than those of France, Italy or Spain. However, its high-context values and characteristics are less than those of Asian countries, which are regarded as the most high-context cultures of all. It is debatable, though, whether South Africa is a higher-context culture than Latin America.

Table 2: High/Low-context by culture (O'Hara-Devereaux et al., 2000)

	<b>HIGH-CONTEXT CULTURES</b>
	Japanese
	Chinese
	Arabic
	Greek
	Mexican
	Spanish
	Italian
	French
	French Canadian
	English
	English Canadian
	American
	Scandinavian
	German
	German-Swiss
	<b>LOW-CONTEXT CULTURES</b>

H  
I  
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W

### 3. E-Government Web sites

E-Government is referred to as “the use by government agencies of information technologies (such as Wide Area Networks, the Internet, and mobile computing) that have the ability to transform relations with citizens, businesses, and other arms of government (The World Bank Group, 2007)”. Some of the most rewarding and most noticeable benefits of e-Government include better delivery of government services to citizens, improved interactions with business and industry, citizen empowerment through access to information and more efficient government management (The World Bank Group, 2007).

#### 3.1 Design guidelines

There are many guidelines that are available to assist in the design of e-Government Web sites. To an extent, many of these adhere to more general Web site design guidelines but there are certain differences which directly focus and relate to e-Government Web sites. Some of the most important e-

Government Web site design guidelines were developed by the UK Government, which is regarded as a leader in e-Government maturity and development (Bernardo, 2005). These are summarized in Table 3, below (Cabinet Office, 2004).

Table 3: Guidelines for e-Government Web site design (Cabinet Office, 2004)

Number	Guidelines
1	Government Web sites should focus on their users. It is recommended that they follow the guidelines for Web site accessibility according to the World Wide Web Consortium (W3C) and the Web Accessibility Initiative (WAI) guides.
2	The various government Web sites need to be connected as one entity. It is recommended to follow the e-Government Interoperability Framework (e-GIF) and work with the government gateway to provide online services.
3	Government organisations must work to produce all of their services online.
4	Users should have reasonable expectations about the quality, accuracy and uniformity of the government content.
5	Government Web sites should follow law procedures and explain their terms and conditions explicitly to their citizens as this may raise user confidence in the systems. They should also follow the Trust Charter for Electronic Service Delivery (e-Trust Charter) guidelines.
6	Government Web sites are expected to be two-way as regards communication.
7	Government Web sites should be able to operate through a full range of channells (including digital interactive TV and mobile devices).
8	Government Web sites need to have the tools in place that can evaluate the system (to check if it meets the users' needs).
9	Government Web sites should provide metadata about their documents. This will help in the procedure of document archiving and retrieval. It is essential to follow the e-Government Metadata Framework (e-GMF).
10	Government Web sites need to be properly and well managed, maintained and updated.

#### 4. Survey of South African users

The survey was conducted in the form of an online questionnaire comprising four main sections, each with a number of related items:

**Section 1:** Biographical information about the (South African) participants.

**Section 2:** Culture-related behaviour in Internet usage. The focus here is on the participants' cultural behaviour when using the Internet in general. This relates to the use of any type of Website (classified as "all purpose Websites" for the analysis of the results) rather than only government ones.

**Section 3:** Culture-related behaviour for Government Websites. It focuses on the participants' cultural

behaviour when using the SA Government Website.

**Section 4:** General culture-related behaviour. The focus is on the participants' cultural behaviour in everyday life and situations. This section has no relation to ICT and typically describes aspects of how South Africans understand and relate to three critical life values namely: time, communication and individualism (all questions that are associated with the cultural-context dimension). These questions were drafted from previous work done by Ford, Richardson and Smith.

Sections 2 and 3 of the questionnaire contained similar questions with the difference being that Section 2's questions focus on general Internet usage while Section 3 focuses on Government Web sites specifically. This approach was followed to determine whether there is a difference in user preferences when using general web sites as opposed to the South African Government web site. The questionnaire aimed to answer the following research questions:

1. Is South Africa a high- or low-context culture?
2. Do South Africans prefer high- or low-context designed Web sites for their general Internet usage ("all purpose" Web sites)?
3. If South Africans do generally prefer high-context designed Web sites, does this also apply to the South African Government Web site (or to all government Web sites in general)?

#### **4.1 The participants' profile**

It was imperative to get the involvement and opinions of many participants from all different cultural- and economic-backgrounds, with the only main requirement being that they were all South African citizens. Two secondary requirements were that participants had a computer and an Internet connection to be able to access the questionnaire.

The questionnaire went online and was accessible to any South African citizen. It was available for about eight weeks and distributed to some 300 individuals of which only 71 responded (24% of total). There were no questions regarding the users' previous experience of computers or the Internet, as it was assumed that the participants would have enough competence in these to complete the online questionnaire.

The intention was to get a general indication of the South African culture (in terms of the cultural-context dimension), considering its great diversity. It was anticipated that despite this diversity, a general South African culture should have been adopted and this would be portrayed through the

questionnaire results, which should, theoretically, follow a common trend through each and every question.

Demographic values such as gender, home language, education level, age, occupation and province of residence had no bearing on the selection of a typical participant. The aim was to get the opinions of all diverse SA citizens. However, there was a question that examined the frequency of use of the SA Government Web site and the results showed that this was very limited and non-existent in many cases. This could have had an impact on the results for Section 3, which focused on Government Web sites. The results of the biographical section showed that the typical participants were mostly male, preferred to speak English, had some higher education degree and were mainly between the ages of 20 and 35. The respondents indicated that they access the Government Web site once or twice a year.

#### 4.2 South African culture classification

The participants responses confirmed that there are no major differences in the manner in which they use and understand both government and other Web sites. This also applies to their preferences, in terms of the design features and aspects that are used in both of these types of web sites. This basically proves that the common South African user does not actually require a different approach in the design and representation of a government Web site to an all-purpose site.

Questions from Sections 2 and 3 examined among others, four essential characteristics of Internet usage: accomplishing objectives, searching for information, design features to improve understanding and the use of multimedia content. There were a number of questions relating to each one of these characteristics. Table 4 summarizes the participants' responses.

Table 4: High- vs. low-context cultural status in achieving goals on a Web site (derived from sections 2 and 3 items)

Question Items	Goals	Culture-Context Status
2-2, 2-3, 3-2, 3-3	Accomplishing objectives (tasks)	Low-Context
2-1, 2-8, 2-21, 3-1, 3-7, 3-16	Finding information	Low-Context
2-4, 2-18, 2-23, 3-4, 3-15, 3-17	Better understanding the content	High- and Low-Context (multimedia and text)
2-6, 2-13, 2-14,	Amount of multimedia content and colour	Low-Context

3-6, 3-11, 3-12	usage	
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Section 4 of the questionnaire determined and classified the cultural profile of the South African population. The questions related to the following three ideals:

1. Are South Africans more of an individualist or of a collectivist nature within society and life in general (relates to Hofstede's individualism vs. collectivism cultural dimension)?
2. What are South Africans' perceptions in terms of time (relates to Hofstede's time-orientation cultural dimension)?
3. What are South Africans perceptions with regards to the communication process (relates to Hall's culture-context cultural dimension)?

Table 5 summarizes the participants' responses to Section 4. Depending on the participants' status for each dimension, they are then classified as either high- or low-context. This is determined by the common characteristics and values that are shared between the three cultural dimensions.

Table 5: High- vs. low-context cultural status of participants derived from Question 4 items

<b>Question Items</b>	<b>Culture Dimension</b>	<b>Culture Dimension Status</b>	<b>Culture-Context Status</b>
4-1 to 4-5, 4-10	Time Orientation	Long-Term	High-Context
4-6 to 4-9	Individualism vs. Collectivism	Individualism	Low-Context
4-11 to 4-24	Culture Context	High- and Low-Context	High- and Low-Context

The overall results imply that South African users tend to prefer more low-context features and styles in terms of the design of Web sites. This applies to all types of Web sites. In terms of their cultural behaviour toward life in general, they are quite evenly balanced. They seem to be in the middle of the cultural-context spectrum. It is very difficult to classify South Africa as either a high- or low-context culture. This study tends to contradict the commonly agreed assumption that countries from Africa should evidently be of a high-context culture. South Africa has a very diverse culture and, depending on the selection of participants, results may differ considerably across the country. However, for other African countries it may be more obvious and clear that they are of a high-context nature.

Previous research, which investigated Hall's high- and low-context dimensions as they relate to Web site design, shows that there is an adoption of high-context preferences within high-context societies

and low-context preferences within low-context societies. Yet, these cultural values may be more clearly observed in the design of Web sites where non-durable goods are advertised (e.g., fast food). It is more difficult to identify these cultural values on Web sites that advertise durable goods and industrial goods – or in this case, Government Web sites (Ess & Sudweeks, 2005).

### **5. A note on methodology**

This project was based on three sources of information. First, we undertook a literature survey of relevant literature in the areas of culture, Web design and government Web design. Thereafter, we developed an online survey looking at usage aspects of general purpose Web sites, as well as the South African Government Web site. A sample size drawn from various parts of South Africa contributed to the findings of the survey. The third source of information will be an expert review of the South African Government Web site. The results of review are not known yet. In summary, the South African Government Web site was used as a test subject for the case study and all the other research methods (mentioned above) contributed to the overall case study.

### **6. Conclusion**

e-Government refers to the delivery of information and services online through the Internet or other digital means. Many government units have embraced the digital revolution and are putting a wide range of materials from publications and databases to actual Government services online for citizen use. Since e-Government is still in its infancy, it is the perfect time to measure the extent of the impact of cultural dimensions and then, specifically, culture context on Web service delivery and usage.

In this paper, we determined the profile of the South African citizens in terms of high and low context through a survey. Even though we received only a 24% return on the survey, it did give an indication of the profile of South Africans. Based on the outcome of the survey, preliminary findings indicate the following:

- There is a need for an improved marketing strategy to promote e-Government within South Africa.
- SA users do not require a different design for government Web sites when compared to all-purpose Web sites.
- SA users generally prefer more low-context design styles and features on a site.
- SA users want to complete their objectives on a site in the simplest and quickest manner.

- SA users prefer using search tools to find information.
- SA users better understand a site that uses a combination of both alphanumeric and multimedia forms of information.
- SA users do not prefer a site that is overwhelmed with multimedia tools and colours.
- SA people have a long-term orientation towards relationships and achieving goals in life.
- SA people have more individualistic perceptions. They tend to lack a group ethic.
- The context and the actual transmitted message both have equally important roles for a successful communication process in SA.

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## **8. Acknowledgments**

The authors wish to thank the National Research Foundation and the NMMU for the financial support to conduct this research.

## **e-Government: living up to the challenge of culture context**

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### **Abstract**

e-Government is a global technology transfer taking designs from one context into a different context. This paper finds that the context of design inscribed into e-Government systems in both explicit and implicit ways can produce a mismatch with the context in which it is used. This creates a contextual impact that can often lead to e-Government failure. Several studies exploring factors including national cultures of information and communication technology adoption have been conducted. The focus of this paper differs from other studies in that it considers a specific cultural dimension, namely the South African culture context. Using Hofstede's cultural model of cultural difference, this research conducted an analysis of a sample of the South African population to determine their culture context and their Web usage versus Government Web site usage preferences. The findings indicate to what extent culture context should be considered when designing the South African Government Web site.

**Keywords: e-Government, culture, Web design, usability, culture context**

### **1. Introduction**

e-Government can be defined as “the use by Government agencies of information technologies (such as Wide Area Networks, the Internet, and mobile computing) that have the ability to transform relations with citizens, businesses, and other arms of Government” [1]. As both national and local Government step up their online service delivery, design is becoming

increasingly important. It should be noted however, that design in the context of the Web is not primarily about visual things - aesthetics, layout, colour - but about a dynamic interaction between users (citizens and other bodies) and an organisation (Government) providing a service. The more sophisticated e-Government becomes the more important it will be to understand interaction-based design and factors related to that.

In South Africa, similar to other countries, expectations of Government and their agencies have risen dramatically. Citizens not only want the privacy and security protection that are part of the Government mission, they also have come to insist on the same efficiency, convenience, and service orientation that they experience in their dealings with private sector companies. In 2004, the SA Government launched phase one of its “people first” Internet gateway, giving individuals, organisations and foreigners a single entry point to Government services and information, organised according to user needs rather than Government structures.

Differences in culture, as found by Hofstede [2] shows that there are significant differences between nations, that can lead to differences between national groups within the same organisation, which can cause those groups to either understand knowledge differently or have significant barriers to participating in the sharing of knowledge. We must understand that culture is a unique component that is so deeply imbedded into people’s lives that our ignorance of it usually leads to failures. Systems created to improve an organisation’s performance should use all possible information about culture to escape mistakes being made due to lack of cultural awareness and understanding.

This paper will discuss how the cultural-context dimension impacts Web site development in general. It also elaborates on how to determine the cultural-context profile of a country and how this should be accommodated from a Web design perspective. The results from a survey on the cultural-context classification of South African citizens will be presented. It also discusses the detail of the culture-context classification of South African citizens and then concludes with some of the most important findings of the research up to date.

## **2. Culture context**

The dimension of culture context is regarded as a communication tool that helps in understanding cultures. It is not a comprehensive way in which to understand culture and its relationships towards communication and conflict but it does assist in understanding how different groups of people make

sense of their own worlds [3]. This cultural dimension basically focuses on two concepts, communication and context.

Hall [4] classifies a culture as being either high- or low-context. This will depend on the degree to which meaning comes from the words that are being exchanged in a communication or from the setting (context) in which the communication is taking place [5].

In a low-context culture, the surrounding context has no influence at all in the communication event. It is the message itself that provides all the meaning [6]. In these cultures, communication occurs predominantly through explicit statements in text and speech. In a high-context society, cultures will assign great value and meaning to many of the stimuli that surround an explicit message [6] and verbal messages, on their own, have very little meaning.

The cultural-context dimension is useful in describing certain aspects of a society or culture. Yet, it is still difficult to say whether a country is of a high- or low-context nature. This is because there are both, high- and low-context situations, values and characteristics in all societies [7]. In most cases, people are able to function at both ends of these continuums. All people engage in both high-context and low-context communication. Most of the time people tend to be somewhere close to the middle of the continuum. At certain times, people rely, to some extent, on context and other times on the literal meaning of words [3]. However, depending on the characteristics of the culture and its society, it will be classified as being either more low- or high-context.

### **3. Web design and culture context**

The dimension of culture context has already been discussed in relation to its significance within a society, which is more from an anthropological perspective. This dimension will now be discussed in terms of its role within Web design (or generally software design), which is evidently more from an ICT perspective. Once this has been achieved, the SA Government Web site will then be used as a case study in order to determine if the cultural context design features and practices do stand within the South African population and as a result, can it improve the overall SA Government Web site.

#### **3.1 Low- and high-context Web design**

A research study that was undertaken on the various McDonald's Web sites [8] has identified five parameters, which make the design differences more apparent in Web sites that are designed for low- and high-context cultures respectively. All these parameters relate to the design styles and features used for the development of a Web site (or for any software product in general). These are summarized in Table 1:

Table 1: Characteristics for low- and high-context design [8]

<b>Parameter</b>	<b>Tendency in High-Context Cultures</b>	<b>Tendency in Low-Context Cultures</b>
Animation	High use of animation, especially in connection with images of moving people.	Lower use of animation, mainly reserved for highlighting effects (e.g., of text, active links, logos).
Promotion of values	Images promote values characteristic of collectivistic societies (e.g., being in good physical shape, spending time with family and friends).	Images promote values characteristic of individualistic societies (e.g., individuals are portrayed being in more relaxed situations, such as holidays or listening to music – value personal time).
Individuals separate or together with the product	Featured images depict products and merchandise in use by individuals.	Images portray lifestyles of individuals, with or without a direct emphasis on the use of products or merchandise.
Level of transparency	Links promote an exploratory approach to navigation on the Web site; process-oriented.	Clear and redundant cues in connection with navigation on a Web site; goal-oriented.
Linear vs. parallel navigation on the Web site	More of a montage/layer-upon-layer approach. Many sidebars and menus. Opening of new browser windows for each new page.	More of a tabular and functional approach. Few sidebars and menus. Constant opening in same browser window.

Figure 1 is an example of how these parameters are built into the design of a Web site. Figure 1 portrays the parameter which focuses on the promotion of values. The figure depicts two different McDonald's Web sites with the first image representing the McDonald's Web site in Switzerland, which is regarded as a low-context culture. The second image is from the McDonald's Web site in India, which is regarded as a high-context culture. It is noticeable that the Swiss site emphasizes personal time while the Indian site emphasizes spending time with family. These values are elaborated on in Table 1.



Figure 1: Examples of Web design for low- and high-context [8]

Hofstede's cultural dimensions of short- vs. long-term orientation and individualism vs. collectivism are closely aligned to Hall's culture-context cultural dimension. This is because individuals from low-context cultures are largely individualists and short-term orientated with regards to achieving goals and to the relationships that they create. On the other hand, individuals' from high-context cultures are more collectivist (value group sense and achievement) and long-term orientated. To demonstrate this more clearly Figure 2 shows two versions of the Siemens Web site: the German and Chinese versions. The German version of the Siemens Web site is typical of a Western corporate layout. The emphasis is on a crisp layout and a clean functional design that will help users achieve their goals quicker. This is associated with short-term oriented individuals and as a result to low-context cultures. However, the Chinese version of the Siemens Web site, requires the users to be more patient in order to achieve their navigational and functional goals [9]. This is associated more with long-term oriented individuals and as a result to high-context cultures.

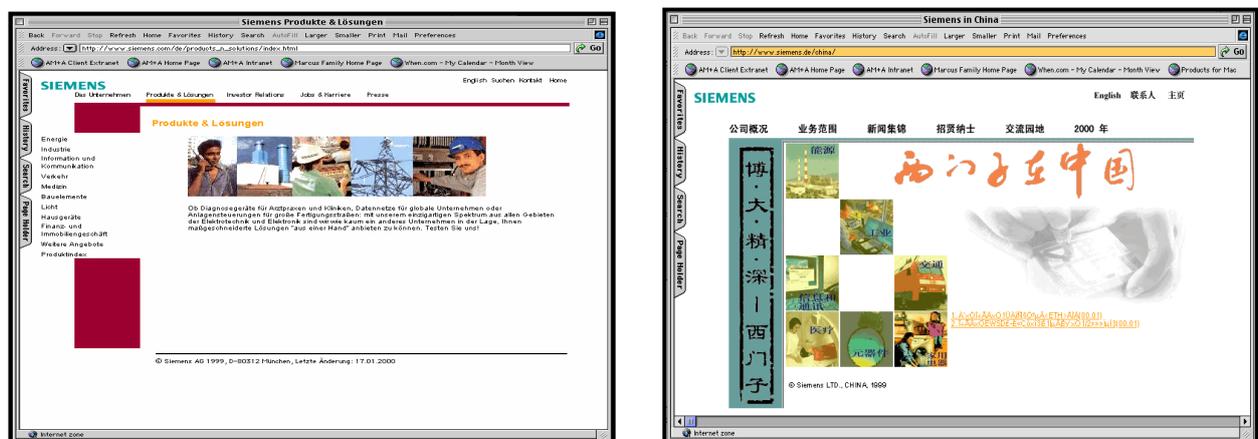


Figure 2: Examples of Web design for short- vs. long-term orientation [9]

There are a number of values and characteristics that are useful to consider when designing software products for both, low- and high-context cultures. The values themselves are withdrawn from the society itself and are determined by the way a culture perceives and understands life. There is a general indications as to which countries are classified as low- and high-context cultures [10].

Table 2: Considerations for high- and low-context software design [11], [12]

<b>High-Context Features</b>	<b>Low-Context Features</b>
Polychronic aspects of time	Monochronic aspects of time
Multiple use of images and/or banners	Less use of images and/or banners
Multiple use of links (external links promote a collectivist nature, working together)	Less use of links
Use of Flash features	Hardly uses Flash features
Being polite and indirect	Being direct and even confrontational
Create a friendly relationship with the customer (Soft-sell approach)	Sales orientation (Hard-sell approach)
Use of aesthetics to promote emotions (harmony, beauty, nature, art, designs)	Direct communication (focus on rank and prestige, superlatives, terms and conditions)

A study which investigated Hall's high-/low-context dimensions as they relate to Web design indicates that there is an adoption of high-context preferences within high-context societies, as well as an adoption of low-context preferences within low-context societies. Yet, these cultural values may be more clearly observed in the design of Web sites where non-durable goods are advertised (e.g., fast food). It is more difficult to identify the high-/low-context cultural values on Web sites that are advertising durable goods and industrial goods [13].

#### **4. The case study**

This research is based on three sources of information. First, we undertook a literature survey of relevant literature in the areas of culture, Web design and Government Web design. Thereafter we developed an online survey (available in Appendix A) containing the usage aspects of general purpose Web sites, as well as the SA Government Web site. A sample size drawn from various parts of SA contributed to the findings of the survey. The third source of information is an expert review of which the results are in the analysis phase.

##### **4.1. The SA Government Web site**

The SA Government Web site ([www.gov.za](http://www.gov.za)) is currently in stage 4 of e-Government development. This is referred to as the Transactional stage [14] during which complete and secure transactions

can occur. Actions like obtaining visas, birth and death certificates, licences and permits can all be done online as well as the paying of, for example, parking fines, vehicle registration fees, utility bills and taxes. There may also be the use of digital signatures facilitate procurements and do business with Government through secure sites with user passwords. It is important to remember that SA has only recently entered this stage and it will take some time before all the functionalities are available. The home page of the SA Government Web site is displayed in Figure 3.

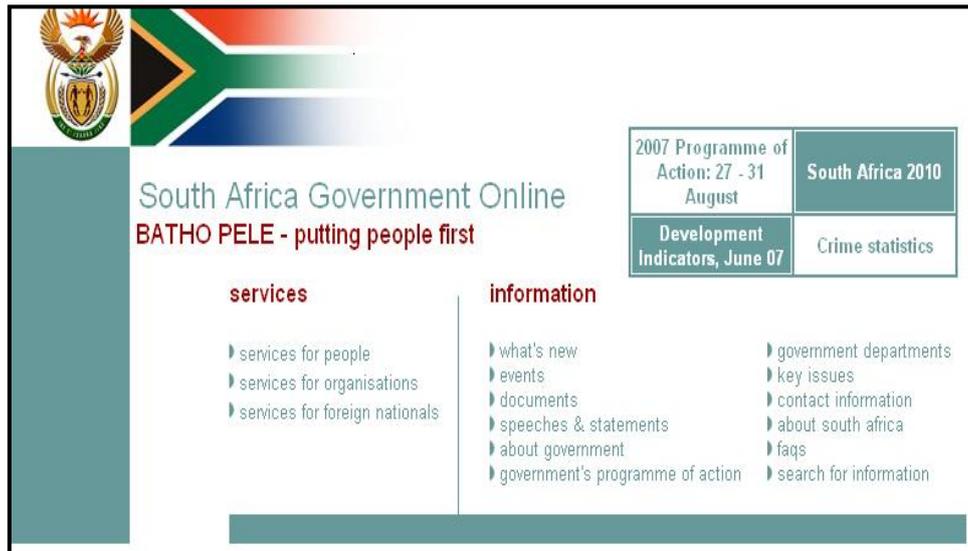


Figure 3: Home page of the South African Government Web site [15]

The SA Government Web site is also referred to as the Batho Pele Gateway Portal, which means putting people first. The aim of the initiative is to enhance the service and accessibility of Government services for the public. The site itself is also targeting a wide range of audiences. This includes the broad public, intermediaries (Government officials and other) for providing the information to the broader public and the media. Other targets are the national, provincial and local Government officials, private sector organizations and businesses, as well as the international community [15]. In terms of its design structure, the site is up to four layers in depth. The home page is divided into two main parts (or categories) which are associated with services and information.

#### 4.2 The South African profile

A survey was conducted in the form of an online questionnaire which included four main sections which focused on the following aspects:

- **Section1:** Biographical information about the South African citizens.

- **Section 2:** Culture-related behaviour in Internet usage with the focus on the South African participants' cultural behavior when using the Internet in general. This relates to the use of any type of Web site ("all purpose Web sites").
- **Section 3:** Culture-related behaviour for Government Web sites. It focuses on the South African participants' cultural behavior when using specifically the South African Government Web site.
- **Section 4:** General culture-related behaviour. The focus is on the South African participants' cultural behavior in everyday life and situations. This section has no relation to ICT and typically describes aspects of how South Africans understand and relate to three critical life values: time, communication and individualism (all questions are associated with the cultural-context dimension either directly or indirectly).

The questionnaire was used to answer some of the following research questions:

- Is South Africa a high- or low-context culture?
- Do South Africans prefer high- or low-context designed Web sites for their general Internet usage ("all purpose Web sites")?
- If South Africans do generally prefer high-context designed Web sites, does this also apply to the South African Government Web site (or to all Government Web sites in general)?

### 4.3 The participant profile

The questionnaire was available online and was accessible to any South African citizen. It was available for a period of 8 weeks and was sent to some 200+ individuals across South Africa. The total number of participants that completed it were 71 (36% return rate).

Demographics such as gender, home language, education level, age, occupation and province of residence had no bearing on the selection of a typical participant. The aim was to get the opinions of all diverse South African citizens. However, there was a question that examined the frequency of use of the SA Government Web site and the results showed that it was very limited and almost non-existent in many of the cases. This may have an impact on the results for section 3 of the survey, which focuses on Government Web sites.

The results from the biographical section show that the participants were mostly male, preferred to speak English, had a tertiary qualification and were mainly between the ages of 20 and 35. They

usually accessed the Government Web site once or twice a year. The intention was not to involve participants with a specific profile, but to represent the diverse population of South Africa.

#### **4.4 SA culture-context classification**

The survey results confirm that there are no major differences in the manner in which South Africans use and understand Government and All Purpose Web sites. This also applies to their preferences, in terms of the design features and aspects that are used on both these type of Web sites. This implies that the general South African user does not require a different approach in the design and representation of a Government Web site when compared to an All Purpose Web site. Single-sample t-tests were conducted on each section as well as a Pairwise t-test which was used to compare equivalent questionnaire items for both Government and All Purpose web sites. The results of the Pairwise t-test are displayed in Table 3. Factor analysis was also conducted on items in Section 4 (items 4.11 – 4.24), which evaluated the cultural-context dimension directly.

In brief, the Pairwise t-tests take the two corresponding items, from Government and All Purpose Web sites and then compares them (“Variable” column). The five-point Likert scale, which was used in the online questionnaire, is now treated as an interval scale. The mean responses (“Mean” column) for the two cases are then tested for statistical and practical significant differences. The rest of the columns are then used to calculate the difference (“Effective size” column) when a question is asked from an All Purpose and then Government Web site perspective. Once the difference is determined, it is categorized as being either of a small, medium or large effect size. This is known as Cohen’s  $d$  [16]. The purpose of the effect size is to determine if there are items of practical significance as well and not only of statistical significance. Practical significance exists when the effect size is of a medium size or larger. In terms of the results, there was only one case where the difference was of a medium effect size.

The design features and aspects of the Web site guide the users and help them achieve their goals. The methods used and preferred by the participants themselves when trying to achieve their goals on the site, help distinguish whether it is of a high- or low-context nature.

Questions from sections 2 and 3 examined among others, four essential characteristics of Internet usage: accomplishing objectives, searching for information, design features to improve understanding and the use of multimedia content. There were a number of questions relating to each one of these characteristics. Table 4 summarizes the participants’ responses.

Table 3: Measuring the preferences in the design features of Government vs. All Purpose Web sites

\* Statistically significant difference at the 5% level (p-value is less than 0.05)

\*\* Practically significant difference (medium or larger scale effect size)

Variable	Mean	Std.Dv.	N	Diff.	T	df	p	Effect size
Q2-1 Q3-1	2.58 2.06	1.20 0.95	67	0.52	3.688	66	*0.0005	**0.44 (Medium)
Q2-2 Q3-2	2.62 2.68	1.25 1.17	69	-0.06	- 0.394	68	0.6951	-0.05 (Small)
Q2-3 Q3-3	2.85 2.49	1.31 1.13	67	0.36	2.673	66	*0.0095	0.27 (Small)
Q2-5 Q3-5	1.75 1.82	0.99 0.97	67	-0.07	- 1.093	66	0.2785	-0.08 (Small)
Q2-6 Q3-6	1.95 1.88	1.15 0.99	65	0.08	0.582	64	0.5625	0.07 (Small)
Q2-8 Q3-7	2.93 2.76	1.03 1.05	67	0.16	1.169	66	0.2465	0.16 (Small)
Q2-9 Q3-8	3.56 3.62	1.12 1.12	66	-0.06	- 0.552	65	0.5830	-0.05 (Small)
Q2-10 Q3-9	3.79 3.70	1.34 1.36	66	0.09	0.668	65	0.5065	0.07 (Small)
Q2-11 Q3-10	2.67 2.67	1.03 1.15	66	0.00	0.000	65	1.0000	0.00 (Small)
Q2-13 Q3-11	2.40 2.75	1.05 1.16	68	-0.35	- 2.857	67	*0.0057	-0.34 (Small to Medium)
Q2-15 Q3-13	4.19 3.96	0.89 1.02	67	0.24	2.157	66	*0.0346	0.27 (Small)
Q2-17 Q3-14	2.25 2.24	1.15 1.15	68	0.01	0.139	67	0.8899	0.01 (Small)
Q2-18 Q3-15	2.64 2.89	1.10 1.12	66	-0.26	- 2.132	65	*0.0368	-0.23 (Small)
Q2-21 Q3-16	1.66 1.88	0.71 0.90	67	-0.22	- 2.072	66	*0.0422	-0.32 (Small to Medium)

Table 4: High- vs. low-context cultural status in achieving goals on a Web site

Question Items	Goals	Culture-Context Status
2-2, 2-3, 3-2, 3-3	Accomplishing objectives (tasks)	Low-Context
2-1, 2-8, 2-21,	Finding information	Low-Context

3-1, 3-7, 3-16		
2-4, 2-18, 2-23, 3-4, 3-15, 3-17	Better understanding the content	High- and Low-Context (multimedia and text)
2-6, 2-13, 2-14, 3-6, 3-11, 3-12	Amount of multimedia content and colour usage	Low-Context

Section 4 of the online questionnaire determined and classified the cultural profile of the South African population. The questions related to the following research questions:

- What are South Africans perceptions of time (relates to polychronic vs. monochronic cultural dimension of Hall, which mainly focuses on the use and understanding of time and the time-orientation cultural dimension of Hofstede, which mainly focuses on the relationships they create and how they achieve objectives)?
- Are South Africans more of an individualist or of a collectivist nature within society and life in general (relates to the individualism vs. collectivism cultural dimension of Hofstede)?
- What are South Africans perceptions with regards to the communication process (relates to the culture-context cultural dimension of Hall)?

Table 5 summarizes the participants' responses for the items in section 4. Depending on the participants' status for each culture dimension, they are then classified as either high- or low-context in terms of the cultural-context dimension. This is determined by the common characteristics and values that are shared between the four cultural dimensions. Table 6 displays the factor analysis that was conducted for the items that measure the cultural-context dimension specifically in Section 4. Once the factor analysis was completed those factors were then subjected to a single sample t-test. Although the test has not been included in the paper, Table 5 displays the outcome of these results (the test focuses on items 4-11 to 4-24).

Table 5: High- vs. low-context cultural status of participants derived from Question 4 items

<b>Question Items</b>	<b>Culture Dimension</b>	<b>Culture Dimension Status</b>	<b>Culture-Context Status</b>
4-1, 4-2, 4-3	Polychronic vs. Monochronic	Polychronic	High-Context
4-4, 4-5, 4-10	Time Orientation	Long-Term	High-Context
4-6, 4-7, 4-8, 4-9	Individualism vs. Collectivism	Individualism	Low-Context
4-11 to 4-24	Culture Context	High- and Low-Context	High- and Low-Context

Table 6: Results of the factor analysis for the items that measure cultural-context tendencies

\* Loadings which are greater than 0.4 are marked in red font

Variable	Factor Loadings (Varimax normalized)		
	Factor	Factor	Factor
Q4-11	-0.06	0.64	0.01
Q4-12	-0.12	-0.16	-0.40
Q4-13	-0.20	0.70	0.04
Q4-14	0.19	0.45	0.11
Q4-15	0.26	0.50	0.42
Q4-16	0.10	0.26	0.17
Q4-17	0.23	0.40	0.20
Q4-18	0.53	0.06	0.28
Q4-19	0.93	0.07	-0.05
Q4-20	0.11	0.03	0.52
Q4-21	0.06	0.37	0.68
Q4-22	0.65	0.18	0.13
Q4-23	0.54	0.05	0.49
Q4-24	0.47	-0.10	0.34

The three factors that emerged from the factor analysis of the culture-context items were:

- Factor 1 – Items 4-18, 4-19, 4-22, 4-23, 4-24 (Cronbach alpha = 0.79). This factor was then named “The impact the amount of words has in a conversation in SA”. The items that fit into this factor are marked with a red font in the “Factor 1” column.
- Factor 2 – Items 4-11, 4-13, 4-14, 4-15, 4-17 (Cronbach alpha = 0.68). This factor was then named “The expectations of listeners and speakers in the communication process” and the items that fit into this factor are marked with a red font in the “Factor 2” column.
- Factor 3 – Items 4-12, 4-20, 4-21 (Cronbach alpha = 0.58). This factor was then named “The reasons of communication failure”. The items that fit into this factor are marked with a red font in the “Factor 3” column.

These three factors seemed to have acceptable internal reliability as measured by Cronbach coefficient alpha. Although factor three had a relatively small value, it was measured by only three items and was deemed acceptable.

In cases where an item had high loadings (greater than 0.4) on more than one factor, the item was placed in the most sensible factor, based on theoretical grounds. In all cases this was where the loading was the highest. Item 4-16 did not load on any of the three factors and was analysed

separately. It looked at the importance of the surrounding context in a conversation. For this reason the specific item does not fit into any of the factors but is rather analyzed on its own. Item 4-12 shows negative results when applied to all three factors. This item was placed under the “Factor 3” column, in which it had the highest negative result. The reason for this, is that the specific item was a negatively stated question (the word NOT was used and emphasized for this item). As a result, the factor that produces the highest negative value will be the preferred one.

The overall results of the survey imply that South African users tend to prefer more low-context features and styles with regards to the design of Web sites. This applies to all types of Web sites (Government and “All Purpose”). In terms of their cultural behaviour towards life in general they are quite evenly balanced with a slight lean towards a high-context culture. However, SA appears to be more in the middle of the cultural-context spectrum making it difficult to classify as either a clearly high- or low-context culture. The preliminary results of this study contradict the commonly agreed assumption that countries from Africa are of a high-context nature. SA has a very diverse culture and also no dominant culture which may impact on the results. However, for other African countries, which have a dominant culture, it may be more obvious and clear that they are of a high-context nature.

## **5. Conclusion**

In this paper, we demonstrated that the South African users cannot be classified as being high- or low-context culture. Based on these findings, we conclude with some practical suggestions for improving the delivery of Government information and services using the Internet.

South African users prefer a more low-context design (with regards to features and design styles used). They do not require a different design when using Government vs. All Purpose Web sites. They approach all Web sites in a similar manner. The fact that South African people can adapt better to low-context styles is not only important information for the IT industry. It can also prove to have an impact in other industries and disciplines of which marketing and advertising could benefit most. At the same time, one must not forget that SA tends to be more in the middle of the high- and low-context continuum and in certain cases; a more high-context approach may be preferred. This is due to the result of the cultural diversity within the country (countries in Europe, Middle East etc. should lean towards one side of the scale and be easier to measure because of the lack of this diversity). When deciding on which cultural-context style to use, proper investigation will need to be conducted on the intended users.

It has to be noted that even though the sample population does reflect the composition of the South African population to a large extent, it would be dangerous to generalize the results for the South African population per se. Future research could include a controlled sample group for a specific geographical area within South Africa with the emphasis on various application domains such as e-Government and e-Commerce for example. The results from the expert review are now awaited, as these will help determine guidelines and recommendations when designing software products for high- vs. low-context cultures.

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## 7. Acknowledgements

The authors wish to thank the National Research Foundation and the NMMU for their financial support to conduct this research.

## 8. Note

Appendix A was condensed into two pages for the purpose of this paper. The full questionnaire of 15 pages is available from the authors upon request.

## 9. APPENDIX A: Abbreviated questionnaire

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### 1. BIOGRAPHICAL INFORMATION (detail omitted for purpose of paper)

### 2. CULTURE-RELATED BEHAVIOUR IN INTERNET USAGE

- 2.1** I do not like browsing through a menu on a Web site: I want to go directly to the link containing the information I want to read or the task I need to do.
- 2.2** I prefer a menu system on a Web site that has only one way to reach every page or link on it.
- 2.3** On a Web site, I prefer using a menu system which has only one way to achieve an objective, rather than exploring different possibilities.
- 2.4** Which of the three statements do you agree with most? Menu items should be:
- [a] Presented by text menus rather than icons
  - [b] Presented by icons rather than text menus
  - [c] Presented as a combination of both: text menus and icons
- 2.5** The home page of a Web site should provide the exact information of what is available on the Web site, through each of the relevant links. A wide range of information about the content available on pages and links via the home page is desirable.
- 2.6** I prefer LESS use of animation on a Web site (e.g. banners, images, icons, flash features and logos). It should be used sparingly and only for highlighting effects and purposes (e.g. text).
- 2.7** On a Web site that advertises a certain product, it makes more sense to have images of individuals using that product rather than only images of the product itself.
- 2.8** I prefer an exploratory approach on a Web site which must be designed in terms of a process-oriented style rather than a goal-oriented style.
- 2.9** I prefer a Web site that has many sidebars and menus.
- 2.10** I prefer a Web site that opens new browser windows for each new page rather than one which constantly opens new browser windows in the same browser window.
- 2.11** I prefer a Web site that promotes the multiple uses of links (e.g. external links to other Web sites).
- 2.12** When using a Web site to buy a product, I prefer a Web site that creates a friendly approach and relationship with the customer (soft-sell approach) rather than one that uses a sales-orientated style (hard-sell approach).
- 2.13** I prefer a Web site that makes use of aesthetics to promote emotions (e.g. harmony, art, nature and designs) rather than one that makes use of direct communication (e.g. terms and conditions, focus on rank and prestige of company or organization).
- 2.14** A Web site must be designed with many bright colours, fonts and shapes.

- 2.15** A Web site should always have pop-up window features.
- 2.16** I would prefer using audio messaging or video conferencing technologies to communicate with people on a Web site rather than e-mail, text messaging or instant messaging technologies (if I had the choice).
- 2.17** I am very reluctant to provide any personal details or information when filling out forms on a certain Web site (e.g. when buying a product over the Internet) irrespective of whether the Web site is secure or not.
- 2.18** Symbolic or animated forms of information are easier and quicker to understand and comprehend on Web sites rather than text forms of information.
- 2.19** I like using emoticons to express my feelings when using instant messaging applications (or in any other applications where they are available).
- 2.20** I have multiple instant messaging conversations in parallel.
- 2.21** I prefer using search engines (e.g. search box) rather than browsing for information on a Web site.
- 2.22** I prefer a sales person to use communication tools when contacting me in order to sell a product (e.g. the sales person should personalize sales messages along with their offers).
- 2.23** Which of the three statements do you agree with most? You prefer using a Web site:
- [a] With a higher emphasis on icons rather text and numbers.
  - [b] With a higher emphasis on text and numbers rather than icons.
  - [c] That uses a combination of both.

### **3. CULTURE-RELATED BEHAVIOUR: GOVERNMENT WEB SITE**

- 3.1** I do not like browsing through a menu on a Government Web site: I want to go directly to the link containing the information I want to read or the task I need to do.
- 3.2** I prefer a menu system on a Government Web site that has only one way to reach every page or link on it.
- 3.3** On a Government Web site, I prefer using a menu system which has only one way to achieve an objective, rather than exploring different possibilities (e.g. finding a specific form to complete or reading the latest news on Government issues)
- 3.4** Which of the three statements do you agree with most? Menu items on Government Web sites should be:
- [a] Presented by text menus rather than icons
  - [b] Presented by icons rather than text menus
  - [c] Presented as a combination of both: text menus and icons
- 3.5** The home page of a Government Web site should provide the exact information of what is available on the Web site, through each of the relevant links. A wide range of information about the content available on pages and links via the home page is desirable.
- 3.6** I prefer LESS use of animation on a Government Web site (e.g. banners, images, icons, flash features and logos). It should be used sparingly and only for highlighting effects and purposes (e.g. text).
- 3.7** I prefer an exploratory approach on a Government Web site which must be designed in terms of a process-oriented style rather than a goal-oriented style.
- 3.8** I prefer a Government Web site that has many sidebars and menus.
- 3.9** I prefer a Government Web site that opens new browser windows for each new page rather than one which constantly opens new browser windows in the same browser window.
- 3.10** Government Web sites should promote the multiple uses of links (e.g. external links to other Web sites or institutions).

- 3.11** A Government Web site should make use of aesthetics to promote emotions (e.g. harmony, art, nature and designs) rather than make use of direct communication (e.g. terms and conditions and focus on rank and prestige).
- 3.12** A Government Web site must be designed using colours other than the official Government colours.
- 3.13** A Government Web site should always have pop-up window features.
- 3.14** I am very reluctant to provide any personal details or information when filling out forms on a Government Web site (e.g. completing a form for a passport application or identity document) irrespective of whether the Web site is secure or not.
- 3.15** Symbolic or animated forms of information are easier and quicker to understand and comprehend on Government Web sites rather than text forms of information.
- 3.16** I prefer using search engines (e.g. search box) rather than browsing for information on a Government Web site.
- 3.17** Which of the three statements do you agree with most? You prefer using a Government Web site:
- [a] With a higher emphasis on icons rather than text and numbers.
  - [b] With a higher emphasis on text and numbers rather than on icons.
  - [c] That uses a combination of both.

#### **4. GENERAL CULTURE-RELATED BEHAVIOUR**

- 4.1** I like doing more than one thing at a time and do not always finish one task before attempting the next.
- 4.2** I understand that peoples plans change and that time schedules should be adapted accordingly.
- 4.3** If a friend keeps me waiting, I will be most unhappy about them wasting my time.
- 4.4** I believe in living my life for the moment, rather than planning for the future.
- 4.5** If I do a favour for someone, I expect that person to return the favour when I need it (e.g. if I give a lift to a friend, I expect that friend to give me a lift when I need one).
- 4.6** I would prefer to work on a project on my own, rather than in a group, if there was the same amount of work for me if I worked on the project in a group or on my own.
- 4.7** When doing a project as a group, each member should get the same mark for the project, rather than each member getting assessed individually.
- 4.8** If a lecturer (or manager) disagrees with the work that I have submitted and I feel that I am in the right, I will take it up with them and stand up for my point of view.
- 4.9** Social acceptance is more important to me than self-respect.
- 4.10** When I am learning something new and difficult (e.g. a new software program), I persevere until I understand it, even if the software is not essential to me at the moment.
- 4.11** Listeners should be able to understand what a speaker is trying to express, even when the speaker does not say everything they intend to communicate.
- 4.12** Speakers should NOT expect listeners will figure out what they really mean unless the intended message is stated precisely.
- 4.13** A listener should understand the intent of the speaker from the way the person talks.
- 4.14** Even if not stated exactly, a speaker's intent will rarely be misunderstood.
- 4.15** People should be able to understand the meaning of a statement by reading between the lines.
- 4.16** Intentions not explicitly stated can often be inferred from the context.
- 4.17** A speaker can assume that listeners will know what they really mean.
- 4.18** People understand many things that are left unsaid.
- 4.19** Fewer words can often lead to better understanding.

- 4.20** The context in which a statement is made conveys as much, or more, information than the message itself.
- 4.21** Misunderstandings are more often caused by the listener's failure to draw reasonable inferences, rather than the speaker's failure to speak clearly.
- 4.22** You can often convey more information with fewer words.
- 4.23** Some ideas are better understood when left unsaid.
- 4.24** The meaning of a statement often turns more on the context than the actual words.