A comparison of cultural intelligence between black and white South African leaders

GORDON INSTITUTE OF BUSINESS SCIENCE

Kobus Sauer

99142857

A research project submitted to the Gordon Institute of Business Science, University of Pretoria, in partial fulfilment of the requirements for the degree of Master of Business Administration.

13 November 2008

A. Abstract

Where cross-cultural encounters are often part of daily life in business and social contexts cultural intelligence has become a necessity for our times. This is especially true in a culturally diverse South Africa where it is expected of a leader to competently influence followers coming from a multicultural milieu through exercising multidimensional cultural intelligence capabilities.

The purpose of this research is to create useful knowledge in the cultural intelligence discipline to be able to make recommendations to business in terms of training requirements and selection criteria for employment. This is achieved by identifying and comparing cultural intelligence differences between African black and white South African leaders.

An online self-evaluation cultural intelligence survey was distributed to South Africans by utilising the snowball sampling methodology which resulted in a total of 420 fully completed questionnaire responses within the research boundaries. Statistical analysis of the data reveals a superior self-perceived cultural intelligence of black South African leaders.

The knowledge gained from this research project, puts South Africa in a position to be a benchmark for other countries in future research that will contribute to indispensable knowledge creation in a world where globalisation is no longer a myth, but a stark reality.

B. Declaration

I declare that this research project is my own work. It is submitted in partial fulfilment of the requirements for the degree of Master of Business Administration at the Gordon Institute of Business Science, University of Pretoria. It has not been submitted before for any degree or examination in any other University. I further declare that I have obtained the necessary authorisation and consent to carry out this research.

_____ _____

Kobus Sauer
(99142857)

Date

C. Acknowledgements

I would like to express the utmost gratitude to the all the parties who contributed considerably to the realisation of this research project and the completion of the Master of Business Administration degree. In no particular order, the parties are as follows:

- God through whom all things are possible!
- Anje Ilana Sauer, my wife for all her love, understanding, support, motivation, patience, inspiration and constant supply of coffee over the MBA completion period. You really made the difference, I love you with all my heart!
- Dr. Caren Scheepers, my brilliant research supervisor for her guidance, continuous effort and personal time put into the completion of this research project.
- Dr. Simon Sauer, my father for his guidance, editorial assistance, general support and for the suggestion to undertake the MBA degree.
- Ester Sauer, my mother for all her prayers, support and encouraging conversations that carried me throughout all the tough times.
- Johan Sauer, my brother for his invaluable assistance with the statistics and data analysis, as well as his words of encouragement.
- Liza Botha for assisting with the completion of the statistics.
- Ds. Willie Nel, my father in law for his editorial assistance and all his prayers.

- Ansa Nel, my mother in law for all her constant prayers and support during this period.
- Ken Bain, my manager for his inputs and admirable leadership throughout the completion of the MBA.
- Ford Motor Company of Southern Africa for granting additional study leave to me in order to attend class and write exams during working hours.
- Gordon Institute of Business Science and its entire staff for an excellent programme, as well as the GIBS information centre team that provided the means for efficient research.
- University of Pretoria for an outstanding business school and facilities.
- Adele Bekker, our MBA programme manager at the Gordon Institute of Business Science for always providing a smile when it was needed and for her exceptional management capabilities.
- Friends and rest of my family for all the support and constant invitation to social gatherings throughout the MBA even though you knew I would not be able to attend, it is much appreciated!

D. Abbreviations

Abbreviation		Description
B	-	Behavioural CQ
BSA	-	Black South African leader
C	-	Cognitive CQ
CA	-	Cultural Adaptation
CCAI	-	Cross-Cultural Adaptability Inventory
CJDM	-	Cultural Judgement and Decision Making
CQ	-	Cultural Intelligence (Quotient)
CQS	-	Cultural Intelligence Scale
EQ	-	Emotional Intelligence (Quotient)
GLOBE	-	Global Leadership and Organizational Behaviour Effectiveness
HR	-	Human Resources
IQ	-	Intelligence Quotient
M	-	Motivational CQ
MBA	-	Master of Business Administration
MC	-	Metacognitive CQ
SA	-	South Africa
TNC	-	Transnational Corporation
TP	-	Task Performance
UN	-	United Nations
WSA	-	White South African leader

E. Table of Contents

Description **Pg.**

1. Chapter 1 - Introduction

1.1. Research Title

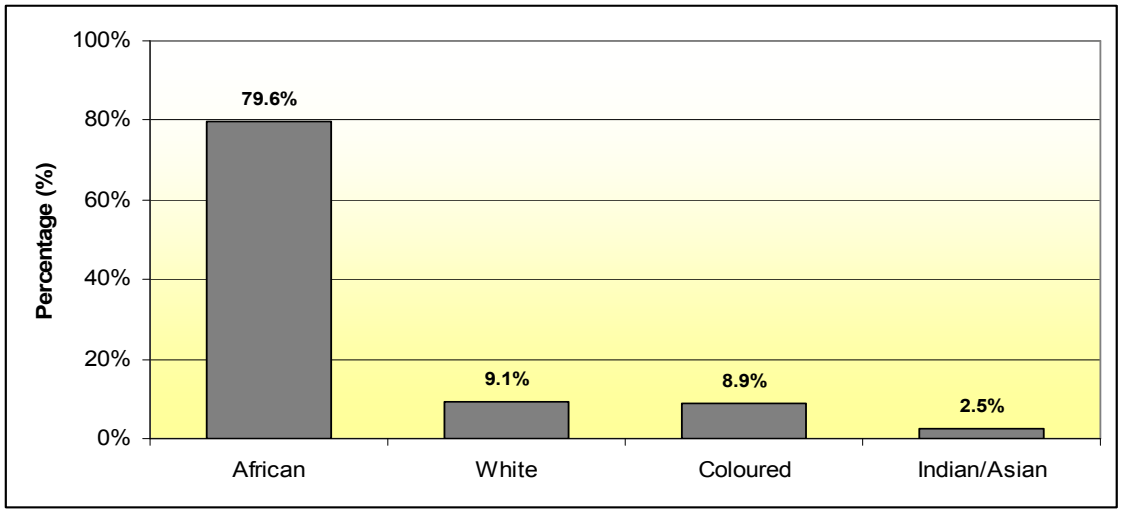
A comparison of cultural intelligence between black and white South African leaders.

1.2. Research Problem

The problem in need of investigation is the fact that South African leaders are often ineffective in leading cultural diverse groups to reach their full potential.

The South African (SA) nation consists of an extreme diverse ethnical population composed mainly of African Black, White, Coloured and Asian race groups. Figure 1 indicates the composition of the total population with Africans accounting for 79.6% (Statistics South Africa, 2007).

Figure 1 – SA Population Composition (Statistics South Africa, 2007)



The ethnic groups can further be broken down into main population groups and subgroups (Table 1) having different languages and traditional cultures among them. Cognisant of this, the South African Government (2008) recognises 11 official SA languages in the Constitution namely English, Afrikaans, isiNdebele, isiZulu, isiXhosa, Sesotho sa Leboa, Sesotho, siSwati, Setswana, Tshivenda and Xitsonga.

Table 1 – SA Population Groups (SA Government, 2008)

MAIN SA POPULATION GROUPS	SUB GROUPS	ETHNIC GROUPS
Nguni	- Zulu - Xhosa - Ndebele - Swazi	BLACK
Sotho-Tswana	- Southern Sotho - Northern Sotho - Western Sotho (Tswana)	
Tsonga	-	
Venda	-	
Khoi/San	-	
Afrikaner	-	WHITE
English	-	
Coloured	-	COLOURED
Indian/Asian	-	INDIAN/ASIAN

According to the South African Government (2008) the religions in South Africa consist predominantly of Christian, Hindu, Muslim, Jewish, Buddhist and Traditional faiths. This wide range of religious faiths in South Africa adds to the social complexity that leaders need to consider when leading a group.

The latter information refers to the local cultural diversity in the South African population as part off, and due to the country's historical background. Kalb, Van Der Land, Wilterdink and Staring (2000), however, state that the social shifts associated with globalisation also have widespread and profound implications for culture in various ways.

Transnational corporations' (TNC) leverage of the globalisation phenomenon by manufacturing where it is most cost effective and selling where it is most profitable, leads to the crossing of international borders to realise this strategy. According to a recent United Nations (UN) (2007) publication there are 218 parent TNC's based in SA, and 641 TNC foreign affiliates located in SA.

It is therefore clear that South African leaders have a vast amount of cultural challenges to overcome in order to ensure effective leadership, not only in the business environment but also in the social context. If managed effectively, this characteristic diversity could unquestionably provide South African businesses with a competitive advantage over its competition. Unfortunately the diversity of this rainbow nation often acts as a barrier to success due to the fact that cultural intelligence is not properly understood.

1.3. Research Aim

The aim of this research is to determine the level of cultural intelligence of African black and white leaders in South Africa. Having established this the

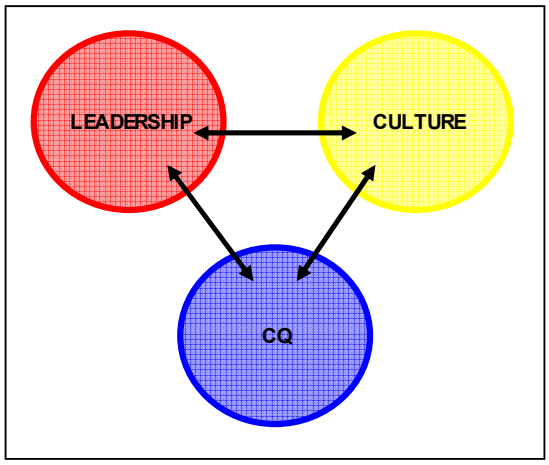
results of the respective groups will be compared to determine whether there are any significant differences between them. The research findings will serve as an indication to businesses as to which South African leaders (black or white) would most probably perform more skilful in a cultural diverse environment or in situations where culture plays a major role.

2. Chapter 2 – Relevant Theory Base

2.1. Introduction

The aim of the literature study is to review the literature on leadership, culture and cultural intelligence to improve the understanding of the relationships between these fields of study (Figure 2).

Figure 2 – Literature review aim



The literature review section will be concluded by discussing the findings from the information gathered to determine the impact of these subject matters on each other.

2.2. Leadership

The concept of leadership is complicated. Even Bass (1997), who is considered to be an expert on the topic of leadership, has pointed out that there is no consistently agreed-upon definition of leadership. According to Bass, Avolio, Jung and Berson (2003), Bass did, however, coin the term transformational leadership in 1985 to describe an adaptive leadership style that enables a leader to cope effectively in a rapidly changing environment.

The four components for transformational leadership are as follows (Bass *et al.,* 2003):

- Idealised influence

Refers to a leadership quality that followers respect, admire and trust, eventually resulting in followers wanting to identify with, and emulate the leader.

- Inspirational motivation

Refers to the behaviour of a leader that leads to the motivation of followers, eventually resulting in increased team spirit.

- Intellectual stimulation

Refers to the ability of the leader to stimulate innovation and creativity among followers, resulting in new ideas and creative solutions to problems.

- Individualised consideration

Refers to the ability of a leader to create a climate that enables followers to grow by making use of coaching and mentoring, whilst recognising individual differences.

Marques (2006) researched leadership qualities and developed a model that he argues is considered applicable regardless of the followers or the situation. The model consists of four main components that a leader should possess in order to influence and lead others effectively. The four elements of this model are set out as follows:

- Passion
- EQ
- Charisma
- Communication

For the purpose of this model a leader's passion consists of different elements including vision, courage, creativity, flexibility, and others. In this model EQ refers to, among others, some of the following leadership abilities namely, open-mindedness, morals, values, integrity and sensitivity.

The third leadership quality of charisma is considered an attribute that immensely enhances a leader's aptitude to influence followers by means of approaching tasks and situations in an unconventional manner.

Lastly, communication is regarded an overarching element of this model and refers to the information exchange (verbal or non-verbal) during an interaction between the leaders and followers.

Research from project GLOBE (Global Leadership and Organizational Behaviour Effectiveness) defined organisational leadership (not leadership in general) as “the ability of an individual to influence, motivate, and enable others to contribute toward the effectiveness and success of the organisations of which they are members” (House, Javidan, Hanges and Dorfman, 2002, p. 3).

It is clear from the leadership literature mentioned above that that leadership is about leaders being able to influence other people in order to achieve specific goals through them.

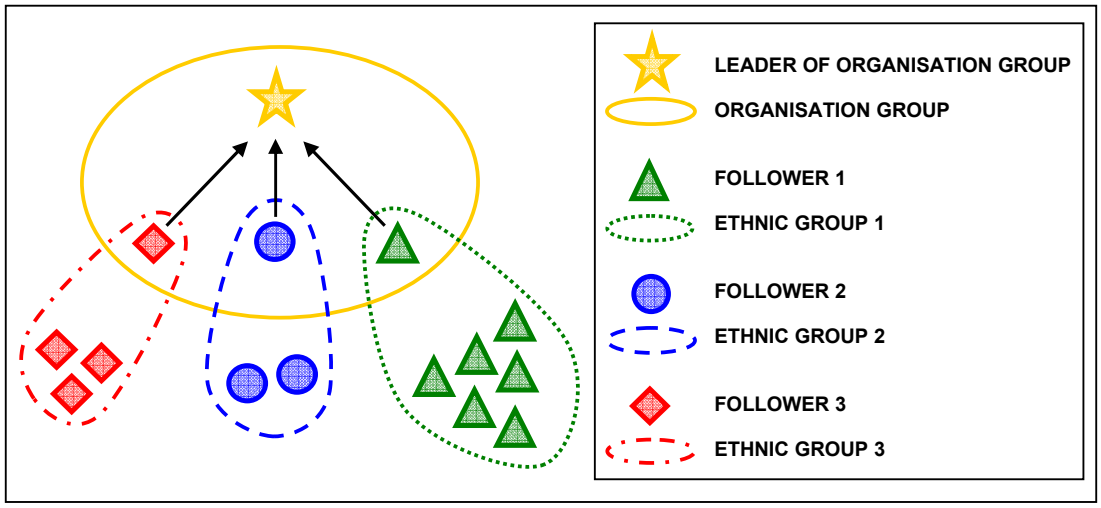
2.3. Culture

If a leader should possess the quality to influence other people to achieve goals through them (see previous section), then Hofstede (1994) is accurate in stating that it is important for a leader to know the people that need to be influenced.

Hofstede (1994, p. 1) defines culture as "the collective programming of the mind which distinguishes the members of one category of people from

another". It could then be stated that it is the responsibility of a leader to ensure proper understanding of the "programming of the mind" of the collective group of followers in order to be effective (and efficient) in leading them. This also implies that the leader should realise when individuals in the group come from different ethnic cultures in order to grasp the characteristics of the "collective programming of the mind" in order to take it in consideration on top of everything else (see Figure 3 for concept illustration). This is especially true of the South African context with its rich ethnic diversity (see Section 1.2). This was confirmed by Hofstede (1994) when he pointed out that culture is not limited to the national level but also applies to the organisational level.

Figure 3 – Different culture dynamics in a group



Condon and Yousef (1975) stated that culture cannot be separated from communication. Triandis (2000) concurs with this when he related culture and

conflict by establishing that cultural distance is one of the major causes that increase the likelihood for miscommunication between people.

The question emerging is how cultural distance can be determined? If leaders are able to identify the gap between cultures and address it accordingly, they would be able to minimise miscommunication. The fundamental elements of culture need to be understood to comprehend the concept of culture as a whole. Hofstede (1994) addressed this dilemma when he dissected national culture into the basic elements labelled as the five dimensions of national culture, namely:

- Power distance

Represents the level of acceptance and expectance by weaker members of the group towards an unequal distribution of power (inequality) within that group. Groups with a high level of power distance will accept unequal power distribution easier than a group with a low level of power distance.

- Individualism versus collectivism

Refers to the extent of the integration of individuals into a group. Individualistic group members expect each member to be able to tend after themselves and their immediate family, where the collectivistic group is more cohesive.

- Masculinity versus femininity

Refers to the role of the sexes in a group, with the masculine role generally representing assertiveness and competitiveness and the feminine role generally representing modesty and caring.

- Uncertainty avoidance

Refers to the level of comfort when group members find themselves in an unstructured situation. The lower the level of comfort, the higher the level of uncertainty avoidance which by and large goes apart with strict rules and regulations.

- Long term versus short term orientation

Represents the level of prioritisation of group members when weighting off dignity fulfilling social responsibilities and respect for tradition (associated with short tem), against persistence and thrift (associated by long term).

Graen and Hui (1996) differentiated between two main culture value differences namely, systematic differences and nominal differences. They define systematic differences as those differences related to social sciences such as fundamental values, philosophies and beliefs. Nominal differences refer to things such as language and customs. Research in a South African context by Booysen (2000) compared cultural differences between black and white South African managers based predominantly on the cultural

dimensions of Hofstede (1994) mentioned earlier. The dimensions used in this study were as follows:

- Uncertainty avoidance
- Assertiveness
- Gender egalitarianism
- Future orientation
- Power distance
- Collectivism
- Humane orientation
- Performance orientation

These dimensions differ in three aspects from the dimensions by Hofstede (1994). Firstly, Booysen (2000) split the "Masculinity versus femininity" dimension into two dimensions called "Assertiveness" and "Gender egalitarianism".

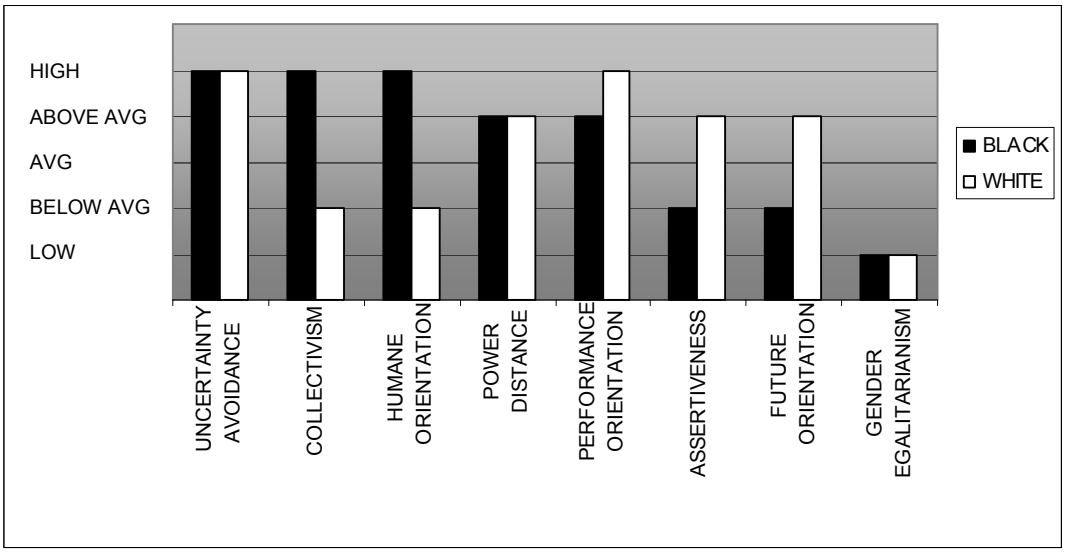
Secondly, she added a test dimension called "Humane orientation" referring to the level that people are persuaded (and rewarded) by society for being altruistic, fair, generous, kind and gentle towards others. This dimension is closely related to the "Collectivism versus individualism" dimension.

Lastly, she included the "Performance orientation" dimension, reflecting the drive for moderate risk taking, importance placed on education and reward for

exceptional scientific accomplishments as well as entrepreneurial acts. This dimension together with the "Future orientation" dimension (planning for events versus living for the moment) is closely related to the "Long term versus short term orientation" dimension.

The results from the study by Booysen (Figure 4) give a clear indication as to how different the cultural differences are between black and white SA managers. Booysen (2000) show that black managers are highly orientated towards the softer side (humanitarian) of business, where the white managers are performance orientated.

Figure 4 – Cultural Differences (Black and white SA Managers)



In summary, Booysen (2000, p. 1) states "It is recommended that South African leaders need to understand the different cultural expectations of all its people, and leadership need to South Africanise in order to mobilise people effectively".

2.4. Cultural Intelligence

Research by Alon and Higgins (2005) suggests that there are three fundamental types of intelligences that global business leaders should possess, namely:

- IQ, or intelligence in terms of logical and rational thinking also including aspects such as verbal and quantitative intelligence.
- EQ, or emotional intelligence.
- CQ, or cultural intelligence

The definition of CQ is the "…capability to function and manage effectively in culturally diverse settings" (Ang, Van Dyne, Koh, Ng, Templer, Tay and Chandrasekar, 2007, p. 337). This implies that leaders with high levels of CQ would be more effective in culturally diverse environments.

It might seem as though EQ and CQ are very similar since the former is about the capability of a person to understand emotional information correctly (Mayer and Salovey, 2005). However, Ang *et al.* (2007, p. 339) distinguish between EQ and CQ when stating that "A person with high emotional intelligence in one cultural context may not be emotionally intelligent in another culture". Hence CQ enables leaders in general to be effective in a world where globalisation is no longer just a myth, but also enables SA leaders specifically to consider the differences in ethnic cultures when leading a SA team in business.

Earley and Ang (2003) are the founders of CQ and established that there are four main dimensions to CQ, namely:

- Cognitive CQ

Refers to a person's knowledge obtained from education and practical experience in terms of the ways and norms of cultures (Ang *et al.*, 2007)

- Metacognitive CQ

According to Sun, Zhang and Mathews (2006) metacognition is a part of cognition and refers to a person's awareness of his or her cognitive system and the outcome thereof. Ang *et al.* (2007, 338) defines metacognitive CQ as the "…mental processes that individuals use to acquire and understand cultural knowledge, including knowledge of and control over individual thought processes relating to culture".

- Behavioural CQ

Ang *et al.* (2007) refers to behavioural CQ as the ability to alter actions, verbal and non-verbal, as to comply with the norms and means of a culture when interacting with members from that culture. Whiting (1980) points out that a person learns interpersonal behavioural habits from the environment that is most frequented by that individual. Therefore, in a cultural context it is important for a leader to be exposed to a foreign culture in order for that leader to experience it. The leader's behavioural CQ will however determine

whether that leader will pick up on the appropriate behaviour for that culture, and to what extent.

- Motivational CQ

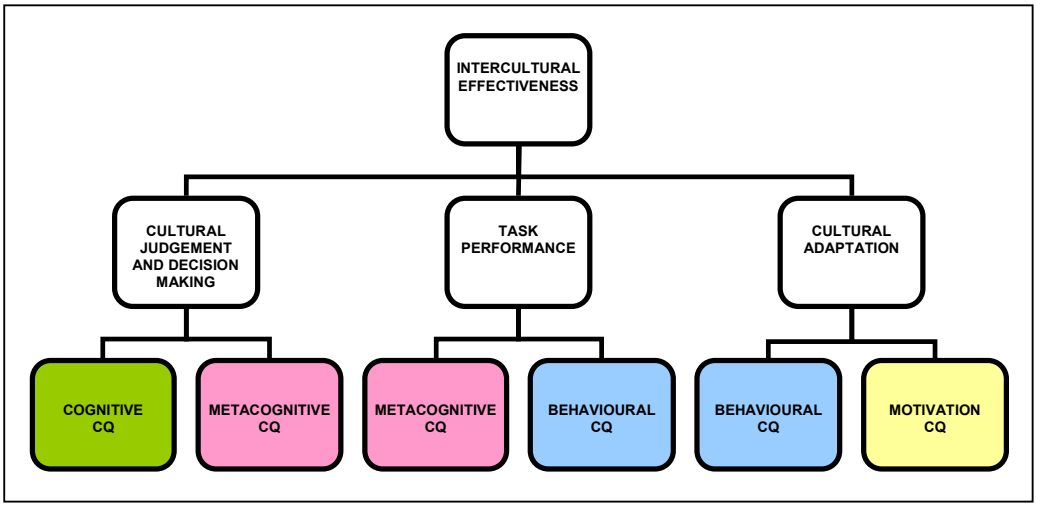
Harriman (1946) utilised research on motivation by Maslow, stating that motivation is one of the determinants for behaviour, to create knowledge on general psychology. That is why Ang *et al.* (2007) applied this reasoning when they included motivational CQ as one of the CQ dimensions. Motivational CQ reflects the capability of a person to direct focus towards learning about other cultures in order to apply those skills to the situation as it is required.

Interestingly there are relationships between the four CQ dimensions and three intercultural effectiveness dimensions as shown in Figure 5 (Ang *et al.*, 2007) on the next page.

Leaders with high levels of both cognitive CQ and metacognitive CQ also rated high on cultural judgement and decision making referring to the quality of decisions made in an intercultural context (Ang *et al.*, 2007).

High levels in metacognitive CQ and behavioural CQ simultaneously, are positively related to task performance reflecting the degree to which a leader meets the role expectations (Ang *et al.*, 2007) in a multicultural setting.

Figure 5 – Intercultural effectiveness determinants (Ang *et al.*, 2007)



The combination of behavioural CQ and motivational CQ determines the level of cultural adaptation abilities that a leader possesses. Cultural adaptation refers to the ability to adapt to an intercultural environment in a social and psychological sense (Ang *et al.*, 2007).

The research on CQ discussed above is some of the most recent on the subject, but another popular cultural assessment tool is the Cross-Cultural Adaptability Inventory (CCAI). Meyers (2008) claims that the CCAI assists a person to adapt to any culture, but Davis and Finney (2006) labels the CCAI as “misspecified” in their factor analytic study of the CCAI. They recommend that the CCAI should not be utilised in order to determine the cross-cultural adaptability of a population.

Rosinski (2003) developed seven levels to deal with cultural differences which he calls "ethnocentric pitfalls". Any organisation should aspire to develop employees to a level where the organisation can benefit from the advantages of diversity by leveraging off members from different cultures. The levels are as follows:

- Level 1: Ignore differences
- Level 2: Recognise differences but evaluate them negatively
- Level 3: Recognise differences but minimise their importance
- Level 4: Recognise and accept differences
- Level 5: Adapt to differences
- Level 6: Integrate differences
- Level 7: Leverage differences

CQ is an important aspect of leadership in business in the modern business world where intercultural interactions are inevitable, hence the comment by Alon and Higgens (2005, p. 510) that “Ultimately, companies that ignore this challenge (of transforming managers into cross-culturally skilled leaders) will find themselves at a competitive disadvantage; individuals who fail to develop their EQ and CQ will likewise suffer”. Cultural Intelligence development is therefore a crucial aspect of a modern leader's development and should be addressed in the work environment.

2.5. Literature Discussion

It was determined that leadership is about influencing other people and that there are three core intelligences (IQ, EQ and CQ) that enables a leader to do this.

In a cultural diverse environment a leader is also required to know what the variables (dimensions) of culture are in order to understand the culture. This includes knowing which dimensions of the culture receive more emphasis than others in that specific culture. Cultural Intelligence enables leaders to make sense of culture in order to be more effective in having influence on followers to achieve goals through them.

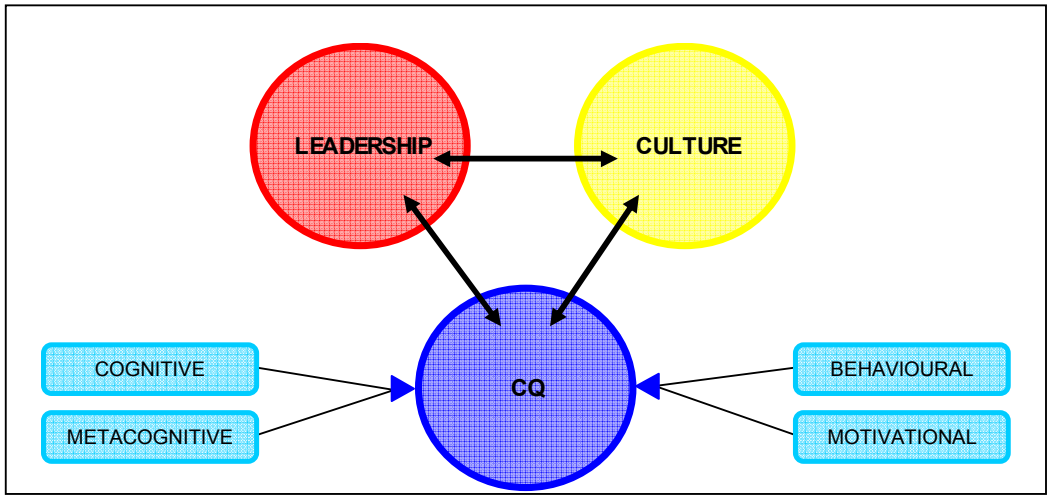
A leader with a high level of CQ would be able to understand the "collective programming of the mind" (or culture) of the group of followers, and be able to adapt accordingly to function effectively in that multicultural environment.

The highly effective transformational leader (Section 2.2) motivates and stimulates followers through behaviour. This leader is strategic (cognitive and metacognitive) in creating an environment for potential success by considering individual differences.

In conclusion, each culture (organisational or national) is different just like each individual is different. Thus it is crucial for businesses with multicultural

teams to place leaders with high levels of metacognitive CQ, cognitive CQ, behavioural CQ and motivational CQ in key positions to ensure success in modern day business (see Figure 6).

Figure 6 – Relationships (Leadership, Culture and CQ)



It is also required of business to ensure that employees are developed in all areas of business for the benefit of the organisation, including "softer" elements such as CQ. The cultural challenges caused by national and international cultural integration should be considered as part of these employee development processes and should be addressed accordingly.

3. Chapter 3 – Research Hypotheses

The hypotheses are based on the four dimensions of CQ and the three intercultural effectiveness determinants discussed in the literature review regarding the questionnaire developed by Ang *et al.* (2007). The hypotheses were tested and analysed statistically after the samples were collected to compare the CQ levels of black and white SA leaders.

3.1. Hypothesis 1

The null hypothesis states that black South African leaders (BSA_{MC}) rank equal to white South African leaders (WSA_{MC}) in metacognitive CQ. The alternative hypothesis states that black South African leaders (BSA_{MC}) rank higher in metacognitive CQ than white South African leaders (WSA_{MC}).

H_0: $BSA_{MC} - WSA_{MC} = 0$

H_A: $BSA_{MC} - WSA_{MC} > 0$

3.2. Hypothesis 2

The null hypothesis states that black South African leaders (BSA_C) rank equal to white South African leaders (WSA_C) in cognitive CQ. The alternative hypothesis states that black South African leaders (BSA_C) rank higher in cognitive CQ than white South African leaders (WSA_C).

H_0: $BSA_C - WSA_C = 0$

H_A: $BSA_C - WSA_C > 0$

3.3. Hypothesis 3

The null hypothesis states that black South African leaders (BSA_M) rank equal to white South African leaders (WSA_M) in motivational CQ. The alternative hypothesis states that black South African leaders (BSA_M) rank higher in motivational CQ than white South African leaders (WSA_M).

H_0: $BSA_M - WSA_M = 0$

H_A: $BSA_M - WSA_M > 0$

3.4. Hypothesis 4

The null hypothesis states that black South African leaders (BSA_B) rank equal to white South African leaders (WSA_B) in behavioural CQ. The alternative hypothesis states that black South African leaders (BSA_B) rank higher in behavioural CQ than white South African leaders (WSA_B).

H_0: $BSA_B - WSA_B = 0$

H_A: $BSA_B - WSA_B > 0$

3.5. Hypothesis 5

The null hypothesis states that black South African leaders (BSA_{TP}) rank equal to white South African leaders (WSA_{TP}) in task performance. The alternative hypothesis states that black South African leaders (BSA_{TP}) rank higher in task performance than white South African leaders (WSA_{TP}).

H_0: $BSA_{TP} - WSA_{TP} = 0$

H_A: $BSA_{TP} - WSA_{TP} > 0$

3.6. Hypothesis 6

The null hypothesis states that black South African leaders (BSA_{CA}) rank equal to white South African leaders (WSA_{CA}) in cultural adaptation. The alternative hypothesis states that black South African leaders (BSA_{CA}) rank higher in cultural adaptation than white South African leaders (WSA_{CA}).

H_0: $BSA_{CA} - WSA_{CA} = 0$

H_A: $BSA_{CA} - WSA_{CA} > 0$

3.7. Hypothesis 7

The null hypothesis states that black South African leaders (BSA_{CJDM}) rank equal to white South African leaders (WSA_{CJDM}) in cultural judgement and decision making (CJDM). The alternative hypothesis states that black SA leaders (BSA_{CJDM}) rank higher in CJDM than white SA leaders.

H_0: $BSA_{CJDM} - WSA_{CJDM} = 0$

H_A: $BSA_{CJDM} - WSA_{CJDM} > 0$

3.8. Hypothesis 8

The null hypothesis states that black South African leaders (BSA_{CQ}) rank equal to white South African leaders (WSA_{CQ}) in Cultural Intelligence (CQ). The alternative hypothesis states that black South African leaders (BSA_{CQ}) rank higher in CQ than white South African leaders (WSA_{CQ}).

H_0: $BSA_{CQ} - WSA_{CQ} = 0$

H_A: $BSA_{CQ} - WSA_{CQ} > 0$

4. Chapter 4 – Research Methodology

4.1. Applied Methodology

The research methodology utilised for this research project was applied research since it was undertaken to address a specific problem (Zikmund, 2003) and used inductive reasoning during theory building.

Multiple cross-sectional descriptive research was conducted to determine the CQ level of black (population 1) and white (population 2) SA leaders before comparing the results. Primary data was collected specifically for this quantitative research project.

4.2. Unit of analysis

The unit of analysis was black and white South Africans in leadership positions.

4.3. Population of relevance

This research project had two relevant populations. The first population was black South African leaders (BSA) and the second was white South African leaders (WSA). The population profiles were defined as per Table 2 with ethnic group as the differentiator to split the two populations:

Table 2 – Project populations

CATEGORY	BSA POPULATION	WSA POPULATION
ETHNIC GROUP	Black (African black)	White
GENDER	Male and Female	Male and Female
AGE	25 - 65 years of age	25 - 65 years of age
NATIONALITY	South African	South African
YEARS IN SA	5 years minimum	5 years minimum
TERTIARY EDUCATION	All (including "None")	All (including "None")
EMPLOYED	Yes	Yes
CULTURAL EXPOSURE	Yes	Yes
COMPANY AGE	All	All
COMPANY SIZE	All	All
EXERCISE LEADERHIP	Yes	Yes
MANAGEMENT LEVEL	All	All

For the purpose of this research project the African black ethnic group was referred to as black. A person younger than 25 years of age was regarded as not having the necessary leadership knowledge or experience to participate.

The study was aimed at SA leaders, therefore it was important that the participants had to be of SA nationality and had at least 5 years of life experience in SA. This was to ensure that the participant had the relevant historical, political and national cultural knowledge of SA.

Cultural exposure referred to whether the participants were in contact with people from cultures other than their own in their work environments, hence all participants had to be employed as well.

Avolio (1999, p. xi) states "…leadership represents the relationship between at least two people", thus the leader and another person. Subsequently it was deemed sufficient for this project if participants exercised leadership (hence influenced, motivated and enabled, House *et al.* (2002)) on at least one person as part of their job description, regardless of whether these individuals were direct or indirect subordinates of the participants.

Further data was collected in five additional fields to ensure sufficient demographical data. Both male and female candidates were allowed to take part in the study and tertiary education was not compulsory. Management level was asked in the questionnaire although the level of employment did not affect the respondent's validity to participate. Data regarding the company size and age where the participants are employed, were also collected.

4.4. Sampling Method and Size

The sampling method utilised for data collection was the snowball sampling method described by Zikmund (2003) as a methodology making use of

probability to collect additional samples based on the information shared with the original samples.

A grand total of 616 candidates completed the internet based CQ questionnaire in full of which 420 of these responses fell within the specifications for this study (Section 4.3). The final sample size from the black South African (BSA) group totalled at 125 valid responses and those from the white South African (WSA) group at 295. Therefore, adequate sample sizes were obtained for statistical tests to be validly applied.

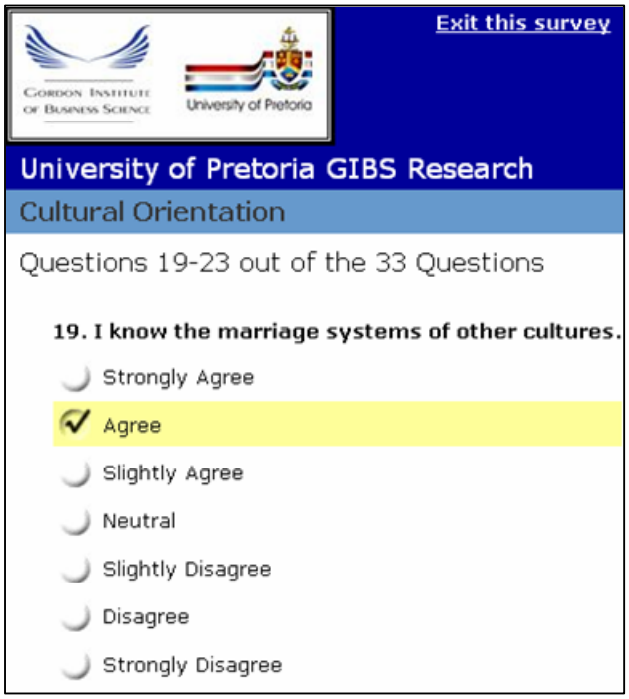
4.5. Data collection process

Data collection was accomplished by making use of a CQ questionnaire called the Cultural Intelligence Scale (CQS) developed by Ang *et al*. (2007). Appendix A shows the questions categorised in the different CQ dimensions and Appendix B shows the final CQ questionnaire in MS Excel format where the latter questions are randomly shuffled, including questions for collecting demographical information for each participant.

The participants had to rate themselves on each of the CQS questions by making use of a seven point Likert scale as per the authors. This questionnaire was converted into an online questionnaire before distribution

thereof, in order to simplify the data collection process as well as to assist with the anonymity of the respondents (see Figure 7).

Figure 7 – Online Questionnaire



Ang *et al.* (2007, p. 359) confirm validity of the questionnaire when stating that "Cross-validation analysis provide strong support for the validity and reliability of the CQS across samples, time and countries".

Edwards, Roberts, Clarke, DiGuiseppi, Pratap, Wentz and Kwan (2002) researched strategies to follow, and general questionnaire characteristics that would result in an increased response rate of postal questionnaires sent out to a population.

The former information was compared to the research done by Deutskens, De Ruyter, Wetzels and Oosterveld (2004) on response rate determinants of internet based (online) questionnaires (see Table 3).

Table 3 – Postal and online questionnaires (response rate increase)

POSTAL QUESTIONNAIRES	INTERNET BASED QUESTIONNAIRES
Designing questionnaires to be short	Designing questionnaires to be short
Utilisation of monetary incentives	Making use of vouchers for a long questionnaire
Making the questionnaire personal	Making use of lotteries for a short questionnaire
Making use of coloured ink	Enhancing a questionnaire with visual elements and interaction
Recording delivery of the questionnaire	
Utilisation of stamped return envelopes	
Utilisation of first class post	
Contacting participants before sending the questionnaire to them	
Follow up contact with participants	
Questionnaires originating from universities rather than commercial organisations	
Saying that society will benefit if participants return the questionnaire	
Saying that participants will benefit if participants return the questionnaire	

Since this research study was a voluntary study, no monetary incentives, vouchers or lottery systems were used. The nature of a CQ study tend to be

somewhat personal since it measures some form of personality traits of the respondent, hence it was expected that this factor would interest participants as to increase the response rate. The term "cultural intelligence" was, however, not utilised during the request for the candidates to complete the questionnaire, it was replaced with the term "cultural orientation" (see letter for consent in Appendix C). This was done in an attempt to prevent the participants to rate themselves abnormally high due to the fact that their intelligence is being measured.

Elements from both these studies (Edwards *et al.*, 2002 and Deutskens *et al.*, 2004) in Table 3 were utilised to assist with the design of the data collection process. As mentioned earlier it was decided that the cultural intelligence questionnaire would be distributed to participants as an online questionnaire. The fact that it was an online questionnaire most probably increased the response rate due to the ability for the participants to interact with it.

Approximately 380 initial candidates identified by the researcher was informally, but by name, informed via individual e-mails that they will receive a formal request to participate in a study regarding culture in the near future and that it would be greatly appreciated if they could complete and redistribute the questionnaire. A second e-mail containing the formal letter for consent (Appendix C) and the web link for the online questionnaire was then sent to each of these participants.

The formal letter for consent informed the participants that the study forms part of an academic master degree at the University of Pretoria in order to create knowledge that could eventually be utilised to the benefit of society. The participants were also informed that this questionnaire could create awareness in terms of the available tactics to be utilised to improve their personal leadership effectiveness in a cultural diverse environment. Within three weeks of the first two personal request e-mails, a bulk follow-up e-mail was sent to all the former candidates to serve as a reminder to complete and redistribute the questionnaire.

4.6. Data analysis approach

- Calculating Cultural Intelligence (CQ)

To calculate a CQ score for each respondent, it was necessary to allocate a value to the answers provided. Therefore the categorical data was converted to ordinal data with the higher value allocated towards the higher level of agreement with each of the survey statements (see Table 4).

Table 4 – Data conversion

CATEGORICAL DATA	ORDINAL DATA (VALUE)
Strongly Agree	7
Agree	6
Slightly Agree	5
Neutral	4
Slightly Disagree	3
Disagree	2
Strongly Disagree	1

As it was discussed in the literature review section of this document (Section 2.4), CQ consists of four dimensions namely Metacognitive CQ (MC), Cognitive CQ (C), Motivational CQ (M) and Behavioural CQ (B). The CQS survey used for data collection consists of 20 questions in total with four questions testing for Metacognitive CQ, six questions testing for Cognitive CQ, five questions testing for Motivational CQ and five questions testing for Behavioural CQ. An average score was calculated for each CQ dimension to determine a value for each.

It is important to note that the number of questions per CQ dimension does not indicate the weight of the dimension in the calculation of the overall CQ score. This determination is important since in the CQ questionnaire there are for example, only four metacognitive questions but six cognitive CQ questions. The authors of the CQS (Ang *et al*., 2007) initially identified 40 items (10 per CQ dimension) for the survey which were reduced to the 20 items mentioned above through a comprehensive series of specification searches to retain the best ones. It is therefore clear that each CQ dimension carries an equal weighting (25%) in the overall CQ score. The overall CQ score was calculated with the following formula for each respondent:

$$CQ = ((MC_1+MC_2+MC_3+MC_4) / 4) + ((C_1+C_2+C_3+C_4+C_5+C_6) / 6) + ((M_1+M_2+M_3+M_4+M_5) / 5) + ((B_1+B_2+B_3+B_4+B_5) / 5)$$

Utilising the CQ formula above together with the ordinal data values for responses to each survey item, the final CQ score can range from a minimum of 4 to a maximum of 28.

Intercultural effectiveness determinants were discussed in the literature review section of this document where Ang *et al*. (2007) determined that different combinations of the four CQ dimensions determined different aspects of intercultural effectiveness (see Figure 5).

Intercultural effectiveness through cultural judgement and decision making (CJDM) is determined by the level of Metacognitive CQ and Cognitive CQ in combination. The formula that was used to calculate the CJDM score is as follows (CJDM scores range from 2 to 14):

$$CJDM = ((MC_1+MC_2+MC_3+MC_4) / 4) + ((C_1+C_2+C_3+C_4+C_5+C_6) / 6)$$

Intercultural effectiveness through task performance (TP) is determined by the level of Metacognitive CQ and Behavioural CQ in combination. The formula that was used to calculate the TP score is as follows (TP scores range from 2 to 14):

$$TP = ((MC_1+MC_2+MC_3+MC_4) / 4) + ((B_1+B_2+B_3+B_4+B_5) / 5)$$

Intercultural effectiveness through cultural adaptation (CA) is determined by the level of Motivational CQ and Behavioural CQ in combination. The formula that was used to calculate the CA score is as follows (CA scores range from 2 to 14):

$$CA = ((M_1+M_2+M_3+M_4+M_5) / 5) + ((B_1+B_2+B_3+B_4+B_5) / 5)$$

Each CQ score was converted to a percentage of the maximum score in order to simplify comparison of CQ scores. Since the range for the total CQ score is 4 to 28 (discussed above), it is noteworthy to mention that a total CQ score of 4 is equivalent to 0% since it is the minimum score to be obtained. A total CQ score of 28, which is the maximum total CQ score, is equivalent to 100%. The same process is followed with intercultural effectiveness CQ determinants and CQ dimensions. Therefore, a Cultural Adaptation CQ (score of range 2 to 14) score of 2 represents 0% with a 14 score representing 100%, and a Motivational CQ (score range 1 to 7) score of 1 is equivalent to 0% as opposed to a score of 7 that is equivalent to 100%.

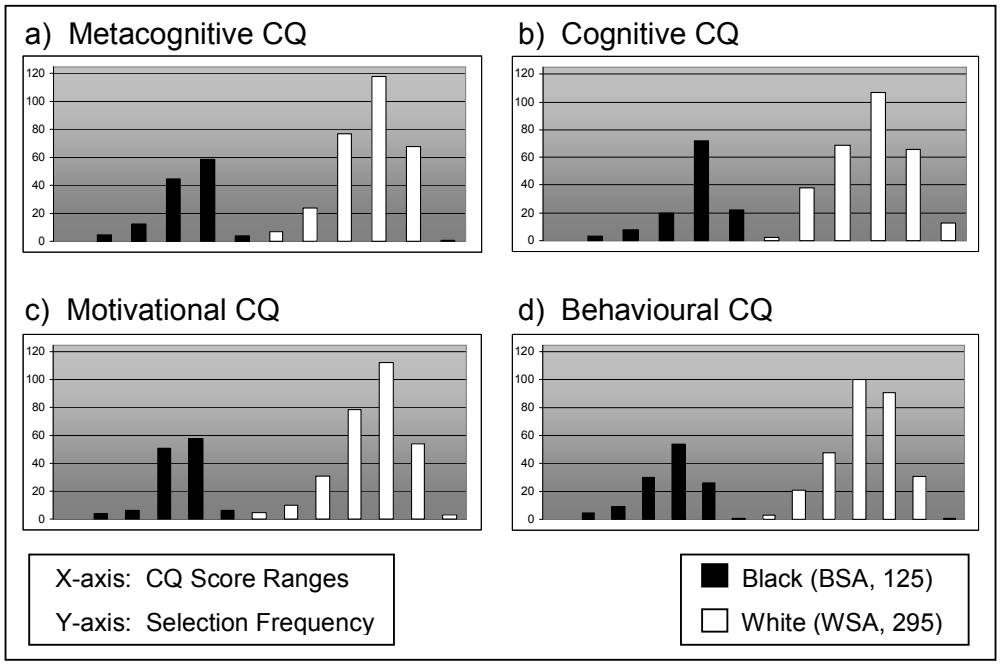
- Statistical testing

For the purpose of data analysis one-way independent sample hypothesis testing with formalised statistical tests were utilised in contrast to distribution free tests. These tests assume independent samples with underlying normal distributions, or at least symmetrical distributions if the sample sizes are large.

The underlying assumptions of normality were investigated graphically (Figure 8), and the sample sizes were found to be more than adequate and symmetrically distributed.

Since the test statistics were sufficiently normally distributed, a number of relevant statistical tests were utilised. These tests included the Z-test for difference in means for large samples (in conjunction with the p-value), F-test for differences in variance for large samples (in conjunction with the p-value) and multivariate linear regression analysis (Steyn, Smit, Du Tiot and Strasheim, 1995). These tests will be discussed during this section of the document.

Figure 8 – Graphical normality investigation (frequency graphs)



The difference of means test for large independent samples for a normally distributed test statistic (Z-test) requires a sample size of at least 100 (Steyn *et al.*, 1995) and was the first statistical test that was utilised for the CQ data analysis. This test could be utilised for this study since the sample sizes for this study were large (BSA sample size of 125 and WSA sample size of 295).

Table 5 – Z-test

FORMULA	DISTRIBUTION
$Z = \frac{\overline{X}_1 - \overline{X}_2}{\sqrt{\frac{S_1^2}{n_1} + \frac{S_2^2}{n_2}}}$	n(0, 1)

The Z-test value together with the p-value was then used as an indicator to substantiate the level of significance for the differences in means between the BSA and WSA samples.

The F-test variance equality test for testing the variances of independent samples (normally distributed test statistic) was utilised to determine whether the variances of the two samples were equal or not. The level of significance for the differences in variances between the samples was then tested by making use of the F-test value together with the p-value.

Table 6 – F-test

FORMULA	DISTRIBUTION
$F = \frac{S_1^2}{S_2^2}$	$F(n_1 - 1, n_2 - 1)$

Evidence of sample bias was tested with the Goodness of Fit F-test for correlation test that is F distributed. The p-value (significance indicator for outcome) utilised in the tests discussed above is expressed in a percentage instead of a decimal number for ease of interpretation, hence the value of 0.05 would for example be expressed as 5%. A p-value can statistically speaking not be equal to 0%, hence any p-value smaller than 0.01 is simply referred to as "less than 1%". In layman's terms, a p-value of a statistical test of less than 1% can be interpreted as follows: If it was to be inferred (from a Z-test value) that the BSA has higher self-rated metacognitive CQ than the WSA, the probability of drawing an incorrect conclusion would be less than 1%. Table 7 shows the predictor variable categories and levels that were tested as described above.

Table 7 – Predictor variable categories and levels

CATEGORY	LEVELS
ETHNIC GROUP	- Black
	- White
GENDER	- Female
	- Male
YEAR OF BIRTH	- 1943 to 1949
	- 1950 to 1959
	- 1960 to 1969
	- 1970 to 1979
	- 1980 to 1983
TERTIARY EDUCATION	- None
	- Course Certificate
	- National Diploma
	- Bachelors Degree
	- Masters Degree
	- PHD
	- Other
MANAGEMENT LEVEL	- Employee
	- Middle management
	- Top management

4.7. Potential Research limitations

The research methodology followed aimed to reduce the research limitations as much as possible, but the following limitations could not be prevented:

- The CQS is a self-evaluation survey, which means that the outcome is a result of the self-perception of the respondents regarding CQ. Furnham, Callahan and Akande (2004, p. 283) states that "The importance of studies of self-estimated intelligence lies not only in exploring lay theories of intelligence but also of understanding the possible self-fulfilling nature of self-evaluations of ability". This does not mean that self-evaluations is necessarily inaccurate, but it would be interesting to see how the results will be effected if a 360 degree survey was utilised. The CQS is, however, at this stage only available as a self-evaluation questionnaire.
- This intelligence research is conducted utilising members from different cultures, and that in itself is a limitation that is worth mentioning. The reason for this is that the meaning of intelligence may differ from one culture to another (Furnham, Callahan and Akande, 2004).
- The BSA population consists of further sub groups (see Table 1) which might have had an influence on the results.
- It is noteworthy to mention that it is dangerous to draw absolute conclusions from statistical testing in the field of psychology where there are "grey areas" due to the complexity of the human mind. It is less challenging, but arguably less interesting to apply statistics to objective experimental results in chemistry or physics.

5. Chapter 5 – Results

The choice of data analyses performed was dependent on the nature of the study. This section of the document shows the results of the hypothesis testing discussed above. The data analysis process for this study included the following tests in the sequence specified below:

- Z-test for differences in mean of independent large samples
- F-test for differences in variance of independent large samples
- Test for correlation

Firstly, all the levels within each predictor variable category (Table 7) were tested against the other levels in the category by utilising the Z-test for testing the differences in means. Thus, to determine differences in the self-evaluation results between different subjects, i.e. black vs. white, young vs. older, etc. Thereafter the F-test was used to test the significance in variances, only for those predictor variable categories with statistically significant differences in means. Thirdly, a test for correlation between predictor variables was performed to identify statistical multi-colinearity. This test was performed to highlight the fact that statistical analysis can only reveal association and not causality.

The underlying assumptions for the applicableness of all the statistical tests were evaluated and in all cases below were found to be valid. An example of such an assumption was the underlying normality of observed sample values.

5.1 Results for Hypothesis 1: Black versus White

Table 8 shows the Metacognitive CQ results for the Black South African leader (BSA) and White South African leader (WSA) sample groups. Respondents from BSA obtained a Metacognitive CQ score of 79% (5.7), where WSA respondents scored lower with 69% (5.1) in Metacognitive CQ. The overall average Metacognitive CQ score is 72% (5.3) for both groups.

Table 8 – Metacognitive CQ Results

DESCRIPTION		METACOGNITIVE (MC)	MC AS %
Average	Overall	5.3	72%
Average x1	White	5.1	69%
Average x2	Black	5.7	79%
Variance x1	White	0.9	
Variance x2	Black	0.6	
Size x1	White	295	
Size x2	Black	125	
Z (B-W)	B-W	6.8	
p-value	B-W	less than 1%	
F (B-W)	B-W	0.7	
p-value	B-W	less than 1%	

The Z-test value (B-W) is calculated at 6.8 with a p-value of less than 1%, indicating that BSA self-rated statistically significantly higher in Metacognitive CQ than WSA. The WSA sample group variance of 0.9 turned out to be higher than the 0.6 variance of the BSA sample group even though the WSA size (295) is more than double the size of the BSA (125). The difference in variance is highly significant with an F-test value (B-W) of 6.8 and a p-value of less than 1%.

5.2 Results for Hypothesis 2: Black versus White

Table 9 shows the Cognitive CQ results for the Black South African leader (BSA) and White South African leader (WSA) sample groups. Respondents from BSA obtained a Cognitive CQ score of 70% (5.2). WSA respondents scored a lower 53% (4.2) in Cognitive CQ. The average Cognitive CQ score for the groups is 58% (4.5), which is the lowest overall CQ dimension score.

Table 9 – Cognitive CQ Results

DESCRIPTION		COGNITIVE (C)	C AS %
Average	Overall	4.5	58%
Average x1	White	4.2	53%
Average x2	Black	5.2	70%
Variance x1	White	1.1	
Variance x2	Black	0.8	
Size x1	White	295	
Size x2	Black	125	
Z (B-W)	B-W	10.3	
p-value	B-W	less than 1%	
F (B-W)	B-W	0.7	
p-value	B-W	2%	

The Z-test value (B-W) is calculated at 10.3 with a p-value of less than 1%. It is therefore clear that BSA scored statistically significantly higher in Cognitive CQ than WSA on a self-rating basis. The WSA sample group with a sample size of 295 once again produced a higher variance value of 1.1 compared to the 0.8 variance of the 125 samples from the BSA group. This difference in variance is statistically significant with an F-test value (B-W) of 0.7 and a p-value of 2%.

5.3 Results for Hypothesis 3: Black versus White

Table 10 shows the Motivational CQ results for the Black South African leader (BSA) and White South African leader (WSA) sample groups. The Motivational CQ score for the BSA respondents was calculated at 80% (5.8) which is also higher than the 66% (5.0) Motivational CQ score of the WSA respondents. The overall average Motivational CQ score is 70% (5.2).

Table 10 – Motivational CQ Results

DESCRIPTION		MOTIVATIONAL (M)	M AS %
Average	Overall	5.2	70%
Average x1	White	5.0	66%
Average x2	Black	5.8	80%
Variance x1	White	1.3	
Variance x2	Black	0.6	
Size x1	White	295	
Size x2	Black	125	
Z (B-W)	B-W	8.8	
p-value	B-W	less than 1%	
F (B-W)	B-W	0.5	
p-value	B-W	less than 1%	

The difference in self-evaluated Motivational CQ between BSA and WSA is statistically significant with a Z-test value (B-W) of 8.8 and a p-value of less than 1%. The larger WSA sample group (295 respondents) shows a higher variance of 1.3 compared to the 0.6 variance of the smaller BSA sample group (125 respondents). The F-test value (B-W) of 0.5 together with the p-value of less than 1% confirmed that the difference in variance between the two samples is statistically significant.

5.4 Results for Hypothesis 4: Black versus White

Table 11 shows the Behavioural CQ results for the Black South African leader (BSA) and White South African leader (WSA) sample groups. Respondents from BSA obtained a Behavioural CQ score of 68% (5.1), where WSA respondents scored lower with 60% (4.6) in Behavioural CQ. The overall average score for Behavioural CQ is 63% (4.8) for the total sample.

Table 11 – Behavioural CQ Results

DESCRIPTION		BEHAVIOURAL (B)	B AS %
Average	Overall	4.8	63%
Average x1	White	4.6	60%
Average x2	Black	5.1	68%
Variance x1	White	1.2	
Variance x2	Black	1.0	
Size x1	White	295	
Size x2	Black	125	
Z (B-W)	B-W	4.5	
p-value	B-W	less than 1%	
F (B-W)	B-W	0.8	
p-value	B-W	9%	

The Z-test value (B-W) is calculated at 4.5 with a p-value of less than 1%. It therefore shows that BSA scored significantly higher in self-evaluated Behavioural CQ than WSA. The WSA sample group with a sample size of 295 produced a higher variance value of 1.2 compared to the 1.0 variance of the BSA group (125). A p-value of 9% signifies a reasonable certainty as to the difference in variation of the two groups.

5.5 Results for Hypothesis 5: Black versus White

Table 12 shows the Task Performance CQ results for the Black South African leader (BSA) and White South African leader (WSA) sample groups. Respondents from BSA obtained a Task Performance CQ score of 73% (10.8). WSA respondents scored a lower 64% (9.7) in Task Performance CQ. The average Task Performance CQ score is calculated at 67% (10.0).

Table 12 – Task Performance CQ Results

DESCRIPTION		TASK PERFORMANCE (TP)	TP AS %
Average	Overall	10.0	67%
Average x1	White	9.7	64%
Average x2	Black	10.8	73%
Variance x1	White	3.4	
Variance x2	Black	2.5	
Size x1	White	295	
Size x2	Black	125	
Z (B-W)	B-W	6.1	
p-value	B-W	less than 1%	
F (B-W)	B-W	0.7	
p-value	B-W	3%	

The difference in self-rated Task Performance CQ between BSA and WSA is statistically significant with a Z-test value (B-W) of 6.1 and a p-value of less than 1%. The WSA sample group (295) has a variance of 3.4 compared to the 2.5 variance of the BSA sample group (125). The difference in variance between the samples results in an F-test value (B-W) of 0.7 and a p-value of 3%, hence it confirms that the difference is statistically significant.

5.6 Results for Hypothesis 6: Black versus White

Table 13 shows the Cultural Adaptation CQ results for the Black South African leader (BSA) and White South African leader (WSA) sample groups. The BSA sample group managed a Cultural Adaptation CQ score of 74% (10.9), where WSA sample group scored 63% (9.6) in Cultural Adaptation CQ. An average Cultural Adaptation CQ score of 67% (10.0) was calculated for the total sample.

Table 13 – Cultural Adaptation CQ Results

DESCRIPTION		CULTURAL ADAPTATION (CA)	CA AS %
Average	Overall	10.0	67%
Average x1	White	9.6	63%
Average x2	Black	10.9	74%
Variance x1	White	3.2	
Variance x2	Black	2.2	
Size x1	White	295	
Size x2	Black	125	
Z (B-W)	B-W	7.7	
p-value	B-W	less than 1%	
F (B-W)	B-W	0.7	
p-value	B-W	1%	

A Z-test value (B-W) of 7.7 with a p-value of less than 1% indicates a highly significant difference in means between the samples, with BSA coming out on top. The WSA sample group with a sample size of 295 ended up with a higher variance of 3.2 compared to the 2.2 BSA variance of group size 125. This difference in variance is statistically significant with an F-test value (B-W) of 0.7 and a p-value of 1%.

5.7 Results for Hypothesis 7: Black versus White

Table 14 shows the Cultural Judgement and Decision Making (CJDM) CQ results for the Black South African leader (BSA) and White South African leader (WSA) samples. Respondents from BSA obtained a CJDM CQ score of 75% (10.9), where WSA respondents scored lower with 61% (9.3). This results in an average CJDM CQ score of 65% (9.8) for the total sample.

Table 14 – Cultural Judgement and Decision Making CQ Results

DESCRIPTION		CJDM	CJDM AS %
Average	Overall	9.8	65%
Average x1	White	9.3	61%
Average x2	Black	10.9	75%
Variance x1	White	3.3	
Variance x2	Black	2.1	
Size x1	White	295	
Size x2	Black	125	
Z (B-W)	B-W	9.8	
p-value	B-W	less than 1%	
F (B-W)	B-W	0.6	
p-value	B-W	less than 1%	

The Z-test value (B-W) for self-evaluated CJDM is calculated at 9.8 with a p-value of less than 1%, indicating a significant difference in means. The WSA variance of 3.3 is higher than the 2.1 variance of the BSA even though the WSA sample size (295) is larger than that of BSA (125). This difference in variance is indicated as significant with an F-test value (B-W) of 0.6 generating a p-value of less than 1%.

5.8 Results for Hypothesis 8: Black versus White

Table 15 shows the final combined CQ results for the Black South African leader (BSA) and White South African leader (WSA) sample groups. Participants from BSA managed a final CQ score of 74% (21.8) as opposed to the 62% (18.9) of the WSA participants. The average final CQ score is calculated at 66% (19.8).

Table 15 – Cultural Intelligence Results (Final)

DESCRIPTION		CQ	CQ AS %
Average	Overall	19.8	66%
Average x1	White	18.9	62%
Average x2	Black	21.8	74%
Variance x1	White	11.2	
Variance x2	Black	7.4	
Size x1	White	295	
Size x2	Black	125	
Z (B-W)	B-W	9.5	
p-value	B-W	less than 1%	
F (B-W)	B-W	0.7	
p-value	B-W	less than 1%	

The difference in means for the self-evaluated CQ scores between BSA and WSA is indicated as statistically significant with a Z-test value (B-W) of 9.5 and a p-value of less than 1%. Once more the larger WSA sample group (295) proved to have a higher variance of 11.2 compared to the 7.4 variance of the smaller BSA sample group (125). The F-test value (B-W) of 0.7 together with the p-value of less than 1% indicates that the difference in variance is statistically significant.

5.9 Further Exploration

The online questionnaire was designed to collect additional demographical data about the respondents in order to explore further avenues in the data analysis process. This was necessary to establish whether the ethnic group (BSA and WSA) is the only determinant for the differences in CQ levels. Gender, tertiary education, age and management level were the fields that were tested and will be discussed below.

- Gender

Table 16 shows the results for the CQ dimensions, CQ effectiveness determinants and final CQ for the female and male South African leader sample groups. The larger male sample group with a sample size of 266 did not score a significant higher final CQ score of 66% (19.8) compared to the 65% (19.6) final CQ score obtained by the female group of 154 participants.

Table 16 – Results for Gender (CQ)

DESCRIPTION		MC	C	M	B	CJ DM	TP	CA	CQ	CQ AS %
Average	Overall	5.3	4.5	5.2	4.8	9.8	10.0	10.0	**19.8**	**66%**
Average x1	Male	5.4	4.5	5.2	4.8	9.9	10.1	9.9	**19.8**	**66%**
Average x2	Female	5.2	4.4	5.3	4.7	9.6	9.9	10.0	**19.6**	**65%**
Variance x1	Male	0.8	1.2	1.2	1.2	3.3	3.3	3.3	**11.7**	
Variance x2	Female	0.9	1.4	1.2	1.2	3.7	3.4	3.3	**12.4**	
Size x1	Male	266	266	266	266	266	266	266	**266**	
Size x2	Female	154	154	154	154	154	154	154	**154**	
Z (F-M)	F-M	-1.6	-1.2	0.7	-0.1	-1.5	-0.9	0.3	**-0.6**	
p-value	F-M	95%	88%	26%	54%	93%	81%	37%	**74%**	

The Z-test value (F-M) of -0.6 together with a high p-value of 74% confirms that the difference in final CQ scores between female and male South African leaders is not statistically significant. This is also true when the different CQ dimension scores and CQ effectiveness determinants are compared.

- Tertiary Education

Table 17 shows the final CQ results for tertiary education sample groups of the South African leaders in the initial category levels. The CQ score of each tertiary education level was compared to the level below it (for example a Bachelor degree is below a Master degree) in order to determine whether the CQ score increases as the level of education increases.

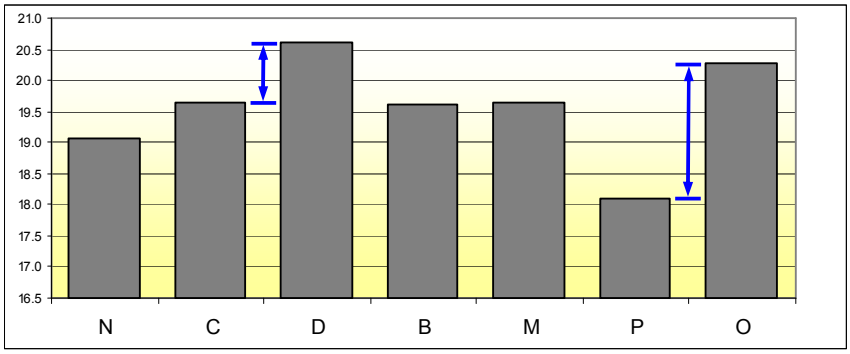
Table 17 – Results for Original Tertiary Education Levels (CQ)

DESCRIPTION		CODE	CQ	CQ AS %
Average	Overall	---	19.8	66%
Average x1	None	N	19.1	63%
Average x2	Course Certificate	C	19.6	65%
Average x3	National Diploma	D	20.6	69%
Average x4	Bachelors Degree	B	19.6	65%
Average x5	Masters Degree	M	19.6	65%
Average x6	PHD	P	18.1	59%
Average x7	Other	O	20.3	68%

COMPARE		Z	p
C/Cert and None	Z (C-N)	0.5	32%
N/Dip and C/Cert	Z (D-C)	1.4	8%
B/Deg and N/Dip	Z (B-D)	-2.3	99%
M/Deg and B/Deg	Z (M-B)	0.0	49%
PHD and M/Deg	Z (P-M)	-1.9	97%
Other and PHD	Z (O-P)	1.5	6%

The Z-test values and p-values of these comparisons revealed that the only tertiary education level comparisons that came close to statistical significance were Z (D-C), hence "Diploma" and "Certificate", and Z (O-P), hence "Other" and "PHD" (see Figure 9). However, the "Other" tertiary educational level cannot be regarded as being of a higher educational level than a PHD since it is unknown.

Figure 9 – Tertiary Education (CQ Results)



See Table 17 for Code descriptions

Further analysis is required before the tertiary education could be dismissed as a determinant for CQ. The data for the participants without any tertiary education and those with only course certificates were combined to form the group with tertiary qualifications shorter than 3 years. The rest (excluding "Other") were regrouped to represent those with qualifications of at least 3 years (Table 18).

Table 18 – Results for the Regrouped Tertiary Education (CQ)

DESCRIPTION		CODE	CQ	CQ AS %
Average x1	Less than 3 years	L3	19.4	64%
Average x2	3 years and more	M3	19.8	66%
Z (L3-M3)	L3 and M3	L3-M3	0.6	
p-value	L3 and M3	L3-M3	27%	

Respondents from the L3 group scored a final CQ score of 64% (19.4) as opposed to the slightly higher 66% (19.8) of the respondents from the M3 group. This difference in means between the two groups was, however, not indicated as statistically significant with a Z-test value (L3-M3) of 0.6 and p-value of 27%.

- Age Groups

Table 19 shows the final CQ results for age (birth year) sample groups of the South African leaders in the initial category levels. The CQ score of the younger age group levels (with "1980 to 1983" birth years being the youngest) was compared to the older age group level just one category older (with "1943 to 1949" birth years being the oldest) as to determine whether the CQ scores increase with the age of participants. The final CQ scores of the age groups ranged between 56% (17.4) and 67% (20.2) as per Table 19.

Table 19 – Results for Original Age Levels (CQ)

DESCRIPTION		CODE	CQ	CQ AS %
Average	Overall	---	19.8	66%
Average x1	1943 to 1949	A1	17.4	56%
Average x2	1950 to 1959	A2	19.4	64%
Average x3	1960 to 1969	A3	19.3	64%
Average x4	1970 to 1979	A4	20.2	67%
Average x5	1980 to 1983	A5	20.1	67%

COMPARE		Z	p
A2 and A1	Z (A2-A1)	1.9	3%
A3 and A2	Z (A3-A2)	-0.1	53%
A4 and A3	Z (A4-A3)	1.9	3%
A5 and A4	Z (A5-A4)	-0.2	59%

There are only two age groups that show statistically significant differences in means. The difference between the "1950 to 1959" birth year group and the "1943 to 1949" birth year group is significant with a Z-test value (A2-A1) of 1.9 and a p-value of 3%. Secondly, the comparison between age groups A4 and A3 resulted in a Z-test value of 1.9 and a p-value of 3%. These CQ results are shown graphically in Figure 10.a.

Figure 10 – Original and Regrouped Age groups (CQ Results)

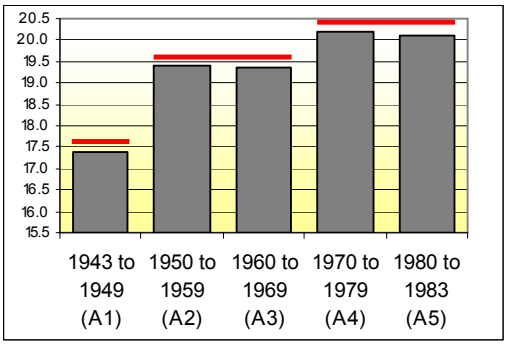


Figure 10.a – Original

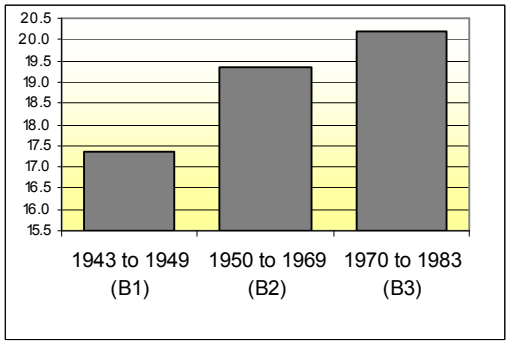


Figure 10.b - Regrouped

It is clear from the graphical illustration in Figure 10.a that the age groups A2 and A3 display similar CQ results, and likewise for age groups A4 and A5. Therefore the former age groups were regrouped to form new age groups called B1, B2 and B3 (Figure 10.b and Table 20).

Age group B1 scored the lowest CQ score of 56% (17.4), group B2 scored a 64% (19.4) and group B3 came out on top with a CQ score of 67% (20.2). The Z-test and p-value was utilised to test for differences in means.

Table 20 – Results for Regrouped Age Levels (CQ)

DESCRIPTION		CODE	CQ	CQ AS %
Average	Overall	---	19.8	66%
Average x1	1943 to 1949	B1	17.4	56%
Average x2	1950 to 1969	B2	19.4	64%
Average x3	1970 to 1983	B3	20.2	67%
	COMPARE		Z	p
	B2 and B1	Z (B2-B1)	2.0	3%
	B3 and B2	Z (B3-B2)	2.3	1%

Age groups B2 and B1 showed statistically significant differences in means between them with a Z-test value of 2.0 and a p-value of 3%. Age groups B3 and B2 also showed statistically significant differences in means between them with a Z-test value of 2.3 and a p-value of 1%.

- Management Level

Table 21 shows the final CQ results for the different management level sample groups of the South African leaders in the original category levels.

Table 21 – Results for Original Management Levels (CQ)

DESCRIPTION		CODE	CQ	CQ AS %
Average	Overall	---	19.8	66%
Average x1	Employee	E	20.3	68%
Average x2	Middle Management	M	19.4	64%
Average x3	Top Management	T	19.9	66%
	COMPARE		Z	p
	M and E	Z (M-E)	-2.1	98%
	T and M	Z (T-M)	1.0	15%

The self-evaluated CQ score of each management level was compared to the level below it to determine whether the CQ score increases as the level of employment increases. The respondents from the employee level ended up with the highest CQ score of 68% (20.3) as opposed to the lowest management level CQ score of 64% (19.4) by the respondents from the middle management level. Top management participants scored an average CQ score of 66% (19.9).

A Z-test value (M-E) of -2.1 accompanied by a p-value of 98% implies that there is no significant statistical difference in means between the respective middle management and employee level CQ scores. This is also true for the difference in means between the participants from the top management and middle management levels with a Z-test value of 1.0 and a p-value of 15%.

Consequently, further analysis is required to determine whether the difference might lie in being a manager or not. Table 22 shows the final CQ results for the regrouped employment level sample groups of the South African leaders. The new grouping was achieved by combining the middle management with the top management to form the new management level (Mgt) group. The employee level (Emp) was not regrouped in any way.

The employee level (Emp) scores are the same as before with a 68% (20.3) CQ score. The management group (Mgt) ended up with a lower 65% (19.6)

CQ score. The Z-test value of -1.9 and p-value of 97% validates that the difference in means between the employee (Emp) and management (Mgt) levels is not statistically significant.

Table 22 – Results for Regrouped Management Levels (CQ)

DESCRIPTION		CODE	CQ	CQ AS %
Average x1	Employee	Emp	20.3	68%
Average x2	Management	Mgt	19.6	65%
Z (Mgt-Emp)	Mgt and Emp	(Mgt-Emp)	-1.9	
p-value	Mgt and Emp	(Mgt-Emp)	97%	

- Ethnic Group versus Age

The only two predictor variables of those tested that were found to have a statistically significant effect on CQ were ethnic group and age. It was necessary to investigate the presence of statistical multi-colinearity or in simple terms, possible sample bias with reference to these two factors. In other words, could it be that most participants from the BSA group are young, and that most participants from the WSA group are old?

Statistical hypothesis testing can only reveal association and not causality. Therefore, it can only indicate an association between high CQ and ethnic group or an association between high CQ and, for example, being young. Even if the young respondent group is found to be statistically significant in terms of its relationship to high CQ, it only means that there is a relationship

between higher CQ and being young, but not a causal relationship i.e. that a person has higher CQ because he is young (the same applies to ethnic group). The correlation between ethnic group and age was investigated to answer the question of whether more BSA participants in the study were young, and whether more WSA participants were of older age groupings.

The R^2 value of the correlation between ethnic group and age is 0.17 (or 17%) which is not an overwhelming correlation but nonetheless statistically significant. The p-value when testing for a null hypothesis of a 0% correlation between the two factors was less than 1% (0.004) indicating a statistically significant correlation.

The following pie charts provide a graphical illustration of the age breakdown within each ethnic group investigated (Figure 11). These charts graphically illustrate that a greater percentage of the BSA group consists out of respondents from a younger age group if compared to the WSA group.

Figure 11 – Years of Birth breakdown comparison (BSA and WSA)

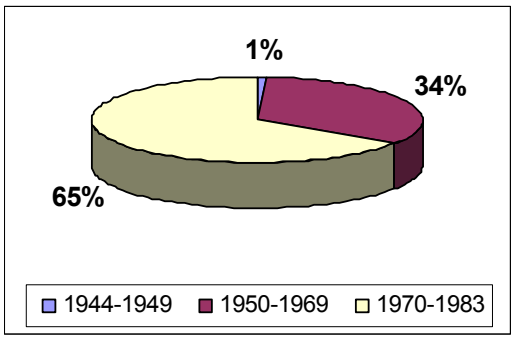


Figure 11.a – Black Respondents (BSA)

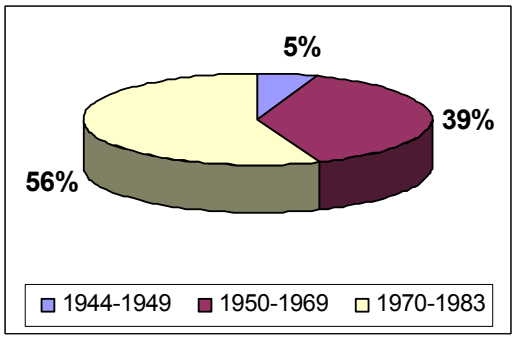


Figure 11.b – White Respondents (WSA)

The statistical analysis confirms that it is in fact significantly certain that the BSA group consists out of more young participants and that the WSA group consists out of more older participants.

6. Chapter 6 – Results Discussion

The purpose of the research on Cultural Intelligence is set out to compare the differences in CQ between black and white South African leaders (BSA and WSA). The findings from this research will serve as guidelines for selection criteria for businesses regarding recruitment and work allocation in a culturally diverse setting.

The results illustrated in Chapter 5 will be discussed in detail throughout this section of the document by means of clustering the analysis around the hypotheses stated in Chapter 3.

Although this research project is focussed on the CQ differences between ethnic groups, some additional findings came to light during the data analysis process. The following predictor variable categories were investigated, additional to ethnic group, as to determine other potential factors that might influence the level of CQ in South Africa:

- Gender
- Tertiary education

- Age
- Management level

(The results for these supplementary tests will be discussed in the latter part of Chapter 6)

A good response rate to the CQS questionnaire resulted in an excellent sample size for this research project. The combination of the snowball sampling method together with an efficient interactive online tick box questionnaire secured a total of 616 responses of which 420 responses fell within the research boundaries and were completed in full. The final sample size for the WSA population totalled 295, and 125 for the BSA population.

The p-value was constantly referred to in the analysis in Chapter 6, hence it is deemed important to provide a swift overview of this test statistic. Normally the p-value should be less than 5% (Z-test or F-test) to be confident that there is a statistical significant difference in the outcomes between two populations, or at most 10% to be reasonably confident.

6.1 Hypothesis 1: Metacognitive CQ (Ethnic Group)

The literature on metacognition (Sun *et al.*, 2006) reveals that it is part of the cognitive system of an individual. For the purpose of this research the term metacognitive CQ refers to a person's understanding of "why" specific aspects

of culture are important, including the control over the thought processes concerning this understanding. The hypothesis for this dimension is set as follows:

Hypothesis 1: H_0: $BSA_{MC} - WSA_{MC} = 0$

H_A: $BSA_{MC} - WSA_{MC} > 0$

The significance of the differences in means between BSA and WSA for metacognitive CQ resulted in a Z-value (B-W) of 6.8 and a p-value of less than 1% (Table 8), representing a statistically significant difference in means between the BSA and WSA scores.

Defining the cause for BSA having higher self-evaluated metacognitive CQ than the WSA is a difficult task because it is such an abstract dimension. Even so, the fact that the environment and the elements thereof are the main sources for impressions formed by a black individual (Madhere, 1989) gives an indication of how the mind of a BSA operates.

The literature also revealed that the BSA is more humane orientated than the WSA (Booysen, 2000). Thus, these two BSA characteristics in combination could explain why a BSA is able to accurately interpret the relationships (or connections) between multiple abstract concepts of a culture.

These relationships would typically include in depth understanding of the (a) concept of "time" (example) in a culture, (b) the importance if this concept in that culture and (c) specifically the development of methods to utilise this understanding strategically in order to influence others.

Following the discussion on the self-evaluated metacognitive CQ data, the null hypothesis (Hypothesis 1) is rejected denoting that BSA rank higher in metacognitive CQ than WSA.

6.2 Hypothesis 2: Cognitive CQ (Ethnic group)

Cognitive CQ refers to the awareness of cultural aspects picked up from previous encounters, or even research about cultures (Ang *et al.*, 2007). Hence, cognitive CQ represents the knowledge in terms of "what" components of a culture are important. The hypothesis is defined as:

Hypothesis 2: H_0: $BSA_C - WSA_C = 0$

H_A: $BSA_C - WSA_C > 0$

This dimension resulted in the largest difference in means between the BSA and WSA of all the CQ dimensions. A large Z-value (B-W) of 10.3 resulted in a p-value of less than 1% indicating a significant difference in means between the 70% score obtained by the BSA and the 53% score of the WSA (Table 9).

Research by Eaton and Louw (2000) indicates that members from a collectivistic culture defines the understanding of the self as variable and flexible, hence altering within different relationships and contexts. It is therefore the makeup of the BSA psyche that causes some kind of experimentation with aspects of cultures that comes natural to the BSA in a cross-cultural interaction. This natural experimentation allows the BSA to constantly increase the amount of cultural information attained in order to adjust the self within the cultural context. A highly developed cognisance of cultural systems and cues also allows greater freedom for strategic exploitation (metacognitive) of this knowledge due to a larger amount of variables to play with.

A further explanation for the final outcome of the self-perception cognitive CQ scores may lie in the amount of BSA exposure to other cultures in South Africa. The history of apartheid caused black South Africans to exist in a culturally foreign environment, resulting in a substantial gain in foreign culture knowledge. A detailed discussion on the effects of South African history follows in the combined CQ results discussion (Section 6.8).

The data on self-evaluated cognitive CQ therefore means that the null hypothesis (Hypothesis 2) is rejected signifying that the BSA rates higher in cognitive CQ than the WSA.

6.3 Hypothesis 3: Motivational CQ (Ethnic Group)

It was established in the literature that motivational CQ enables a person to focus attention on gaining knowledge on cultures (Ang *et al*., 2007). There is also a relationship between motivation and behaviour as it was stated that motivation is one of the determinants for behaviour (Harriman, 1946). For the purpose of this research motivational CQ represents the level of "willingness" to learn and think about a culture as well as behaving accordingly. Following from that, the hypothesis for this dimension is set as follows:

Hypothesis 3: H_0: $BSA_M - WSA_M = 0$

H_A: $BSA_M - WSA_M > 0$

Similar to the previous two discussions, the BSA also self-rated higher in motivational CQ than the WSA with scores of 80% and 66% respectively. The p-value for the differences of means in motivational CQ scores was calculated at less than 1% from a high Z-value (B-W) of 8.8 (Table 10). The former test statistic signifies that the difference in means is in fact statistically significant between the two groups. Although the F-test (B-W) value of 0.5 is the smallest of all dimensions, there is still a significant difference in variation between the motivational CQ scores of the BSA and WSA. The higher variation in the WSA group indicates a higher level of fragmentation of opinion on the matter, e.g. some members from the WSA group are very motivated and others are not at all.

Research by Watkins, Akande and Mpofu (1996) on Africans, indicates that the characteristic of belonging is an important part of the self esteem among sub-Saharan African people. The need to belong is in itself a motivating factor that would drive a BSA to do what is necessary to feel part of a group. The most obvious reason why belonging is important to a BSA, is because it is part of the very DNA of a collectivistic culture, which is all about integration of members for the benefit of the group. If this is compared to the individualistic culture of the WSA, it may be a reason why the WSA scored lower on this CQ dimension. A member from an individualistic culture is expected be independently strong, hence the much lower need (and will) to belong.

The discussion of the self-evaluated motivational CQ data above, thus imply that the null hypothesis (Hypothesis 3) is rejected indicating that the BSA rates higher in motivational CQ than the WSA.

6.4 Hypothesis 4: Behavioural CQ (Ethnic Group)

The level of a leader's behavioural CQ has a substantial impact on performance in cross-cultural interaction since this dimension of intelligence is utilised at the touch point of the encounter. Behavioural CQ determines the ability of a person to adapt verbal and non-verbal aspects of behaviour and for the purpose of this discussion, it refers to "doing" things correctly in the cultural context.

The hypothesis for behavioural CQ is defined as:

Hypothesis 4: H_0: $BSA_B - WSA_B = 0$

H_A: $BSA_B - WSA_B > 0$

Even though this dimension has the lowest Z-value (B-W) of all the CQ dimensions, the value is still regarded as a high. The Z-value (B-W) of 4.5 resulted in a p-value of less than 1% that denotes a statistically significant difference in means between the BSA (68% score) and WSA (60% score) groups (Table 11).

Literature shows that there is a close relationship between motivation and behaviour since the former is one of the determinants for the latter (Harriman, 1946). So, the fact that the BSA has higher motivational CQ (Section 6.3) than the WSA must have some kind of impact on behavioural CQ. It could be that because of the higher motivation to behave appropriately, the BSA creates opportunities to exercise and perfect behaviour of other cultures on a trail-and-error basis. It was also mentioned in the literature that an individual picks up interpersonal behavioural habits from the environment (Whiting, 1980). In a culturally diverse South African context, it means that the interactions with other ethnic groups (cultures) assisted the BSA to develop high behavioural CQ. But why is it that the WSA scored significantly lower in behavioural CQ than the BSA whilst sharing the same environment?

It is argued that the extent of exposure to other cultures is higher for the BSA than for the WSA. This can be seen from Africans acculturating to the western culture. Olowu (1985) stated that African cultures are becoming more individualistic due to increased influence from the west. Watkins *et al.* (1996) confirms this by noting that African schools are predominantly being based on western, individualistic values in modern times. A shift in BSA religion is a very good example of this where 79.8% of black South Africans claim to be Christian compared to the current 0.3% that are still practising traditional African religion (South African Government, 2008). In addition to this, members from the BSA group are part of a complex culture with various sub-categories of ethnic groups (Table 1) each with variations in traditions, languages and gestures.

The self-evaluated data on the behavioural CQ discussed above then means that the null hypothesis (Hypothesis 4) is rejected demonstrating that the BSA rates higher in behavioural CQ than the WSA.

6.5 Hypothesis 5: Task Performance CQ (Ethnic Group)

Task performance CQ is a second level CQ metric that is determined by a combination of two CQ dimensions. The level of task performance CQ is determined by the levels of metacognitive CQ and behavioural CQ of an individual, and is defined as the capability to ensure expectations of a role are

met within a cultural diverse setting (Ang *et al*., 2007). Hypothesis 5 is set out as follows:

Hypothesis 5: H_0: $BSA_{TP} - WSA_{TP} = 0$

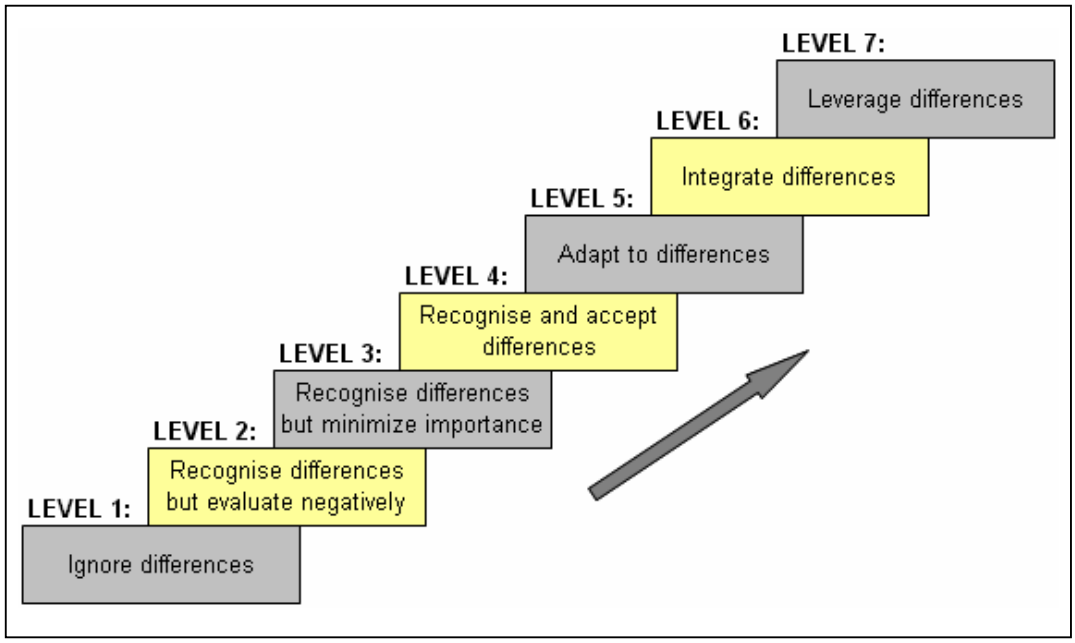
H_A: $BSA_{TP} - WSA_{TP} > 0$

Following the previous discussions, there is no surprise that the BSA (73%) outperformed the WSA (64%) in this metric (Table 12). The high Z-value (B-W) of 6.1 resulted in a p-value of less than 1% for self-evaluated task performance CQ, once again showing a significant difference in means between the BSA and WSA.

The capability of task performance CQ is similar to strategy development and implementation, but in a cross-cultural setting. The reason for the higher task performance CQ rating of the BSA over the WSA is most probably because the perception of value in cultural differences of the BSA is at a higher ethnocentric pitfall level (Rosinski, 2003) than the WSA shown in Figure 12.

A superior metacognitive CQ allows the BSA effective thinking about culture related thoughts, hence the development of more culturally sensitive personal strategies to deal with people from different cultures. The higher behavioural CQ of the BSA depicts a well developed ability to materialise intentions effectively (cross-cultural strategy implementation).

Figure 12 – Value perception of cultural differences (Rosinski, 2003)



The self-evaluated survey data regarding task performance CQ implies that the null hypothesis (Hypothesis 5) is rejected signifying that the BSA rates higher in task performance CQ than the WSA.

6.6 Hypothesis 6: Cultural Adaptation CQ (Ethnic Group)

Cultural adaptation CQ determines a person's effectiveness (and efficiency) of adjusting to an unknown culture or cultural diverse environment in order to function "normally" in the setting. The level of motivational CQ and behavioural CQ in combination determines a leader's cultural adaptation CQ capability (Ang *et al*., 2007).

The hypothesis for testing the cultural adaptation CQ is therefore set out as follows:

Hypothesis 6: H_0: $BSA_{CA} - WSA_{CA} = 0$

H_A: $BSA_{CA} - WSA_{CA} > 0$

The higher self-evaluated behavioural CQ and motivational CQ scores of the BSA ensured a total cultural adaptation CQ rating of 74% compared to the lower 63% score by the WSA (Table 13). The difference in means for the two groups is significant with a p-value of less than 1% and a Z-value (B-W) of 7.7.

It is argued that there are two key causes for this result on the topic of self-evaluated cultural adaptation. Schooling in Africa is the first probable reason. Watkins *et al.* (1996) state that African schools are predominantly modelled on values of individualistic cultures from the west (discussed in Behavioural CQ above). Consequently, the BSA coming from a collectivistic cultural background is taken out of his comfort zone at an early age, and in addition to this his performance is measured in a culturally foreign environment. On the other hand, the WSA is comfortably educated in a culturally familiar milieu which is eventually to the detriment of CQ development within the group.

The second reason probably lies in characteristics of the BSA culture. Rhee, Uleman, Lee, and Roman (1995) found that the self-concept of members from

collectivistic cultures (BSA) is contextualised and socially interrelated. Just the fact that a member from a collectivistic culture bases the self on the context of the environment already indicates the capability to adapt. These two fundamental studies may suggest reasons for the higher BSA cultural adaptation CQ compared to that of the WSA.

The results from the self-evaluated data discussed above show that the null hypothesis (Hypothesis 6) is rejected indicating that the BSA rates higher in cultural adaptation CQ than the WSA.

6.7 Hypothesis 7: Cultural Judgement and Decision Making CQ (Ethnic Group)

Cultural judgement and decision making CQ is determined by the levels of metacognitive CQ and cognitive CQ as a combined unit (Ang *et al*., 2007). This secondary level CQ measurement refers to the ability to accurately evaluate a culture as part of the decision making process before taking action in a cross-cultural scenario. The hypothesis for this dimension is consequently defined as:

Hypothesis 7: H_0: $BSA_{CJDM} - WSA_{CJDM} = 0$

H_A: $BSA_{CJDM} - WSA_{CJDM} > 0$

The BSA has a total self-evaluated CJDM CQ score of 75%, where the WSA only racked up a score of 61% for this category (Table 14). The difference of means between the two groups is found to be statistically significant with a large Z-value (B-W) of 9.8 resulting in a p-value of less than 1%.

Research has shown that black individuals have great interactive modality in social encounters that "…makes their perception of others very accurate but also more shifting" (Madhere, 1989, p. 200). This makes it possible for the BSA to view actions and intentions via a cultural lens as defined by Rosinski (2003), in order to view it as a cultural manifestation instead of a psychological occurrence.

The well developed cognitive CQ and metacognitive CQ of the BSA most probably results in constant evaluation of cultural information as to ensure proper decision making that aligns with the environment. The individualistic culture of the WSA provides little incentive to thoroughly think about a group's cultural information since the focus is on the individual. This often results in a culturally insensitive judgement and decision by the WSA.

Following the discussion on the self-evaluated CQ data, the null hypothesis (Hypothesis 7) is rejected indicating that the BSA rates higher in cultural judgement and decision making CQ than the WSA.

6.8 Hypothesis 8: Cultural Intelligence (Ethnic Group)

Cultural intelligence is determined by the four CQ dimensions discussed earlier in Chapter 6. CQ refers to the ability of an individual to cope effectively in a cross-cultural encounter and the hypothesis for CQ is defined as follows:

Hypothesis 8: H_0: $BSA_{CQ} - WSA_{CQ} = 0$

H_A: $BSA_{CQ} - WSA_{CQ} > 0$

It so turned out that the BSA achieved significantly higher self-evaluated scores in all four CQ dimensions than the WSA. Consequently the BSA sample group totalled a combined self-rated CQ score of 74% versus a mere score of 62% by the WSA sample group. The difference in means between the two samples is statistically significant with a Z-value (B-W) of 9.5 and a p-value of less than 1% (Table 15).

A second interesting aspect of the results reveals itself when the variations (F-test) in CQ scores of the BSA and WSA groups are compared with one another. Even though the BSA sample size (125 respondents) is less than half the size of the WSA sample size (295 respondents), results show that the BSA has a significantly lower variation (p-value of less than 1%) in CQ levels than the WSA with a F-test (B-W) value of 0.7. This is a strong indication that that the BSA group is more of one mind as to their capability to function effectively in a culturally diverse environment than the WSA group. The fact

that some members from the WSA group are very confident and others are not at all confident indicates that some have adapted well to the cultural challenges of South Africa and others have not.

There are a number of probable explanations why the BSA group self-rated higher than the WSA group in these test statistics. Firstly, South Africa's history of apartheid is perhaps one of the most noteworthy and influential factors that caused the BSA to have such a convincingly higher CQ rating than the WSA. During this era all non-white South Africans (including Africans, Coloureds and Asians) were highly exposed to, and in fact forced to exist in a dominant white culture. For instance, in 1976 Afrikaans was introduced as a compulsory medium of instruction in schools for all children in Grade 7 and onwards (Brand South Africa, 2008).

Another contributing factor was the fact that the majority of working African adults were employed by whites, resulting in constant exposure to a culture foreign to their own. It can therefore be predicted that due to these circumstances the BSA developed high levels of CQ as a means to survive while some of the WSA members stagnated in CQ development due to a lack of "cultural challenges". These cultural challenges have, however, increased for the WSA since the end of apartheid 14 years ago (1994), which is most probably one of the reasons for the high level of variation in the WSA responses (some members adapted and some have not).

Another rationale behind the high CQ score discrepancy between the BSA and WSA, is the very nature of the two respective cultures. Eaton and Louw's (2000) research has shown that the self-definition of members from a collectivistic culture (BSA) is very contextualised and specific, and that relatedness to others is part of the very core of their being. As a result, the self of these members are often defined in unique detail within each separate social relationship. On the other hand, members of an individualistic culture (WSA) put more emphasis on the stability and self-determination of the inner self regardless of the social context. Therefore, the need for the BSA to relate to others in a social context, in actual fact drives the BSA to learn and understand more about other cultures as a means to materialise the relatedness with members from other cultures. Most probably this is even more so when exposure to another culture is of the extent of that of the BSA in the apartheid era. The fact that black South African managers rate high in humane orientation (see Figure 4) confirms that relationships in a social context is of utmost importance to members from the African culture.

Thirdly, the differences in the sub cultural composition of the South African ethnic cultures, undoubtedly play a role in the self-evaluated CQ scores attained by the BSA and WSA groups. Members from the white ethnic group (WSA) fall in one of two main population groups (Afrikaner and English), not having any further noteworthy subdivisions within the culture. In contrast to this, members of the black ethnic group (BSA) have a total of five main

population groups in South Africa with seven further sub-culture divisions (Table 1). A vast amount of social interaction takes place between members from the different BSA subcultures due to the clustered coexistence of black South Africans in historically determined areas around the country. Indeed, this attributed to the BSA experiencing different cultural models resulting in the development of a generic set of cognitive skills that can be utilised to influence people regardless of the culture involved. An example of such a skill, explained at a high level of abstraction, would for instance include the ability to determine the importance of religion in a culture, without having to know specifics of the religion involved. By exercising metacognitive CQ, this knowledge could then be utilised to adapt behaviour (show respect) during interaction with members of that culture.

Furthermore, Wannenburg (2006) of the Mail and Guardian newspaper quoted the ATKV (Afrikaanse Taal en Kultuur Vereniging) stating that 12.5 million South Africans over the age of 16 years understand Afrikaans (27% black, 90% coloured and 86% white). It is also estimated that 45% of South Africans understand English (Brand South Africa, 2008). If 79.6% of South Africans are from an African ethnic background (Figure 1) it would mean that an estimated minimum of 24.6% (Calculation: 45% - (100% - 79.6%)) of all black South Africans should understand English, even though it is predicted that this figure is higher. Consequently, it is often found that due to the coexistence of the black and white South African groups, the BSA can speak and understand

indigenous African languages, as well as English and Afrikaans. If this is compared to the Afrikaans and English speaking South Africans (including WSA) who in general do not speak African indigenous languages (Media Club South Africa, 2008), the WSA undoubtedly has a disadvantage in terms of CQ development.

This creates a snowball effect for the BSA in terms of gaining knowledge of other cultures since the understanding of a cultural language enables the BSA to see forms of communication in the context of that culture (speech versus body language or voice tone). It also makes it possible for the BSA to query a member from a different culture about the aspects of that culture, hence explicitly investigating a culture.

It is clear that individuals utilise all four CQ dimensions in combination to address a cross-cultural interaction. The capability (strengths and weaknesses) in each separate CQ dimension will determine an individual's unique final cultural intelligence architecture. As a collective, an ethnic group will also have a dominant CQ dimension capability and a unique CQ design, and in this case the CQ design of the BSA came out on top.

Following the self-evaluated results discussion above, the null hypothesis (Hypothesis 8) is rejected to support the notion that BSA rate higher in Cultural Intelligence than WSA.

6.9 Additional Findings

Due to the complexity of the human mind and its intellectual capability, it would be naive to think that there is only one variable, like ethnic group, which determines the cultural intelligence of an individual. The self-evaluation online survey was therefore designed to collect additional demographical data from various fields. Four additional fields (other than ethnic group) were identified as high potential determinants for CQ. Gender, tertiary education, age and management level were the fields investigated as to deduce its influence on the CQ of South African leaders. These additional fields were only tested for combined CQ and not for each separate dimension as per ethnic group investigation discussed earlier.

- The Gender Factor

It was expected that the female respondents would rate themselves higher in CQ than the males, since research by Furnham *et al.* (2004) shows that Southern African woman rate themselves higher in multiple intelligences than the men. This is in contrast with the west where females often estimate their intelligence lower than males.

Surprisingly, the self-estimated cultural intelligence results shows no statistically significant difference in means (Z-value (F-M)) when the data is investigated according to gender. The male respondents scored a mere one

percent higher in CQ than did the female respondents, with 66% and 65% scores respectively (Table 16). The split for the gender comparison provided very good samples with 266 males and 154 females completing the survey in full.

The data from this research therefore suggests that gender is not a determining factor for cultural intelligence in South Africa (where only black and white ethnic groups are included).

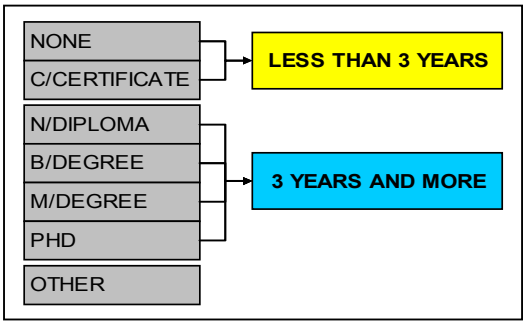
- The Tertiary Education Factor

Tertiary education was the second predictor variable category that was investigated. Data from this category was sorted in an ordinal fashion with "None" as the lowest level of tertiary education, and "PHD" as the highest level. The "Other" category was created for instances where it could not be determined what level of education was applicable to the individual.

The mean self-rated CQ score of each tertiary education level was then compared to the level below it to determine whether there is a statistical significant difference between them. It can only be said with reasonable certainty (p-value of 8%) that there is a difference in means between respondents with national diplomas and those with course certificates (Table 17). Therefore further investigation was required, and it was decided to

regroup the tertiary education data into two groups. One with tertiary education of 3 years and longer (M3), and one with less than 3 years (L3) of tertiary education as shown in Figure 13.

Figure 13 – Tertiary Education regrouping



The regrouped tertiary education levels resulted in a Z-value (L3-M3) of 0.6 and a p-value of 27% (Table 18). Since a p-value of at most 10% is required to be reasonably certain that there is a difference in means between the two groups, it could be concluded that there is no significant difference in means between individuals from the two respective groups.

Thus, the thoroughly investigated data shows that tertiary education does not have an influence on cultural intelligence of South African leaders (where only black and white ethnic groups are included).

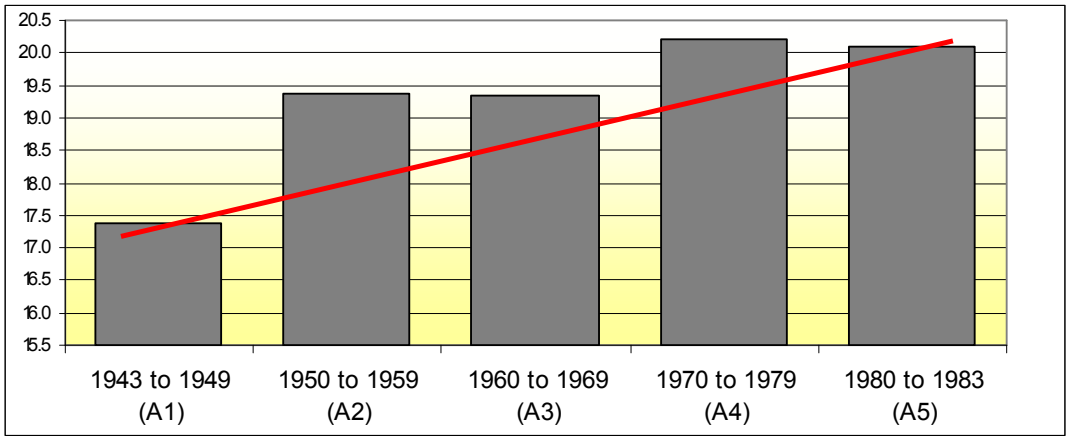
- The Age Factor

The research boundaries for respondent age ranged between 25 years and 65 years since it is argued that leaders from this group are predominantly the working population in South Africa. This group is divided into five category

levels in an attempt to place respondents from different decades on the same levels, and renamed (group A1 to A5) for the ease of discussion (Figure 15). For the purpose of identifying a trend, these levels were arranged in an ordinal fashion where after differences in means were compared between a level and the level below it.

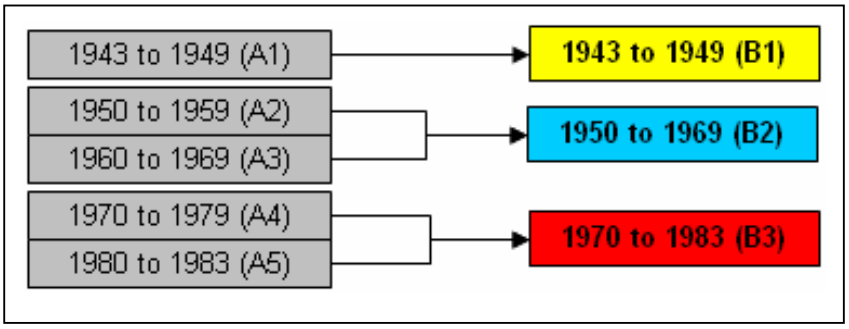
The findings from the age factor are very interesting. Graphical investigation shows an upward trend of CQ as the age of the respondents decrease (Figure 14). However, there are only statistically significant differences in CQ score means between respondents from age groups A2 and A1, as well as groups A4 and A3 (Table 19).

Figure 14 – CQ trend for the Age Factor



Further investigation was required before it could be concluded that age is a factor that has an impact on CQ. The regrouping of age category levels was based on graphical analysis of Figure 10 that resulted in new age groups B1, B2 and B3 (Figure 15).

Figure 15 – Age regrouping



Statistical analysis of the new data groupings (Table 20) indicates that there is a statistically, highly significant difference in means between the CQ scores of groups B2 and B1 (p-value of 3%), as well as groups B3 and B2 (p-value of 1%). The researcher's personal opinion is that this finding has to do with the fact that all post-apartheid young people have a significant advantage when it comes to cultural intelligence from the essence of growing up in a culturally diverse South Africa. However, since the age factor is an additional finding to ethnic group, additional literature research was required on the topic. Research on generation characteristics by Hammill (2005) sheds light on the reasons why age might influence cultural intelligence. Table 23 shows the generations as categorised per birth year by Hammill (2005).

Table 23 – Generations (Hammill, 2005)

Veterans	Baby boomers	Generation X	Generation Y
1922-1945	1946-1964	1965-1980	1981-2000

Interestingly, the Veterans generation from Table 23 corresponds with the B1 age group from Figure 15, the Baby boomers are similar to the B2 age group and Generations X an Y compares very well with age group B3. Generations X an Y is characterised as tolerant, participative, balanced and entrepreneurial (Table 24 and Table 25).

Table 24 – Personal and lifestyle characteristics (Hammill, 2005)

	Veterans (1922-1945)	Baby boomers (1946-1964)	Generation X (1965-1980)	Generation Y (1981-2000)
Core values	Respect for authority Conforming Discipline	Optimism Involvement	Skepticism Fun Informality	Realism Confidence Extreme fun Sociability
Family	Traditional Nuclear	Disintegrating	Latchkey kids	Merged families
Education	A dream	A birthright	A way to get there	An incredible expense
Communication media	Rotary phones One-on-one Written memos	Touch-tone phones Can call anytime	Cell phones Can call only at work	Internet Picture phones E-mail
Dealing with money	Believes in putting it away Believes in paying cash	Buy now, pay later	Cautious Conservative Save, save, save	Earn to spend

All these character traits contributes to the high level of CQ for age group B3, since the members from this group are more open-minded when it comes to unfamiliar circumstances, more specifically culturally diverse settings.

Table 25 – Workplace characteristics (Hammill, 2005)

	Veterans (1922-1945)	Baby boomers (1946-1964)	Generation X (1965-1980)	Generation Y (1981-2000)
Work ethic and values	Hard work Respect for authority Sacrifice Duty before fun Adherence to rules	Workaholics Working efficiently Crusading causes Personal fulfillment Desire for quality Questioning authority	Eliminate the task Self-reliance Want structure and direction Skeptical	Asking what is next Multitasking Tenacity Entrepreneurial Tolerant Goal oriented
Work is…	An obligation	An exciting adventure	A difficult challenge A contract	A means to an end Fulfillment
Leadership style	Directive Commanding and controlling	Consensual Collegial	Believes everyone is the same Challenging others Asking why	*Will be better determined as this generation gets older*
Interactive style	Individual	Team player Loves to have meetings	Entrepreneurial	Participative
Communications	Formal Memo	In person	Direct Immediate	E-mail Voice mail
Feedback and rewards	Believes no news is good news Satisfaction in a job well-done	Don't appreciate feedback Money Title recognition	"Sorry to interrupt, but how am I doing?" Believes freedom is the best reward	"Whenever I want it, at the push of a button" Meaningful work
Messages that motivate	"Your experience is respected."	"You are valued." "You are needed."	"Do it your way." "Forget the rules."	"You will work with other bright, creative people."
Work and family life	Ne'er the twain shall meet	No balance Work to live	Balance	Balance

Research by Hammill (2005) on Baby boomers shows that this generation is considered to be team players with the need to communicate on a face-to-

face basis in order to enhance involvement (Table 24 and Table 25). Feedback (or criticism) is not appreciated by members from this group and is therefore one of the limiting factors for CQ development, putting them (B2) below Generation X and Y (B3) on the CQ scale.

The Veterans on the other hand, is a rigid group when it comes to compliance. Members from this group are not really team players, are highly disciplined and are of the view that duty comes before fun, hence work is an obligation (Table 24 and Table 25). It is therefore clear that the Veterans are set in their ways which ultimately impacts on their cultural intelligence levels, resulting in age group B1 having the lowest CQ score of that three groups.

The data and literature therefore indicate that age, or more specifically generation influence CQ of SA leaders (where only black and white ethnic groups are included).

- The Management Level Factor

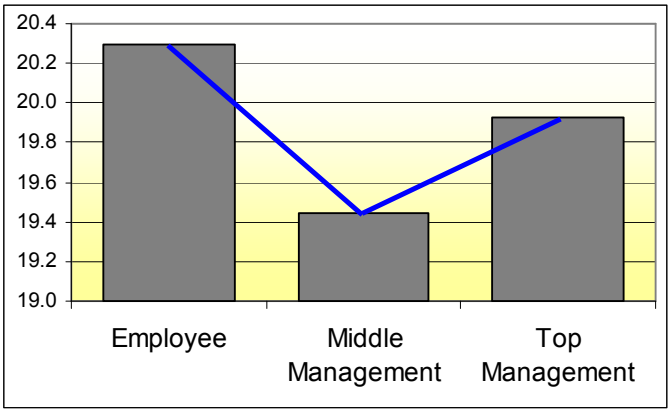
Managers are employed in senior positions in organisations due to the presence of leadership and managerial skills such as emotional intelligence and analytical capabilities to name a few. This section of the CQ research is aimed at finding out whether different levels of employment have an impact on the CQ of South African leaders. The findings will also serve as an indication

whether companies in South Africa actually employ individuals with higher CQ capabilities in managerial positions over those with lower CQ capabilities.

The initial predictor category levels were sorted in an ordinal format including employee (E), middle management (M) and top management (T). The identical method of analysis was followed for management level as for the previous predictors whereby the difference in means is determined for a level and the level below it in order to look for signs of a trend. The mean self-evaluated CQ scores were calculated for each category level and a histogram was drawn to graphically investigate a possible trend (Figure 16).

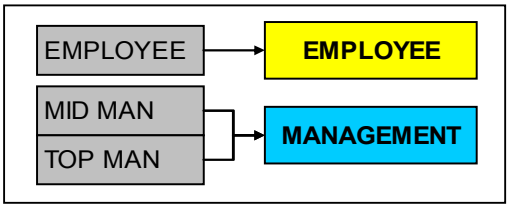
The data from the initial grouping does not show signs of a trend, but interestingly, the employees scored higher than both the middle management and top management groups in CQ. The p-values, however, suggested that there is not a statistically significant difference in means between the category levels (Table 21).

Figure 16 – Management Level (CQ results)



It was decided that the matter would be investigated further by means of regrouping. The employment levels were therefore regrouped into two levels namely, employees (Emp) and management (Mgt) as per Figure 17.

Figure 17 – Management Level regrouping



The Z-value (Mgt-Emp) of -1.9 resulted in a p-value calculation of 97%, which evidently implies that the regrouped management levels still don't show a significant difference in means (Table 22).

As a result, management level is not considered a factor that influences the level of cultural intelligence of South African leaders (where only black and white ethnic groups are included). The data also indicates that companies in South Africa do not employ managers with CQ levels superior to that of the employees.

- Ethnic Group versus Age

With ethnic group and age being the only two determinants for CQ, it was decided to analyse the BSA and WSA groups in terms of age composition. Graphical investigation (Figure 11) showed that members from the BSA group

generally seemed to be younger than the members from the WSA group. The R^2 value of the correlation between ethnic group and age is 0.17 with a p-value when testing for a null hypothesis of 0% correlation between two factors of less than 1%. This signifies that the correlation is in fact significant, hence it can be said with certainty that the composition of the two groups are different in terms of age.

The conclusion that must be drawn from this is that even though age and ethnic group were statistically significant in terms of having influence on CQ, we cannot conclusively say that higher CQ is the result of only age, or only ethnic group. Hence, higher self-evaluated CQ can be related to either being black, or being young, or a combination of both, based on this study.

7. Chapter 7 – Conclusion

This research regarding cultural intelligence in South Africa produced a number of answers for various stakeholders, but possibly even more important are the follow-up questions generated as a result of this study.

This chapter addresses three main areas as a conclusion to this research which includes the key findings, recommendations to stakeholders and potential future research to be conducted as to create contributing knowledge in the field of cultural intelligence.

7.1 Key Findings

The intention of this research project was to determine whether there is a difference in the levels of cultural intelligence between black South African leaders (BSA) and white South African leaders (WSA). This objective was achieved and the research produced results of immense value to be utilised in the multicultural business world of South Africa, and even internationally.

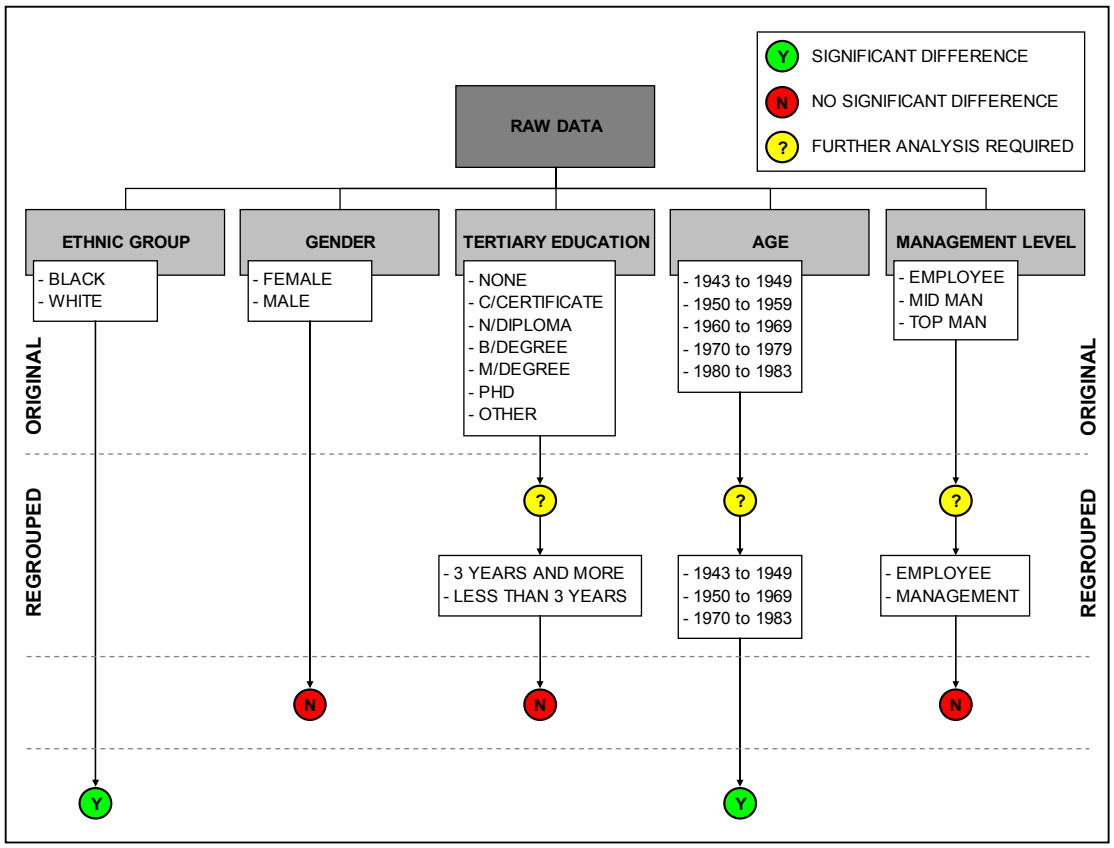
The research methodology followed proved to be very effective and resulted in good sample sizes (125 BSA and 295 WSA) that enhance credibility of the findings to be discussed below. Figure 18 shows the two major findings from this research and also provides a swift overview of the process of analysis. Even though a number of predictor variable categories were investigated to determine whether it has an effect on CQ, it turned out that there are only two determinants for the CQ level of South African leaders (only BSA and WSA included in study).

Cognisance should be taken that the CQS questionnaire used for the purpose of this research is a self-evaluating survey, hence there is a possibility that respondents might have overestimated (or underestimated for that matter) their CQ capabilities.

The primary research finding from this study is that the BSA rates significantly higher in self-evaluated CQ than the WSA. This is the result of the higher self-

evaluated CQ dimension scores achieved by the BSA over the WSA that include metacognitive CQ, cognitive CQ, motivational CQ and behavioural CQ.

Figure 18 – Cultural Intelligence determinants (Final results)



It is argued that the nature of the respective cultures (collectivistic BSA versus individualistic WSA), South African history (apartheid) and the extent of exposure to multiple cultures (subculture composition), are the main reasons for this result. After intensive investigation by means of regrouping predictor variable category levels (Figure 18), it was found (secondary findings) that neither gender, nor the level of tertiary education, nor management level has

an influence on the CQ level of South Africans (where only black and white ethnic groups are included). It was, however, determined that the age of South African leaders have an impact on CQ.

Additional literature research was required to explore possible reasons for age determining CQ. The regrouped age levels (Figure 18) turn out to be more precise in indicating influence on CQ than the original age level grouping (refer to Figure 10). Interestingly the regrouped age levels closely correspond with the generations as defined by Hammill (2005) shown in Table 23. It is therefore argued that generation differences could have a greater influence than age alone.

In conclusion to this discussion, the research findings suggest that there are two determinants for cultural intelligence of South African leaders (where only black and white ethnic groups are included) namely, ethnic group and age (or generation).

7.2 Stakeholder Recommendations

Following the findings discussed above, this section of Chapter 7 will discuss recommendations to stakeholders how this knowledge concerning CQ can be utilised to increase the probability for success in endeavours where parties from multiple cultures are involved.

This MBA research is primarily aimed at providing recommendations on cross-cultural training and selection criteria to business, although these principles can also be utilised by institutions of government.

It is consequently recommended to human resource (HR) divisions of business to include CQ evaluation as part of the potential candidate testing process for employment as well as for succession planning. In a culturally diverse setting such as that of South Africa, it is essential for managers to have high levels of cultural intelligence in order to manage multicultural teams effectively. However, the data shows that there is currently no significant difference in CQ levels between managers and employees (regardless of age and ethnic group) in South Africa (Table 22), and this should not be the case.

This research suggests that age and ethnic group are determinants for CQ. It does, however, not indicate whether ethnic group alone, age alone, or the combination of age and ethnic group together is the cause for high levels of CQ. Cognisant of this, it is recommended that young black South African leaders be placed in employment positions where performance is highly dependent on the success of cross-cultural interactions, in order to increase the probability for high performance (provided that these individuals have the necessary skills to comply with the remaining job specifications). It is important to take note that this does not necessarily mean that any aged

member of the WSA group is unable to deliver high levels of performance in a multicultural environment. It means that, based on the self-evaluated results of this research there is a higher probability of hiring an individual with high cultural intelligence if the individual is a member of the younger BSA group, compared to the probability if an individual from the older WSA group is hired.

An additional recommendation to HR is therefore to ensure that cultural intelligence principles are included in initiation programs for newly hired employees and training programs for current employees.

It is recommended to business unit managers to increase awareness of cultural intelligence principles in the business unit by ensuring that employees attend the CQ training courses provided by HR (as discussed above). The fact that the WSA ranked lower in CQ than the BSA should be considered when training schedules are developed. It would also be advisable for business unit managers to encourage increased exposure to other cultures for employees as to gain knowledge of other cultures through experience.

This could be achieved through formal and informal integration of cultural intelligence principles in business. Formal integration would include incorporation of CQ theory in business training programmes by HR. The challenge to managers on the other hand, is to create scenarios where cross-

cultural interactions take place between employees to serve as informal teachings.

In a world where globalisation is no longer a myth, but a stark reality, it is vital that businesses gear themselves to be competitive in a multicultural environment. Cultural intelligence is one of the key enablers for survival in such a world and is therefore a necessity and not a luxury.

7.3 Future research

The field of CQ is relatively new if compared to the research fields of leadership or IQ. Even though the findings from this study are very useful, the surface has only been scratched for this discipline, hence a list of suggestions for further research on the topic is provided below:

- Compare CQ of all races in South Africa (including Coloureds and Asians).
- Replicate this study (BSA versus WSA) with a 360 degree questionnaire.
- Determine if there is a correlation between collectivism (Hofstede, 1994) and CQ (since the BSA rated higher than WSA in both these).
- Determine if there is a correlation between humane orientation (Booysen, 2000) and CQ (since the BSA rated higher than WSA in both these).
- Compare the CQ of South Africans with the CQ from other countries.

- Test other predictor variable categories than ethnic group, gender, education, age and management (could look at industry, job description, etc.).
- Determine and compare the CQ of BSA and WSA sub cultures with each other.
- Research the ratings of the CQ dimensions for the age predictor variable category (only combined final CQ was investigated in this research)

For the purpose of this research project an attempt was made to obtain cultural intelligence data for countries around the world from the authors of the CQS questionnaire in order to compare it with the South African data. This request was unfortunately, but understandably denied (see e-mail conversation in Appendix D) due to the intellectual property value of the international data collected by the authors. It was however decided that the CQ data collected from this South African research would be provided to the authors of the CQS questionnaire, for which the authors are grateful.

This data is now part of the international database containing CQ information of countries around the world and will contribute to future studies as to create knowledge in the discipline of cultural intelligence.

Finally, South Africans have learned to live together in a multicultural country so it is predicted that the combined CQ score of this rainbow nation (Figure

19) probably ranks higher than most other counties in the world. It is characteristics like these that make our rainbow South Africa the most exciting country in the world for its diverse peoples to live in.

Figure 19 – The Rainbow Nation of South Africa (Malone, 2008)

8. Chapter 8 - Reference List

Alon, I. and Higgins J.M. (2005) Global leadership success through emotional and cultural intelligences. *Business Horizons,* 48(6), 501-512.

Ang, S., Van Dyne, L., Koh, C., Ng, K.Y., Templer, K.J., Tay, C. and Chandrasekar, N.A. (2007) Cultural intelligence: its measurement and effects on cultural judgement and decision making, cultural adaptation and task performance. *Management and Organization Review*, 3(3), 335-371.

Avolio, B.J. (1999) *Full Leadership Development: Building the Vital Forces in Organizations.* London: SAGE.

Bass, B.M. (1997) Does the transactional-transformational leadership paradigm transcend organizational and national boundaries? *American Psychologist,* 52(2), 130-139.

Bass, B.M., Avolio, B.J., Jung, D.I. and Berson, Y. (2003) Predicting unit performance by assessing transformational and transactional leadership. *Journal of Applied Psychology,* 88(2), 207-218.

Booysen, L. (2000) Cultural difference between African black and white managers in South Africa. *Southern Africa Institute for Management Scientists 12th Annual Conference, October 31 - November 2, 2000, South Africa*. Document Transformation Technologies.

Brand South Africa (2008) History and heritage [Internet]. Johannesburg: Big Media Publishers. Available from http://www.southafrica.info/about/history/soweto-150606.htm (accessed 28/10/2008).

Brand South Africa (2008) The languages of South Africa [Internet]. Johannesburg: Big Media Publishers. Available from http://www.southafrica.info/about/people/language.htm (accessed 04/11/2008).

Condon, J.C. and Yousef, F.S. (1975) *Introduction to Intercultural Communication*, New York: Bobbs-Merrill Company.

Davis, S.L. and Finney, S.J. (2006) A Factor Analytic Study of the Cross-Cultural Adaptability Inventory. *Educational and Psychological Measurement,* 66(2), 318-330.

Deutskens, E., De Ruyter, K., Wetzels, M. and Oosterveld, P. (2004) Response rate and response quality of internet-based surveys: an experimental study. *Marketing Letters,* 15(1), 21-36.

Earley, P.C. and Ang, S. (2003) *Cultural Intelligence: Individual Interactions Across Cultures.* Calif: Stanford University Press.

Eaton, L. and Louw, J. (2000) Culture and self in South Africa: individualism-collectivism predictions. *Journal of Social Psychology*, 140(2), 210-217.

Edwards, P., Roberts, I., Clarke, M., DiGuiseppi, C., Pratap, S., Wentz, R. and Kwan, I. (2002) Increasing response rates to postal questionnaires: systematic review. *British Medical Journal,* 324(7347): 1183.

Furnham, A., Callahan, I. and Akande, D. (2004) Self-estimates of intelligence: a study in two African countries. *Journal of Psychology*, 138(3), 265-285.

Graen, G. and Hui, C. (1996) Managing changes in globalizing business: how to manage cross-cultural business partners. *Journal of Organizational Change Management,* 9(3), 62-72.

Hammill, G. (2005) Mixing and managing four generations of employees [Internet]. New Jersey: Fairleigh Dickinson University. Available from http://www.fdu.edu/newspubs/magazine/05ws/generations.htm (accessed 04/11/2008).

Harriman, P.L. (1946) *Twentieth Century Psychology: Recent Developments in Psychology.* New York: Philosophical Library.

Hofstede, G. (1994) The business of international business is culture. *International Business Review,* 3(1), 1-14.

House, R., Javidan, M., Hanges, P. and Dorfman, P. (2002) Understanding cultures and implicit leadership theories across the globe: an introduction to project GLOBE. *Journal of World Business,* 37(1), 3-10.

Kalb, D., Van Der Land, M., Wilterdink, N. and Staring, R. (2000) *The Ends of Globalization: Bringing Society Back in.* Lanham: Rowman and Littlefield.

Madhere, S. (1989) Models of intelligence and the black intellect. *Journal of Negro Education*, 58(2), 189-202.

Malone, A. (2008) South Africa, rainbow nation? [Internet]. Available from http://kobason.spaces.live.com/blog/cns!C873246EA6369396!15794.entry (accessed 06/11/2008).

Marques, J.F. (2006) Leadership: emotional intelligence, passion and … what else? *Journal of Management Development*, 26(7), 644-651.

Mayer, J.D. and Salovey, P. (2005) Emotional intelligence and the construction and regulation of feelings. *Applied and Preventive Psychology.* 4(3), 197-208.

Media Club South Africa (2008) South Africa's population [Internet]. Johannesburg: Big Media. Available from http://www.mediaclubsouthafrica.com/index.php?option=com_content&view=article&id=81:south-africas-population&catid=33:land_bg&Itemid=70#04languages (accessed 04/11/2008).

Meyers, J. (2008) The Cross-Cultural Adaptability Inventory [Internet]. Chicago: Vangent. Available from http://drjudithmeyers.com/index.cfm?action=CCAI (accessed 01/06/2008).

Olowu, A.A. (1985) Sex differences in self-concepts of English and Nigerian adolescents. *Journal of Social Psychology*, 125(1), 129-130.

Rhee, E., Uleman, J.S., Lee, H.K. and Roman, R.J. (1995) Spontaneous self-descriptions and ethnic identities in individualistic and collectivistic cultures. *Journal of personality and social psychology*. 69(1), 142-152.

Rosinski, P. (2003) *Coaching Across Cultures: New Tools for Leveraging National, Corporate, and Professional Differences*. Boston: Nicholas Brealey Publishing.

South African Government (2008) The land and its people [Internet]. Pretoria: Government communication and information system. Available from http://www.info.gov.za/aboutsa/landpeople.htm#people (accessed 15/05/2008).

Statistics South Africa (StatSA) (2007) *Mid-year population estimates.* South Africa: StatSA. P0302.

Steyn, A.G.W, Smit, C.F., Du Tiot, S.H.C. and Strasheim, C. (1995) *Moderne Statistiek vir die Praktyk.* Kaap: J.L. van Schaik Uitgewers.

Sun, R., Zhang, X. and Mathews, R. (2006) Modeling meta-cognition in a cognitive architecture. *Cognitive Systems Research.* 7(4), 327-338.

Triandis, H.C. (2000) Culture and Conflict. *The International Journal of Psychology,* 35(2), 154-152.

United Nations (UN) (2007) *World Investment Report 2007: Transnational Corporations, Extractive Industries and Development.* Switzerland: UN.

Wannenburg, G. (2006) Africans embrace Afrikaans, their way [Internet]. Soweto: Mail and Guardian online. Available from http://www.mg.co.za/article/2006-09-14-africans-embrace-afrikaans-their-way (accessed 04/11/2008).

Watkins, D., Akande, A. and Mpofu, E. (1996) Assessing self-esteem: an African perspective. *Personality and Individual Differences*, 20(2), 163-169.

Whiting, B.B. (1980) Culture and social behaviour: a model for the development of social behaviour. *Ethos,* 8(2), 95-116.

Zikmund, W.G. (2003) *Business Research Methods*. Ohio: South-Western.

Appendix A

Categorised CQ Dimensions

Appendix A: CQ Questionnaire Categories and Questions

QUESTIONNAIRE - CATAGORISED

CODE	Shuffle NR	QUESTION
METACOGNITIVE CQ:		
MC1	1	I am conscious of the cultural knowledge I use when interacting with people with different cultural backgrounds.
MC2	2	I adjust my cultural knowledge as I interact with people from a culture that is unfamiliar to me.
MC3	3	I am conscious of the cultural knowledge I apply to cross-cultural interactions.
MC4	4	I check the accuracy of my cultural knowledge as I interact with people from different cultures.
COGNITIVE CQ:		
COG1	5	I know the legal and economic systems of other cultures.
COG2	6	I know the rules (e.g., vocabulary, grammar) of other languages.
COG3	7	I know cultural values and religious beliefs of other cultures.
COG4	8	I know the marriage systems of other cultures.
COG5	9	I know the arts and crafts of other cultures.
COG6	10	I know the rules of expressing non-verbal behaviours in other cultures.
MOTIVATIONAL CQ:		
MOT1	11	I enjoy interacting with people from different cultures.
MOT2	12	I am confident that I can socialise with locals in a culture that is unfamiliar to me.
MOT3	13	I am sure I can deal with the stresses of adjusting to a culture that is new to me.
MOT4	14	I enjoy living in cultures that are unfamiliar to me.
MOT5	15	I am confident that I can get accustomed to the shopping conditions in a different culture.
BEHAVIOURAL CQ:		
BEH1	16	I change my verbal behaviour (e.g., accent, tone) when a cross-cultural interaction requires it.
BEH2	17	I use pause and silence differently to suit different cross-cultural situations.
BEH3	18	I vary the rate of my speaking when a cross-cultural situation requires it.
BEH4	19	I change my non-verbal behaviour when a cross-cultural situation requires it.
BEH5	20	I alter my facial expressions when a cross-cultural interaction requires it.

Appendix B

Final reshuffled CQ Questionnaire

Appendix B: CQ Questionnaire

Kindly complete the following background information as accurately as possible about yourself.
Cross out the relevant box

I hereby give consent for the ANONYMOUS data collected in this survey below to be utilised for the purpose of a research project (national and/or international) and a possible journal article publication

☐ *Please tick if you agree*

ETHNIC GROUP:

ASIAN	BLACK	COLOURED	WHITE	OTHER

GENDER:

FEMALE	MALE

YEAR OF BIRTH

	(example: 1949 or 1974)

NATIONALITY:

SOUTH AFRICAN	OTHER

Have you been living in South Africa for at least 5 years?

YES	NO

TERTIARY EDUCATION:

NONE	COURSE SERTIFICATE	NATIONAL DIPLOMA	BACHELORS DEGREE	MASTERS DEGREE	PHD

CURRENTLY EMPLOYED:

YES	NO

Do you have exposure to people from cultures other than your own in your work environment?

YES	NO

COMPANY AGE:

LESS THAN 3 YEARS	MORE THAN 3 YEARS

COMPANY SIZE:

LESS THAN 15 PEOPLE	MORE THAN 15 PEOPLE

Do you exercise leadership (influence, motivate and enable others) on one or more people (direct or indirect subordinates) to achieve your job requirements?

YES	NO

MANAGEMENT LEVEL:

EMPLOYEE	MIDDLE MANAGEMENT / SUPERVISOR LEVEL	TOP MANAGEMENT / SENIOR MANAGEMENT

Read each statement and select (cross out) the response that best describes your capabilites.
Select the answer that BEST describes you AS YOU REALLY ARE (1=Strongly Agree; 7=Strongly Disagree)

NR	QUESTION						
1	I am conscious of the cultural knowledge I apply to cross-cultural interactions.						
	STRONGLY AGREE	AGREE	SLIGHTLY AGREE	NEUTRAL	SLIGHTLY DISAGREE	DISAGREE	STRONGLY DISAGREE
2	I am confident that I can get accustomed to the shopping conditions in a different culture.						
	STRONGLY AGREE	AGREE	SLIGHTLY AGREE	NEUTRAL	SLIGHTLY DISAGREE	DISAGREE	STRONGLY DISAGREE
3	I am confident that I can socialise with locals in a culture that is unfamiliar to me.						
	STRONGLY AGREE	AGREE	SLIGHTLY AGREE	NEUTRAL	SLIGHTLY DISAGREE	DISAGREE	STRONGLY DISAGREE
4	I know the rules of expressing non-verbal behaviours in other cultures.						
	STRONGLY AGREE	AGREE	SLIGHTLY AGREE	NEUTRAL	SLIGHTLY DISAGREE	DISAGREE	STRONGLY DISAGREE
5	I use pause and silence differently to suit different cross-cultural situations.						
	STRONGLY AGREE	AGREE	SLIGHTLY AGREE	NEUTRAL	SLIGHTLY DISAGREE	DISAGREE	STRONGLY DISAGREE
6	I know the marriage systems of other cultures.						
	STRONGLY AGREE	AGREE	SLIGHTLY AGREE	NEUTRAL	SLIGHTLY DISAGREE	DISAGREE	STRONGLY DISAGREE
7	I vary the rate of my speaking when a cross-cultural situation requires it.						
	STRONGLY AGREE	AGREE	SLIGHTLY AGREE	NEUTRAL	SLIGHTLY DISAGREE	DISAGREE	STRONGLY DISAGREE
8	I am conscious of the cultural knowledge I use when interacting with people with different cultural backgrounds.						
	STRONGLY AGREE	AGREE	SLIGHTLY AGREE	NEUTRAL	SLIGHTLY DISAGREE	DISAGREE	STRONGLY DISAGREE
9	I enjoy interacting with people from different cultures.						
	STRONGLY AGREE	AGREE	SLIGHTLY AGREE	NEUTRAL	SLIGHTLY DISAGREE	DISAGREE	STRONGLY DISAGREE
10	I know the legal and economic systems of other cultures.						
	STRONGLY AGREE	AGREE	SLIGHTLY AGREE	NEUTRAL	SLIGHTLY DISAGREE	DISAGREE	STRONGLY DISAGREE
11	I enjoy living in cultures that are unfamiliar to me.						
	STRONGLY AGREE	AGREE	SLIGHTLY AGREE	NEUTRAL	SLIGHTLY DISAGREE	DISAGREE	STRONGLY DISAGREE
12	I change my non-verbal behaviour when a cross-cultural situation requires it.						
	STRONGLY AGREE	AGREE	SLIGHTLY AGREE	NEUTRAL	SLIGHTLY DISAGREE	DISAGREE	STRONGLY DISAGREE
13	I change my verbal behaviour (e.g., accent, tone) when a cross-cultural interaction requires it.						
	STRONGLY AGREE	AGREE	SLIGHTLY AGREE	NEUTRAL	SLIGHTLY DISAGREE	DISAGREE	STRONGLY DISAGREE
14	I am sure I can deal with the stresses of adjusting to a culture that is new to me.						
	STRONGLY AGREE	AGREE	SLIGHTLY AGREE	NEUTRAL	SLIGHTLY DISAGREE	DISAGREE	STRONGLY DISAGREE
15	I know cultural values and religious beliefs of other cultures.						
	STRONGLY AGREE	AGREE	SLIGHTLY AGREE	NEUTRAL	SLIGHTLY DISAGREE	DISAGREE	STRONGLY DISAGREE
16	I alter my facial expressions when a cross-cultural interaction requires it.						
	STRONGLY AGREE	AGREE	SLIGHTLY AGREE	NEUTRAL	SLIGHTLY DISAGREE	DISAGREE	STRONGLY DISAGREE
17	I know the rules (e.g., vocabulary, grammar) of other languages.						
	STRONGLY AGREE	AGREE	SLIGHTLY AGREE	NEUTRAL	SLIGHTLY DISAGREE	DISAGREE	STRONGLY DISAGREE
18	I know the arts and crafts of other cultures.						
	STRONGLY AGREE	AGREE	SLIGHTLY AGREE	NEUTRAL	SLIGHTLY DISAGREE	DISAGREE	STRONGLY DISAGREE
19	I adjust my cultural knowledge as I interact with people from a culture that is unfamiliar to me.						
	STRONGLY AGREE	AGREE	SLIGHTLY AGREE	NEUTRAL	SLIGHTLY DISAGREE	DISAGREE	STRONGLY DISAGREE
20	I check the accuracy of my cultural knowledge as I interact with people from different cultures.						
	STRONGLY AGREE	AGREE	SLIGHTLY AGREE	NEUTRAL	SLIGHTLY DISAGREE	DISAGREE	STRONGLY DISAGREE

Appendix C

Letter of Consent

Appendix C: Letter of Consent

To Whom It May Concern:

My name is Kobus Sauer and I am a MBA student from the University of Pretoria business school, the Gordon Institute of Business Science (GIBS).

I am working on an academic research project where I'm investigating the orientation of South African leaders towards the different cultures in the country. This e-mail was sent to people regarded as leaders, as a kind request to complete an ANONYMOUS short questionnaire (±10 minute tick box survey) to assist in this quest to create knowledge.

No names (personal or company) are asked in this questionnaire, hence all data is saved anonymously. Neither I nor the person who sent you this e-mail will therefore be able to trace the data collected back to any person, it is purely a data collection process.

The questionnaire will ask for your consent in order for me to utilise this anonymous data collected for the purpose of a MBA research project and a journal article publication (please tick in the survey).

When you click on the link below you will be diverted to a website where you will be able to complete the online questionnaire. Your identity is not revealed during the proceedings since the website does NOT record your e-mail address or any other form of information that can be used to trace the data back to you or your computer. I will collect the respondents' anonymous data from the internet, so you will not be asked to e-mail your answers to me or to the person who sent you this e-mail.

Kindly click on the link below to complete the anonymous online questionnaire:

http://www.surveymonkey.com/s.aspx?sm=GNs9fwRNsCFXr7Y33FoHDw_3d_3d

It would be much appreciated if you would be so kind as to forward this e-mail to people that you consider as having leadership qualities (any gender and ethnic group).

Thank you, your assistance is much appreciated!

Regards,

Kobus Sauer

Appendix D

Request for international CQ data

Appendix D: E-mail request for international CQ data

From: Kobus Sauer [mailto:kobus.sauer@gmail.com]

Sent: Tue 9/16/2008 6:23 AM

To: Ang Soon (Prof)

Cc: vandyne@msu.edu

Subject: Re: Handbook of Cultural Intelligence

Prof. Soon & Prof. Van Dyne,

Thank you very much for the support, would like to inform you that the CQS worked very well & I had a very good response rate (over 500 respondents). I am busy analysing the results & I will, as promised, send you the data as soon as am I finished (this will be during November 2008).

Can't remember if I provided you with background regarding my research so kindly see below for the topic & some preliminary findings.

My topic is "A comparison of Cultural Intelligence between Black and White South African leaders". So far it looks like the black respondents (125 respondents within my research boundaries) outperformed the white respondents (295 respondents within my research boundaries) in all four CQ dimensions.

At this stage my funds are a bit depleted (due to the cost of the MBA), but I will stay in touch & purchase the book next year.

Thanks again for your assistance, it is much appreciated!

~ Kobus Sauer ~

From: Van Dyne, Linn <vandyne@bus.msu.edu>

To: Kobus Sauer <kobus.sauer@gmail.com>

Date: Tue, Sep 16, 2008 at 5:29 PM

Subject: RE: Handbook of Cultural Intelligence

Hello Kobus,

Your research sounds fascinating. Great that you have such a large sample and such interesting results. Best wishes finishing up the project.

Warm regards,

Linn

From: Kobus Sauer <kobus.sauer@gmail.com>

To: "Van Dyne, Linn" <vandyne@bus.msu.edu>

Date: Wed, Sep 17, 2008 at 11:00 AM

Subject: Re: Handbook of Cultural Intelligence

Thanx Linn,

I had a meeting with my research supervisor yesterday & we discussed comparing South Africa's CQ results against the results from other countries in my results discussion section (not a detailed comparison, just so that we can get an idea of how SA is doing).

If it is at all possible, I would really appreciate it if you could send me a few CQ scores for other countries that I can use for this comparison (also how you calculated the scores).

Also, since you are the expert on the topic you would be able to tell me what a good score would be for the CQ Dimensions and Final CQ.

Once again thank you for your support & inputs, it is much appreciated!

Kobus Sauer

From: Van Dyne, Linn <vandyne@bus.msu.edu>

To: Kobus Sauer <kobus.sauer@gmail.com>

Date: Wed, Sep 17, 2008 at 6:14 PM

Subject: RE: Handbook of Cultural Intelligence

Hello Kobus,

These are interesting questions. We are not, however, at a stage where we are prepared to share data at the country level. There are too many reasons why people from different cultures use different parts of the scales in their responses, making comparisons misleading.

Although we have an extensive data base of world wide norms, we have not yet published this data and only make it available now through our consulting practices.

In the meantime, may I suggest that you look at published papers on CQ (two attached) as well as the newly published handbook. All of these report means and standard deviations for the four facets of CQ. From this information, you can interpret scores in your sample relative to prior published work.

I hope this is helpful.

Warm regards,

Linn