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Introduction

Johannes A. Smit

Taking Moodley's (2001) *The Conceptual Basis of Ethnic Stereotyping among Secondary School Learners in the Durban Metropolitan Area* as point o departure, Moodley and Klopper document instances of ethnic stereotypin among Grade 8 learners in the Durban region. They show that ethnic stereotyping is closely related to how individuals categorise one another ir terms of group attributes at the conceptual level. They also show that, in term of Wellman's (1992) model of common sense belief-desire psychology, the categorisation that underpins stereotyping involves values and beliefs a particular cognitive subcategories; and that, stereotyping is related t Maslow's (1954) hierarchy of needs, beginning with physical needs for safet and sustenance, and ending with the psychological need for self-actualisation They develop this link in the light of Boon's (1998) insight that 'ethnicity i high when people feel threatened, or when their physiological and safety need have not been met, and low when people can proceed to actualising thei inherent potentials'. The study also shows that 'learners from all ethnic group tend[] to positively stereotype their own groups, while at the same time negatively stereotyping other groups with regard to particular attributes'. I also 'relate[s] stereotyping to the mental models that people construct of thei environments, outline how the particular mental models of four respondent reflect instances of stereotyping, after which, [they] by way of example, discuss the generic mental models of White and Black respondents in terms o how they modelled their own group and one another's group'.

Buthelezi points to the significant events related to the equalising of gende imaging in recent history. This relates to principles, goals, targets and guidelines in the proclamations of Education For All (EFA) contained in both the World Declaration on Education for All and The Dakar Framework for

Action (Department of Education—DoE 1999), as well as 'Curriculum 2005', the OBE-approach adopted for schooling, and the Revised National Curriculum Statements (RNCS) Grades R-9 (DoE 2002) which adopts an inclusive approach to the curriculum. She sets out to analyse the extent to which six OBE-oriented books for the intermediate phase meet or do not meet the requirements that were set out in these policy guidelines. These are: *Making Sense* by Liz Stewart, *UVulindlela* by Z. Ndlela and T. Mkhize, *Daybreak* by D. Clohessy, E. O'Riordan, L. Beake and C. Kühne, *IsiZulu Sempela* by Z.A. Ziqubu, *Nuwe Afrikaans Sonder Grense* by Mari Lätti and Sonia Gouws and *Dynamic English* by Gus de Villiers, Helene Strauss and Sylvia van Straaten. She does this by also first discussing 'language, gender and the OBE-curriculum', 'gender stereotypical images' in primary schoolbooks, and the theoretical framework and methodology followed. Her study takes into consideration the Revised National Curriculum Statements (RNCS) Grades R-9 (DoE 2002) which adopts an inclusive approach to the curriculum, and takes cognisance of human rights issues such as inequality, gender, disability and HIV/AIDS that influence the degree and way in which learners can participate in schooling. The study 'seeks to determine how far [the books] cover these language learning area requirements, and [whether] they reinforce / challenge stereotypical images of girls and women in typically female activities and occupations that omit the diverse realities of women'.

Solarsh and Alant focus their study on the very important issue of the possibility of developing 'useful programmatic interventions ... to improve academic progress for rural children'. In order to do so, they reason that 'base-line measures of skill are necessary to provide a sound scientific point of departure' and that the research project was an attempt to precisely provide such a measure. Central to their study is the application of the Test of Ability to Explain for Rural Zulu-speaking Children, (TATE-ZC) (Solarsh 2001). Solarsh developed this test to 'analyse how rural African children think, solve problems and verbally express this process within the context of a western education system'. Her main aim was 'to analyse the verbal solutions of rural Zulu-speaking children to everyday problems, elicited through the use of [TATE-ZC], as a measure of the development of abstract thinking skills'. This main goal was achieved through chunking it into secondary aims, *viz.* 1) the administration of the TATE-ZC to six groups of rural Zulu-speaking children

(N = 292), aged 7-12 years, to obtain a comprehensive sample of 'ability t explain' presented by these children in six years of the primary school phase 2) the analysis of data obtained on the above test, according to the followin procedures: i) the identification of 'age levels at which statistically significan development had taken place, and the presentation of a tentative set of ages fo criterion-based evaluation for the development of thinking skills in rura primary school children'; ii) the assessment of whether 'one thinking skill i particular correlated better with the total score, i.e. represented overall abilit to explain'; iii) an analysis of 'the mean scores of the sub-tests at eac age level to attempt to identify a developmental process in the emergence o thinking skills *viz.* which thinking skill emerged first and which was mos challenging'; iv) a comparison of 'the extent to which school performanc correlated with results obtained on the TATE-ZC'; and v) an analysis o 'whether gender differences existed in the development of thinking skills, i the sample as a whole and at each age group'. They achieved these goal through a 'quantitative analytical survey design'. Subjects were selected o the basis of 'a stratified purposive sample'. Six schools in the Valley of a Thousand Hills participated—4 primary schools (Grade 0-7), one junio primary schools (Grade 0-4) and one senior primary school (Grade5-7). As fo results, Solarsh and Alant say, 'the test results of rural Zulu-speaking childre when tested on the TATE-ZC, have been shown to lack the necessar cognitive and academic language proficiency (CALP) that would enable the to reach their full potential as learners. The cause of this has been noted to b due to a multiplicity of recognized factors, but lack of exposure to stories an books, which are essentially language-based activities do play a significan role. Using the five thinking skills identified in the TATE-ZC in combinatio with an intensive campaign to up-grade levels of literacy in the community a a whole could offer a programmatic option for improving the academic future of children in Africa'.

Brown examines 'the role of cognitive instrumental processes, social influence processes, and perceived behavioural control in the acceptance of the Internet as a learning tool'. Based on a survey of 294 university students, he found that 'the cognitive instrumental processes perceived compatibility with values/ learning style, perceived usefulness, perceived enjoyment, and perceived long-term consequences of use significantly influenced the acceptance of the

Internet as a learning tool'. He also found that the social influence process perceived voluntariness, to have 'a significant negative influence, whilst none of the perceived behavioural control factors (self-efficacy and facilitating conditions) had any effect on acceptance'. In all, he found that '5 influential factors accounted for 45.8% in the variance of intentions to use the Internet for learning'. He consecutively provides a conceptual background to the study, an overview of the research framework and hypotheses, the research method, the data analysis and its results, a discussion and the implications of the research, and the limitations and future research possibilities. In order to promote the use of the Internet as a learning tool, therefore, educators and trainers should make it a requirement for students to use the Internet in their courses he reasons.

Edwards, Henwood and Kannan start their article by pointing to the male or masculine ideology pervading science and also give the reader a brief history of cognitive science. This relates to the notion of men 'conquering and exerting mastery over the natural world' in and through science, and explanations based on 'mechanism' or mechanics. However, there is a counter-perspective in which the 'former stark, strictly physical, value-empty, and mindless cosmos previously upheld by science' has become perforated and 'infused ... with cognitive and subjective qualities, values and rich emergent macrophenomena' of a more feminine kind. Rather than mechanics, and domination, it is characterised by holistic and systemic perspectives as well as co-operation and inter-dependence. Here, different from objectivist approaches, 'human experience is given a central place in our understanding and not dismissed as a mere by-product of brain processes'. This latter perspective then, provides the context in which Cognitive Therapy has been developed. It is 'an approach to relieving human distress which is founded on this kind of holistic approach'. Against this background, the *first* aim of their study is 'to show that the current clinical models on which cognitive therapy treatments are based are, on the one hand complex and detailed, but on the other ... situated and human, in that they address the individual's problems pragmatically within real everyday contexts'. To illustrate the application of one of the available models 'in action', they present a case study. In it they show 'how case based research provides a basis for testing and refining both the underlying theory and the treatment model'. The *second* aim of their paper

is 'to sound some warnings about the contemporary enthusiasm fo cognitive science'. This relates to the mainly masculine approaches an attitudes which normally accompany notions of 'science'. The cognitiv therapy case study they present, however, provides a different perspective o it. They then describe the programme and its participants in terms of treatmen developed by Clark and Wells (1995) and some follow-up studies. Participant were drawn from students who responded to posters placed around campus The research methodology was a multiple case study design (Barker, Pistran & Elliott 1994; Edwards 1996). It allowed for the investigation of 'th experience of participants in some depth and to examine objectively thei response to the programme'. It sought to 'see whether the process of th therapy would unfold in the way that Clark and others had claimed that i would and how much participants were able to overcome their anxieties an phobic behaviour'. The case study illustrates how the cognitive model o social phobia works in practice when applied to one person's life situation Case studies of the other participants are in the process of being written.

Departing with the view that 'privacy is a cognitive construct' Nicola Jone introduces her article by referring to a number of problematic issues in thi complex. Pointing to the information age—and what many people do no consciously realise as they peruse the media—is that 'moral judgement characterise the content of the mass media'. Even though journalists have bee very aware of the fact that there are many ethical decisions involved in thei work, attempts to precisely identify 'what standards of conduct and mora judgement constitute ethical behaviour' have not been easy. The main nexu where this problematic is encountered, is the debate 'on privacy versus th people's need to know'. In the context of the ability of governments journalists and businesses to invade the lives of people through a wide variet of technologies, and access the people's most personal information on th World Wide Web—from health to banking accounts—the question of wha counts as a right to 'private' and what as 'the public's right to know', become ever more pressing. Jones also adds the issue of governance transparency— which came with South Africa's new democratic dispensation. This is the also the context of the analyses of reporting on Glyn Taylor's death. Centra is, 'How much of a public person's private life do people need to know?', an 'what constitutes "the public's right to know"?' Jones deals with these matter

by engaging issues such as whether the Taylor story was an invasion of privacy, provides definitions of the 'invasion of privacy', items related arguments in favour of and counter to the 'private lives versus public interest' debate, the points at which the privacy issue arise in journalistic work, and the social significance of seeing journalism as 'gossip in print'.

Basson and Whitehead focus their research on 'the nature of mental imagery and its use in sport settings'. They address this by drawing on cognitive neuroscience, theories of consciousness, and what self and emotions add to our understanding of the nature of and processes involved in mental imagery. The study of imagery in mainstream and sport psychology provides the historical context for their arguments. To illustrate how the study of consciousness, self and emotions may shed light on the complexity of the phenomenon, they also deal with issues of definition and the nature and function of mental imagery. We also have here a brief discussion of current theories that explain how mental imagery impacts on sport performance. This is then expanded by discussion of current cognitive and neurobiological theories of mental imagery. The article concludes with a few pointers to the issues one needs to consider when researching developments in the use of mental imagery in sport and other performance settings, e.g. guidelines for re-conceptualising mental imagery for both research and intervention.

Maree *et al.* replicate the Rensink *et al.* (1997) experiment but also increase the sample size and investigate the role of attention accuracy and response capability in mediating change detection. It introduces the focus by overviewing the issue at stake and how, methodologically, it has been investigated. The study then states that, *firstly*, 'the brain does not build up or internalise a reasonably full and rich visual representation of the environment'; and *secondly*, that change blindness, 'indicates that this representation is unstable and very sketchy and that one possibly relies on the external environment as a form of a memory extension'. A major finding of the experiment relates to 'the possibility that both attention and reactive capability could be feature specific'. This means that 'the detection of colour, location and presence/ absence changes might involve specific processes in the brain'. As such, it is not merely 'attention' that is responsible for mediating change detection, because 'very specific attentional and cognitive processes

are involved in detecting very specific changes. Attending to colour probably qualitatively different to attending to location'. The upshot is th this impacts on how tests for attention and reactive capabilities are done. B making for instance, 'focal attention' responsible for detecting kinds c change, one may 'gloss over very real differences on a micro or featural level There is for instance evidence for distinct brain regions corresponding t specific sub-processes of visual attention'. Even though attention is importar for change detection, it only functions up to a point. Alternative avenues fc further research are thus opened up. Maree et al. suggest that the 'distinctio between interest types needs to be reconceptualised using larger samples an more specific criteria to make allowance for issues such as semantic versu visual informativeness'. The study explains change blindness, the role o attention, the articulation of response time and the detection of change, th method followed, the results of the experiment, and a discussion and conclusion with recommendations.

Matthew Jukes addresses an issue about which still much controversy exists– 'whether parasitic worm infections affect cognitive performance'. Despit more than fifty studies on the topic, Jukes says that it is still difficult to drav unequivocal conclusions. A recent review of treatment trials argued that 'ther is insufficient evidence as to whether [deworming treatment] improve cognitive performance' (Dickson, Awasthi, Williamson, Demellweek & Garner 2000). 'The ambiguity of the evidence does not imply, of course, tha parasitic worm infections do not affect cognitive function, or that treatment o children with infections cannot improve cognitive function' he argues. 'The ambiguity is more likely to result from the difficulty in producing clear results in a field where conducting well designed studies is expensive, time consuming and often unethical'. The paper considers the key difficulties in interpreting results in this field and describes a recent study that attempted to avoid such problems. Finally, Jukes reviews a selection of studies and draw conclusions 'as to the likely effect of parasitic worm infection on cognitive function'.

Cowley starts his study by pointing to two views of cognitive science, *viz.* the cognitive internalist that views cognition in terms of an input-output model, and the model that sees cognition as distributed, where 'affect, perception and

action'—and also history—form part of the shaping of cognitive processes. He then asks the question of whether the same is true of babies, and more particularly, if and how one could study this phenomenon in babies of three months old. The project report has 'an overall goal of designing culturally appropriate measures of dyadic interaction'. It focuses on description and theoretical issues. It stresses that, at three months, babies from KwaZulu-Natal manifest linguistic, ethnic and socioeconomic diversity. Even though this kind of observation may be uncomfortable for the politically sensitive, it is 'more dangerous', Cowley argues, 'to ignore the social and cognitive implications of diversity'. The report then deals with procedures for the study of the impact of culture on babies at three months, the method followed, the question of 'qualitative complexity', how one can analyse local cultural styles, identify typical features of different groups, how cognition is distributed by voice, and the theoretical and applied consequences of the study. It is an important study pointing to how significant cultural differences are, even when studied at three months. The study involved three groups of children in Briardene, Phoenix, and Durban, and finds, for instance, that even at 14 weeks, socio-cognitive development is permeated by culture. Cowley further says: 'as behaviour, values and beliefs affect infants *before* they are learned, we urge caution in promoting Western-style child rearing'. This is relevant to 'those who believe that there is much of value in indigenous knowledge as well as African values and languages'. Persons, brains and communities are shaped by local cognitive processes. In distributed cognition perspective, 'initiatives to improve community life must rely on careful use of material resources, research and, above all, local views of how the world ought to be'.

In their study, Mersham and Louw explore international public perceptions about Australia. It analyses changes to such perceptions (if any) over time and whether the 2000 Olympic Games have had any impact on such perceptions. For focusing on the inter-group character of respondents' images of Australia they deployed a modified version of Walter Lippmann's notion of stereotypes (Jandt 1995:54) to 'describe negative or positive judgements made about others on the basis of their membership of another group—in this case the other group is "Australians"'. The study addresses topics and issues such as: the Olympics, the media, and images of others; the three-year study and the issue of 'looking in from the outside'; a pre-Sydney games survey; Australia

as place; the Australian personality; Australia as a destination; Australian sports; culture and history; economy and politics; race and culture; mediated Australia; and whether the 2000 olympics should be seen as media opportunity or media stereotyping.

Initially delivered as a paper at the 2001 ASNEL conference with the title, 'Towards a Transcultural Future: Literature and Society in a "Post"-Colonial World', Smit interpreted the conference topic as invitation towards indicating how literature could discursively contribute to the realising or facilitation of an entry into a 'transcultural' era or epoch. Amongst others, another assumption is, in some interpretations, that such a discourse is already present in literature—i.e. in how particular literary works articulate 'society' in 'transcultural' terms. Since the complexities in the topic are vast, Smit delimited the scope of his paper to only focus on three 'limit-experiences' as they have found expression in a sample of publications that is part of South African critical, popular political literature. These are condensed into three conceptual metaphors—'trek', 'gulf' and 'guilt'. At three particular junctures in South African history, each of these metaphors constituted a form for which a certain disparate contents were organised. 'Trek' refers to the myth of Afrikaner unity which apartheid ideologues created under influence of nineteenth century racial discourse but also under influence of German National Socialism. In the early 1950s, 'gulf' came to indicate the distances which this myth created—distances which were articulated in territorial, political, economic and social terms. With the world reconfiguring potential local South African but also global events of the 1990s unleashed, 'guilt' stands for the often suspended metaphor in 'post'-discourses as they struggle to exit from a colonial past determination. (In this case, it has an economic connotation.). The assumption in the case of each of these metaphors is that 'post' discourse requires their dissolution. For this reason, their tenor indicates their abolition—which includes the negation of the negations their own iconic limits signified: 'When ... Goes'. Smit's study then, analyses these conceptual metaphors as represented in a sample of southern African popular political literature of the twentieth century, as it represents these historical junctures.

In his contribution, Klopper analyses the metaphor cluster, *yesterday is another country... no one has a passport back there.* He uses the theoretical framework, conceptual blending, developed in Fauconnier (1985; 2001)

Fauconnier & Turner (1994; 1996); Turner & Fauconnier (1995; 1998; 1999; 2000); Turner (1991; 1996; 1999 and 2000); and particularly Fauconnier & Turner (2002), *The way we Think: Conceptual Blending and the Mind's Hidden Complexities*. According to Fauconnier & Turner, conceptual blending forms the basis for a variety of forms of every-day thinking, and should therefore not be seen as a form of cognition that is limited to specialised forms of reasoning like analogical thinking, mathematical calculation and metaphor construction. In particular, he looks at the role of image schema theory in Fauconnier & Turner's theory, and how image schemas are said to simplify extremely complex real world events to human scale thinking by compressing some elements of meaning into other elements of meaning in the process of conceptual blending. In the first part of the article, he outlines Fauconnier & Turner's theory, and analyses the vital relations that are compressed during blending to achieve human-scale cognition. In the second part, he looks at how blending compressions operate in counterfactual blends, humour and metaphor, and the metaphor, *yesterday is another country... no one has a passport back there.*

The Conceptual Basis of Ethnic Stereotyping

Manogarie Moodley and Rembrandt Klopper

The Nature of Stereotyping

Categorisation as Basis for Stereotyping

Kleinpenning (1993), like Tajfel (1978; 1981) considers stereotyping to be the result of a categorization process in which people from a particular social category (the ingroup) emphasize similarities between themselves, while they at the same time emphasise the differences between themselves and people from other categories (the outgroup).

Taking Kleinpenning and Tajfel as point of departure we define stereotyping as the process where members of a group positively characterise members of their own ethnic group in terms of perceived desirable similar group features, or patterns of behaviour, while at the same time negatively characterising members of another ethnic group in terms of perceived undesirable group features, or perceived patterns of behaviour, instead of characterising the persons by actual individual features or patterns of behaviour.

Categories and Stereotypes

All people simultaneously belong to multiple social categories. Devine and Baker (1991:44-50) suggest that general categories usually entail the existence of subcategories that can be default categories. A learner can for instance be a child, a female, a Zulu, a grade 6 pupil, a member of the school choir, a member of the school debating society, a netball player, a member of a lift club, one of three siblings in an upper middle class family, a member of the Roman Catholic Church, etc. Each of the before-mentioned designations constitutes a category that she belongs to along with some other persons. In

this sense any person can be conceptually profiled in terms of any of the social categories to which s/he belongs. How they will be categorised will depend on particular contextual factors. A white boy who is a fellow choir member of our hypothetical black girl may perceive her simply as a fellow choir member when sitting talking to her about choral music on a bench outside of the school. Should an ethnically mixed group of boys walk by, he may become aware of the fact that she is a female. Should a group of white boys come walking by he may become aware of the fact that she is a black female. These awarenesses however do not constitute stereotyping. How the boy behaves towards his female, black, fellow choir member in the presence of others may constitute stereotyping.

Stereotypes evolve within communities and influence how people from the same group behave towards one another and towards people belonging to other groups. It is known that certain group differences, for example gender, skin colour, and language use, play more prominent roles in stereotyping than others. This article focuses on the role of ethnicity and gender as factors implicated in stereotyping in South African schools.

While categorisation therefore is a prerequisite for stereotyping Brewer (1996) reminds us that the use of one category will reduce the stereotypic potentials of other categories. For example, while an observer focuses on the fact that a child is a head prefect s/he will tend not to notice that the child is also a member of a particular ethnic or gender group. Therefore if the positive attributes of a person are emphasized her/his negative attributes will become less prominent. In a subsequent section we will show that stereotyping conceptually relates to the differences between generic and more specific levels of categorisation.

Values, Beliefs and Stereotyping

Wellman (1992:113f) suggests that attitudes, values and beliefs play a crucial role in the process of stereotyping. Cognition is a prerequisite for any form of communication because cognition forms the conceptual basis for aspects of communication, which in turn is part of inter-related forms of expressive behaviour such as facial expression, gesture and vocal response. Mersham and Skinner (1999:90) state that intrapersonal communication (inner reasoning) is a pre-requisite for all communication because it shapes our behaviour and attitudes. On the cognitive level people develop mental models of their environment, including of other humans that they interact with. According to

Wellman (1992:113f) such mental models include attitudes, values and beliefs. These play a crucial role in the process of stereotyping. The following schema, adapted from Wellman (1992:115) presents a model for belief-desire reasoning. It emphasises the prominence of values and beliefs as part of human thinking, and shows the role that emotions can play in thinking. We note that emotive awareness plays an important role during stereotyping:

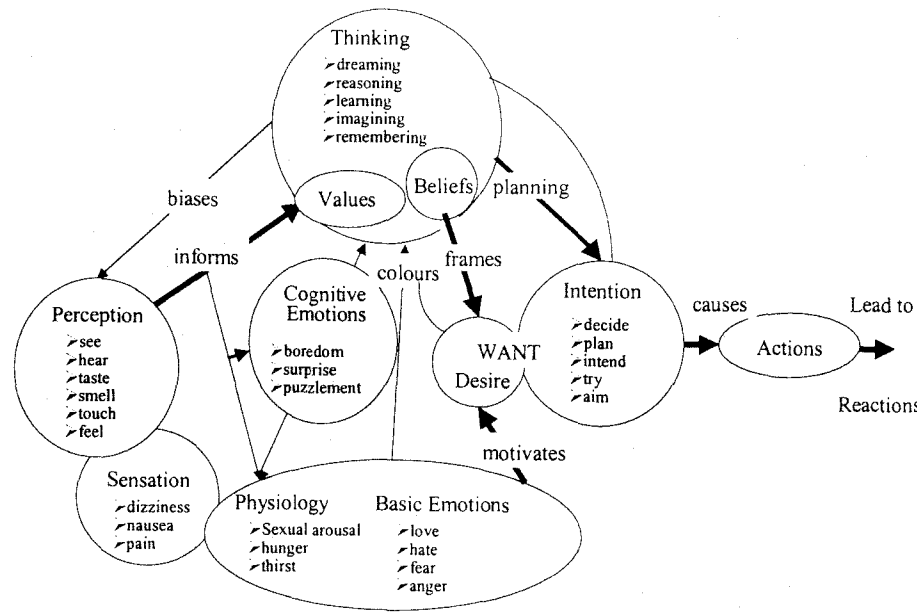


Figure 1: Model for belief-desire reasoning adapted from Wellman (1992:109)

According to Wellman (1992:120) figure 1 represents three year olds' belief–desire reasoning, as well as a simplified version of adults' belief–desire reasoning. At this stage of cognitive development the child should be in command of the following belief-desire reasoning skills:

(1) Children should be able to predict an actors' actions, given the relevant information as to actors' beliefs and desires.
(2) Children should be able to explain actors' observed actions by spontaneous appeal to their beliefs and desires.

(3) Children should be able to predict someone's emotional reactions from information about beliefs, desires and outcomes.
(4) Children should be able to infer beliefs from information about the actors' perceptions and desires from information about the actors' physiological states.

Unsurprisingly, in Wellman's model the major product of mind is thinking – to interpret perceptual information, to remember and to infer. Perception informs thinking and emotions and thinking bias perception. Values and beliefs are part of the formative thinking processes, which includes dreaming (imagining), reasoning, learning, remembering, and knowing. These cognitive activities result in the formation of a knowledge base, an understanding of concepts in the world and about the self in that world. They also result in thinking stereotypically and thinking about stereotypes.

According to Wellman's model intention emerges from the core concept *desire.* What we *want* is determined by our desires and intentions. Wants are internal physiological and psychological needs that are motivated by physiological emotive states and basic emotions. One can physiologically want water because you are thirsty, or you can psychologically want recognition for an achievement to bolster your self-image. Desires motivate intentions. Desires include hopes and wishes, and intentions are the plans and aims to carry out the desires. Intentions are the beliefs and desires of a person. To act from these beliefs and desires is to act intentionally. According to the Wellman schema emotive states colour thinking, while *beliefs,* as forms of thinking, frame (promote or inhibit) *desires* while thinking in general influences intentions via planning. One sees what one wants to believe or see. Tracing links like *colouring* and *biasing* in commonsense psychology emphasize the influence from emotions to desires to thinking to perception leading to action and reaction. Everyday perceptual encounters cause emotions. Emotions are founded in physiological states like arousal and deprivation and are formed by basic feelings like fear, hate and anger.

According to Wellman traits form a layer over the core schema of thinking, cognitive emotions, beliefs, desires and partially over intentions. Traits influence specific desires, beliefs and emotions and therefore influence actions. Wellman (1992:116) claims that thinking, reasoning and intending are active processes while sensing and desiring are seen as passive processes expressing two different sorts of mental states or attitudes. We are swept away by our basic desires and emotions, which then influence our thinking, colour

our thoughts or distort our judgements. Thinking as an active process allows us to have thoughts, form plans or make decisions. Perceptions can be active or passive as we actively do things or passively experience the perceptual world. An active mind can ignore or misinterpret perceptions or lead to false beliefs. A person's beliefs and desires lead to intentions and intentions lead to actions.

We have discussed Wellman's models of belief-desire reasoning in detail to illustrate the vital role that beliefs and desires play in the formation of stereotypes.

A study of stereotyping could be focused on the cognitive or the expressive level. On the cognitive level stereotyping relates to how people think about one another (processes of attribution). On the expressive level stereotyping relates to the jokes that people from one ethnic group tell to members of their group about other ethnic groups, or to the epithets that an individual of one group uses while addressing a member from another ethnic group.

Stereotyping always has an emotional component. It can be a volatile process, making it difficult to discern the intentions of people using the stereotype. This easily lets the researcher fall into the trap of a superficially anecdotal analysis. It was therefore considered better to limit this study to the cognitive level of stereotyping by analysing the attributes that people use to stereotype one another.

Belief is shorthand for values, beliefs and norms. Values have a psychodynamic thrust. Values are internally motivated rules of behaviour. What is at issue in this article is to what extent the learners have internalised the norms that are externally mandated and to what extent are they not complying with the rules and stereotyping each other, or have they internalised those rules to become part of the value system. Because values operate at the subconscious level people tend to embed those values in a narrative that supplies a rationale of how they should behave or not behave.

According to Maslow (1954) human behaviour is motivated by five fundamental needs with the primary needs (hunger and thirst, shelter) at the base. In the hierarchy of needs, these primary needs must be satisfied before social needs can be satisfied[1].

[1] These fundamental needs are partially reflected in Wellman's model as the physiological states, sexual arousal, hunger and thirst.

Boon (1998) builds on Maslow's hierarchy of needs. According to Boon if survival is threathened, then ethnicity is high in the different social groups.

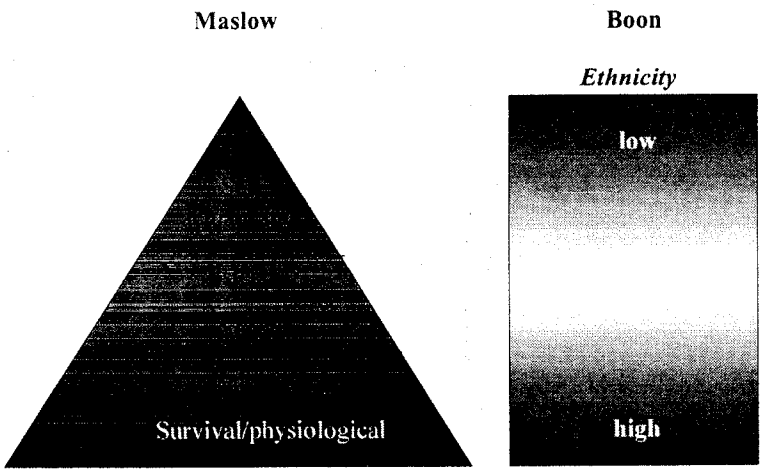


Figure 2: Model for hierarchy of needs adapted from Mersham and Skinner (1999:69).

The higher one goes on Maslow's hierarchy of needs towards self-actualisation the lower the ethnicity needs. Boon adds a social dimension to Maslow's taxonomy and presents a rationale for high levels of ethnicity and stereotyping in South African schools in the absence of proper integration strategies.

According to Boon, the physiological and safety needs are similar to Maslow's survival needs. The higher the physiological and safety needs are, the higher the need for ethnic self-identification will be and group values will remain strong. Once the basic survival needs are satisfied and there is no danger and self-actualisation has been reached, ethnic identification is low. Miscommunication takes place when the communication needs of the communicators are not satisfied, or are different. Attitudes, opinions, beliefs, conventions and stereotypes of people are emotional needs. Other categories of general communication needs include information needs, entertainment

needs, motivational needs, aesthetic needs and ideological needs. In th following section, we will document the extent to which White, Black, India and Coloured respondents positively stereotype their own group whil negatively stereotyping respondents from other groups. We consider this to b an indication according to Boon's reinterpretation of Maslow that levels o ethnicity are still relatively high among our respondents because their materia living conditions are still such that they are competing with one another fo the fulfilment of their security and social needs.

Ethnic Stereotyping among Durban Black, White, Indian an Coloured Learners

Moodley (2001) documented clear cases of ethnic stereotyping, which can b summarised as follows:

- While ethnic groups clearly do stereotype themselves positively and d stereotype outgroups negatively, they in fact do not do so in equal degree With the exception of the statements *Blacks are loudmouthed* and *Blacks ar racist* White respondents consistently take a neutral position with regard t both their own group (the ingroup[2]) as well as toward outgroups.

- Black respondents clearly favour their ingroup by strongly disagreein that Blacks are loudmouthed, unfriendly, untidy and racist, and by full agreeing that Blacks are friendly, honest, generous and hardworking. Th general trend for them was to negatively stereotype outgroups.

- Indians positively stereotyped their ingroup by agreeing that Indians ar friendly, honest, hardworking and generous. They negatively stereotype Whites, Blacks and Coloureds.

- Coloureds clearly favour their ingroup by agreeing that they are friendly honest, hardworking and generous. They were however equally divided wit regard to the positive traits associated with Indians. They negativel stereotyped Indians with regard to being loudmouthed and racist, bu disagreed that Indians were unfriendly and were neutral about Indians bein

[2] Literature on stereotyping generally uses the term 'ingroup' and 'outgroup' rather than 'in-group' and 'out-group'.

untidy. Coloureds show the same general pattern of variable stereotyping with regard to Blacks.

In an era when gender issues are at last receiving the attention that they deserve, a study of stereotyping will be incomplete without an enquiry into the relationship between gender and ethnic stereotyping. Therefore, in Figure 3 we present a bar graph that reflects differences in ethnic stereotyping among the male and female respondents in the survey:

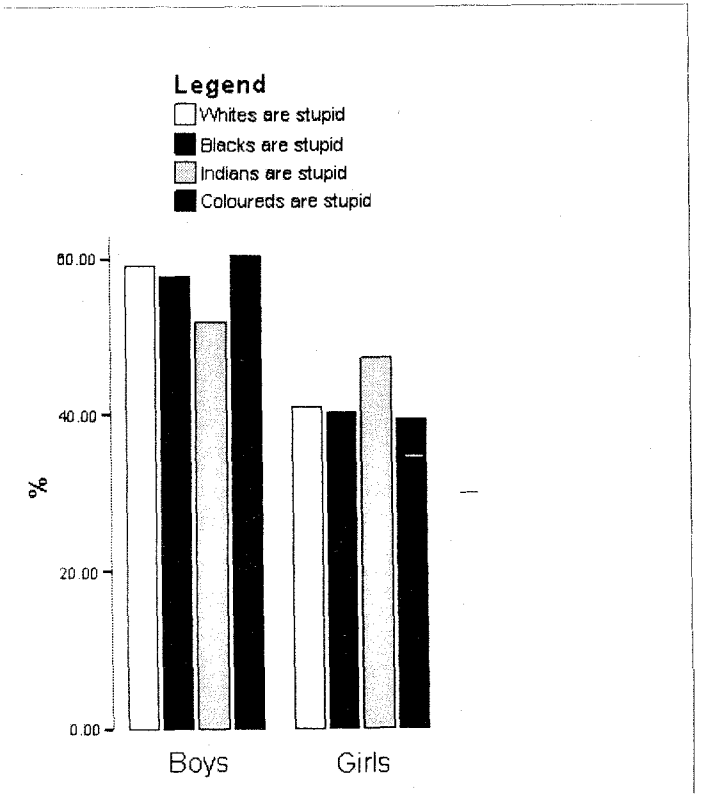


Figure 3: Ethnic stereotyping by gender among Durban learners

The following general conclusions can be drawn from the graph in Figure 3 about gender-based stereotyping:

Given the fact that males constituted just over 48% of the respondents, and females just over 51%, it is clear at a glance from the graph that male respondents (designated as 'boys' on the graph) are more inclined

towards ethnic stereotyping than females (designated as 'girls' on the graph). It furthermore is clear that males tend to stereotype Coloureds more as being stupid, followed closely by Whites and Blacks being stupid. By contrast, females tend to stereotype Indians more as being stupid followed by Whites, Blacks and Coloureds being stupid.

The Idealised Cognitive Models that Respondents have of Themselves and Members of Other Ethnic Groups

According to Klopper (1999:248-272), humans understand their environment by constructing mental models of the entities that they encounter and the events that they observe, or of which they form part. According to Klopper, each individual constructs such mental models of entities by associating an extensive array of attributes with that entity.

When people stereotype their own groups, or other groups, they selectively use a small number of generic group-attributes instead of the full array of individual-specific attributes at their disposal.

The challenge for a study on stereotyping, such as this one, is to identify the really significant generic attributes that are used during stereotyping, and to measure the extent to which such generic attributes are used when respondents conceptualise their own and other ethnic groups.

In the examples that we give below we will demonstrate how four individual respondents stereotype their own and other groups by means of such generic attributes. These four examples, randomly extracted from Moodley's doctoral research database, demonstrate that generic attributes form part of the various idealised cognitive models that individuals have of members of other groups. The four respondents were selected randomly from among 1322 respondents in the database:

- Respondent 5 in the database is an Indian female, 14 years of age and in grade 8. We will show how she stereotypically models Whites. She is not in class with Whites and does not have White friends outside of school. Her mental model of Whites contains the following generic perceptions: Whites are hardworking, Whites loudmouthed, Whites are untidy, and Whites are not honest. She has no strong views about Whites being friendly or unfriendly.
- Respondent number 103 in the database is a White male, 14 years of age and in grade 8. We will show how he stereotypically models Blacks. He is

not in class with Blacks and does not have Black friends outside of school. His mental model of Blacks contains the following generic perceptions: Blacks are loudmouthed, Blacks are honest, and Blacks are not untidy. He has no strong views about Blacks being friendly, unfriendly or hardworking.

- Respondent number 1163 in the database is a Black male, 15 years of age and in grade 8. We will show how he stereotypically models Indians. He is not in class with Indians and does not have Indian friends outside of school. His mental model of Indians contains the following generic perceptions: Indians are friendly and hardworking, but not honest. Indians are not loudmouthed, not untidy and not unfriendly.
- Respondent number 1015 in the database is a Coloured female, 13 years of age and in grade 8. She is in class with Blacks, but does not have Black friends outside of school. Her mental model of Blacks contains the following generic perceptions: Blacks are not friendly, Blacks are not honest, but Blacks are hardworking. Blacks are loudmouthed and untidy.

By using correlational statistical procedures in SPSS 9, the 1322 individual responses contained in Moodley's survey were averaged for each of the ethnic groups, after which tests of significance were applied to determine whether generic attributes could be discerned for each ethnic group. In the following section, we discuss the extent to which we could discern generic ethnic-specific mental models.

Generic Mental Models of Ethnic Stereotyping

Because it is not possible to give an exhaustive account of results in a journal article such as this one we will limit our discussion of generic models of ethnic stereotyping to how Whites and Blacks stereotyped themselves and one another.

How Whites Modelled Themselves

Most of the Whites showed no strong opinions about Whites being friendly, honest, hardworking and generous. The second largest group of Whites fully agreed that Whites are friendly, honest, hardworking and generous showing that they favoured their own group. A small number of Whites completely disagreed that Whites are friendly, honest, hardworking and generous.

Most of the Whites showed no strong opinions about their negative attributes—loudmouthed, unfriendly, untidy and racist. The second largest

group of Whites completely disagreed that Whites are loudmouthed, unfriendly, untidy and racist, showing ingroup favouritism. A small percentage of the Whites fully agreed that Whites are loudmouthed, unfriendly, untidy and racist. Whites showed only a moderate tendency towards ingroup favouritism when it comes to their perception of the negative traits exhibited by their group.

This indicates that Whites do not have a singular idealised cognitive model about themselves. The predominant model is one of reserve by Whites about the positive and the negative attributes associable with their own group. Whites as a group do not show a strong tendency towards ingroup favouritism.

How Whites Modelled Blacks

Most of the Whites had no strong opinions about Blacks being friendly, honest, generous and hardworking. Very few of the Whites fully agreed that Blacks are friendly, honest, generous and hardworking. A greater percentage of Whites completely disagreed about Blacks being honest, generous and hardworking indicating stereotypical value judgements about Blacks.

Most of the Whites fully agreed that Blacks are loudmouthed and racist, but are neutral about Blacks being unfriendly and untidy. Very few Whites completely disagreed that Blacks are loudmouthed, unfriendly, untidy and racist revealing a moderate negative stereotypical view of Blacks by Whites.

How Blacks Modelled Themselves

Most of the Blacks fully agreed that Blacks are friendly, honest, generous and hardworking, showing strong ingroup favouritism, but there was a large percentage of Blacks that completely disagreed that Blacks are hardworking.

There was strong disagreement by Blacks about Blacks being loudmouthed, unfriendly, untidy and racist, indicating strong ingroup favouritism. Few Blacks fully agreed that Blacks are loudmouthed, untidy and racist and a percentage of Blacks fully agreed that Blacks are unfriendly. Most Blacks showed strong ingroup favouritism with regard to positive and negative attributes about themselves.

How Blacks Modelled Whites

Most of the Blacks completely disagreed that Whites are friendly, honest and hardworking, but fully agreed that Whites are generous. A small number of Blacks fully agreed that Whites are friendly, honest and hardworking, but

completely disagreed that Whites are generous. Few Blacks have neutral opinions about the positive attributes of Whites.

Most of the Blacks fully agreed that Whites are loudmouthed, unfriendly and untidy, indicating negative stereotyping of Whites by Blacks.

The predominant model is a strong negative stereotypical view of Whites by Blacks with regard to positive and negative attributes of Whites.

Conclusion

Taking Moodley 2001 as point of departure, we documented instances of ethnic stereotyping among grade 8 learners in the Durban region. We showed that at the conceptual level ethnic stereotyping is closely related to how individuals categorise one another in terms of group attributes.

We also showed that in terms of Wellman's (1992) model of commonsense belief-desire psychology the categorisation that underpins stereotyping involves values and beliefs as particular cognitive subcategories. We argued that stereotyping is related to Maslow's (1954) hierarchy of needs, beginning with physical needs for safety and sustenance, and ending with the psychological need for self-actualisation. We drew this conclusion in the light of Boon's (1998) insight that ethnicity is high when people feel threatened, or when their physiological and safety needs have not been met, and low when people can proceed to actualising their inherent potentials.

We showed that learners from all ethnic groups tended to positively stereotype their own groups, while at the same time negatively stereotyping other groups with regard to particular attributes.

Finally, we related stereotyping to the mental models that people construct of their environments. We briefly outlined how the particular mental models of four respondents reflected instances of stereotyping, after which we by way of example discussed the generic mental models of White and Black respondents in terms of how they modelled their own group and one another's group.

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The Invisible Females: Analysing Gender in the OBE-oriented Language Books for the Intermediate Phase in South African Schools

Thabisile Buthelezi

Introduction

In acknowledging that historical marginalisation of groups of people would b corrected through education and having identified females as part of th marginalized groups, South Africa as a country embraced the Education Fc All (EFA) principles, goals, targets and guidelines contained in both th World Declaration on Education for All and The Dakar Framework for Actio (Department of Education—DoE 1999). The Dakar Framework for Actio pledges members, among other commitments to:

> - eliminate gender disparities in primary and secondary education b 2005, and achieving gender equality in education by 2015, with a focu on ensuring girls full and equal access to and achievement in educatio of good quality;
> - Implement integrated strategies for gender equality in educatior which recognize the need for changes in attitudes, values and practices. (THE CSAEMP 2001)

As such, the South African Constitution guarantees gender equality and th right of everyone to basic education and with the adoption of the nev constitution came the transformation of the education system guided b various legislative instruments and policies (DoE 1996; DoE 2000). In th light of this human rights approach to education, in 1998 South Africa adopte

a policy that aimed at changing the curriculum in all schools to make education inclusive to all learners (including female learners). This curriculum—that was based on the Outcomes-based education (OBE)—was launched in April 1997 (DoE 1999:24). Following the launch of 'Curriculum 2005' new schoolbooks that claimed to follow the OBE-approach became available from publishers in South Africa.

In 2002, the DoE published The Revised National Curriculum Statements (NCS) Grades R-9 (DoE 2002) which adopts an inclusive approach to the curriculum (DoE October 2002; DoE July 2001) by specifying the minimum requirements for all learners. Also, it takes into cognisance human rights issues such as inequality, gender, disability and HIV/AIDS that influence the degree and way in which learners can participate in schooling. This inclusive policy did not only aim at making schools accessible to female learners, but also aimed at eliminating gender disparities that existed in school books / materials.

Though in real situations women cluster in the lowest of skills, pay and status, South African females are diverse in terms of their social, professional, cultural, financial and political standing. However, in the schoolbooks and school materials the general ideological perception that the role of women is wife or mother and that the women's participation in the labour market is marginal, is expressed in a number of different ways omitting the diverse realities of women. As such, all the Learning Area Statements in the NCS document try to create awareness of the relationship between human rights, social justice, a healthy environment and inclusivity, and learners are encouraged to develop knowledge and understanding of this rich diversity of South Africa (DoE 2002). Specifically, The Language Learning Area in the NCS document contributes to the curriculum by developing in learners, critical tools necessary to become responsible citizens.

With special reference to the learners in the Intermediate Phase, the Language Learning Area in the NCS document requires that these learners should be introduced to a wide range of text including broader social and environmental issues that are national concerns like gender, HIV/AIDS, and poverty. The NCS document specifies that these social issues should not just be treated as the content of texts, but as the conscious part of learning experience. In this way learners will be exposed to the authentic use of language and through language they will develop critical skills to recognize and challenge stereotypes (including gender stereotypes), and learn how texts persuade readers to particular points of view and to challenge these uses of

language (DoE, 2002). Thus, this article seeks to analyse six OBE-oriente language school books for the intermediate phase to determine how far the cover these language learning area requirements, and if they reinforce challenge stereotypical images of girls and women in typically femal activities and occupations that omit the diverse realities of women.

Language, Gender and The OBE-curriculum

After recognising that the curriculum in schools does 'exert some form c control over learners and educators by the way in which knowledge i presented' (Wolpe, Quinlan & Martinez 1977:95), and that it has 'contribute to reinforcing stereotypical notions of gender differences' (DoE 2002:34), th South African Department of Education through the new OBE[1] curriculum i schools intends developing critical thinking skills in learners and challengin the stereotypical female images in school environment. Since all texts carr specific values, the language learning area (according to the NCS document is an important vehicle to achieving democratic principles. Therefore, whe learning a language the NCS document requires that learners should explor the values carried by texts with an aim of identifying and discussin constitutional values and challenging stereotypes—gender stereotypes i particular (DoE 2002). It also requires that the themes selected for languag learning should cut across gender and diverse backgrounds (rural/urban including all realities of women and men.

Regarding gender the learning outcome six in the NCS documen specifies the necessity for learners to develop their meta-cognition (DoI 2002). Since short passages in language books form the contexts in whicl language structures and skills are learnt, these passages should then provid ideas and contexts where questions can be posed in relation to learners' ow experiences of 'being gendered' and 'being actively positioned within gender system'. Therefore the inclusion of the realities of women's lives in th schoolbooks will provide a context in which learners visualize the oppressiv codes and the wider range of problems emerging from histories, social system and traditions that reproduce the inequalities of gender. Furthermore, whe gender issues are contextualised within other experiences of difference o

[1] OBE is Outcomes-based-education, an approach that is learner-centred anc emphasises learning more than teaching. It focuses on the results or outcome of learning.

identity, learners will interrogate their own development, particularly in the intermediate phase where learners develop a sense of 'self', the positioning of 'self' within a culture and the performing of 'self' according to the expectations of that culture. Language being one vehicle for identity formation and cultural construction should then be used effectively to create contexts for learners to see their beliefs in perspective and to discuss the implications of the things they think about males and females. That would be of great importance for the gender agenda in the classroom.

Gender Stereotypical Images in Primary Schoolbooks

Gender bias is a worldwide phenomenon and in schools, it is practiced in many different forms. From the differentiated school uniforms (dresses for girls and trousers for boys), to the different school rules (boys to cut their hair short and girls to tie their hair with ribbons), to the different sports (rugby for boys and netball for girls), to the schoolbooks read in class and in school libraries, gender stereotypes are entrenched deeply throughout the school culture. Because gender bias has always been so obvious in schoolbooks, and as Nilsen (1977:161) says that 'Culturally, print in most minds suggest veracity', and because of the power of the printed word which is often taken as true, feminist groups were concerned that children would learn certain behaviours through role models in schoolbooks (Sugino 1998) and that they would also learn psychological and sociological values when reading the books. As a result, many researchers throughout the world (Nilsen 1977; Sugino 1998; Manjari 1998; Tepper 1999; Schaunn & Flanagan 1992; Holmes 1993) have studied children's literature to determine what children are being exposed to.

When studying gender bias in schoolbooks in three suburban New Jersey communities, researchers have discovered that there is a prevalence of male over female images (Nilsen 1977:162). In the content of stories in the same books, different genders had been presented with stereotypical personalities and qualities. For instance, females played passive, appreciative and supportive roles while males played active roles and were presented with strength, bravery and leadership skills (Nilsen 1977:162). Girl characters—usually in the roles of mothers and princesses—were often represented as naïve, conforming, dependent and being rescued by achieving their goals through help from others while boy characters were independent, capable and

successful through their ingenuity and perseverance (Manjari 1998). Thes stereotypical images were identified even where the characters were animal Such stereotyping of the roles has not only been confined to social roles bu also to professional roles where males have most often been portrayed a authors (Nilsen 1977:165).

In folklores and fairy tales that are often read in elementary classes i schools, gender stereotypes are often constructed. 'Heroines' as character attain their status not because they rescue themselves from their situations, bu because they are beautiful and can endure suffering, and the reward is mos often marriage. So, 'heroines' wait patiently and passively to be chosen fo marriage while the young men in fairy tales win the prize if they are active an brave, and the prize is often a beautiful girl (Schaunn & Flanagan 1992:245 In analysing fairy tales, Schaunn and Flanagan (1992:258) argue that thes stories establish a 'dichotomy between women who are gentle and passive and those who are active, wicked and ugly'. Women who are powerful an good are never human—they are fairies that little girls cannot identify with women who are human and have power are nearly always portrayed a repulsive. So, in most fairy tales, girl children are socialized to the stereotyp of beauty that leads to success and success for the girl child is attained when 'prince' chooses her for marriage.

Research has also discovered that reality is not emphasized i schoolbooks. For instance, the illustrations picture boys as having large bodies than girls and that is, contrary to reality where the maturing girls hav larger bodies than boys of the same age (Nilsen 1977:165). Again, where th generic words like 'man', 'mankind' and 'person' are used in books, th illustrations do not follow through the generic meanings, as they only sho males (Nilsen 1977:173). This use of the generic terms excludes females fro the schoolbooks therefore 'produces the impression that women are ignore and passed over' (Sugino 1998). However, limited specific research has bee done to study gender bias in OBE-oriented books used in South Africa schools to determine whether the influence of the transforming South Africa social environment and curriculum in schools has been felt in the literar world, and whether the new schoolbooks reflect this transformation.

Theoretical Framework and Methodology

This study is based on Pharr's theory of oppression where one of the commo elements in oppressive behaviour is the 'defined norm' (Pharr 1988:7), and th

'norm' is the standard of correctness wherein all others are judged in relation to it. People who fall outside the 'norm' are 'those who seek their rights and inclusion' (Pharr 1988:9). Since they are not part of the 'norm', they are seen and as such presented as 'inferior' and 'marginalized'. The 'other's' existence, everyday life, capabilities and achievements are kept unknown through invisibility or selective presentation. Then there is reinforcement of the idea that the 'norm' exists in the majority and 'others' do not exist or do not count (Pharr 1988:9).

Therefore, this study hypothesizes that in the current OBE-oriented schoolbooks the male and only the able-bodied male is the 'norm' and the female is the 'other', and as such, the female is defined in relation to the male. Since females are not part of the 'norm', they are seen and thus presented as inferior and marginalized. Their everyday lives, capabilities, achievements, real contributions and gains are kept unknown through invisibility and selective presentation that only highlights the stereotype female.

The intermediate phase (Grades 4,5 and 6) was selected as an area for investigation because in this phase learners are at their pre-adolescent stage (ages 9-11) and are therefore often restless and unsure about themselves. They are at a stage where they are self-conscious and as such, the issues relating to identity become important to them. Therefore, when teaching language in this phase, the relationship between language and identity should always be kept in mind. Grade four was chosen as it is the first grade in the intermediate phase and as such forms a transition between the Foundation and an Intermediate phases.

The six OBE-oriented books for grade four that were analysed are *Making Sense* by Liz Stewart, *UVulindlela* by Z. Ndlela and T. Mkhize, *Daybreak* by D. Clohessy, E. O'Riordan, L. Beake and C. Kühne, *IsiZulu Sempela* by Z.A. Ziqubu, *Nuwe Afrikaans Sonder Grense* by Mari Lätti and Sonia Gouws and *Dynamic English* by Gus de Villiers, Helene Strauss and Sylvia van Straaten. All six books are language books—three English books, two isiZulu books and one Afrikaans book—the three languages that are taught in KwaZulu-Natal schools. All six books were published in the year 2000, almost three years after the OBE-curriculum was launched in 1997. Maskew Miller Longman published three of the books and Kagiso Education published the other three, both of which companies have extensive experience in publishing schoolbooks.

The design of the study is content analysis and the six OBE-oriented language books for the Intermediate Phase (Grade four in particular) are the

unit of analysis. Qualitative analytical methods were used to examine th character roles and activities both in the pictures—as forms of non-verba communication—and short passages in relation to selected themes from the books. In all the six books analysed, the themes for analysis were selected on the basis that they involve the pictures of people and the gender of the characters in the stories is clearly described. Themes that did not include human or animal characters with a clearly described gender were not analysed. The short passages were selected as an area of focus because in language books, short passages most often form a context in which specific language structures and skills (reading, listening, writing and speaking) are learnt in a particular theme. The pictures reinforce the theme or context. In analysing both the short passages and the pictures firstly, the gender of the characters was identified. Then the social or professional roles as well as the actions associated with the characters were linked to the relevant character.

The Invisible Females

This section presents the analysis of the six selected language books for grade four. The six books were selected as the publishing companies claimed that the books were written in the OBE-style. They are all language books for grade four and published by the two companies that have an established record of publishing schoolbooks for South African schools. Maskew Miller Longman has over one hundred years of educational publishing experience in Southern Africa (Maskew Miller Longman Company Profile http://www.mml.profile.asp. 2003-08-11) and Kagiso Education being one of the well-known imprints under which Maskew Miller Longman publishes (Maskew Miller Longman http://www.mml.co.za/general/index.asp 2003-08-11). In all the six books selected, themes that have characters and pictures with a clearly described gender were analysed. Themes that did not have human or animal characters with a clearly described gender were not analysed. In the selected themes in each book, the roles and actions of all the gendered characters in the passages and in the pictures were considered for analysis. In analysing both the short passages and the pictures firstly, the gender of the characters was identified. Then the social or professional roles as well as the actions associated with the characters were linked to the appropriate gender in order to identify the stereotypes and these were presented in table form.

Making Sense

Table 1: Character Roles and Actions in *Making Sense*

Social and professional roles	Gender of the characters	Action
Old man Police Learners Principal Doctor Inventor	Males	Singing Speaking Interviewing Researching Doing experiments Presenting a book Thinking Watching others
Old woman Mother Wife Teacher Learners	Female	Telling stories Cooking Holding a baby Sitting and listening Watching others

Making Sense is an English language learner's book for Language, Literacy and Communication for Grade four. Out of the six themes in the book, five were analysed. As represented in Table 1, the pictures and the character roles in the passages in this book, depict males in a variety of professional roles while females are presented in traditional roles of mother, wife and teacher. For example, in the theme *PLACES* in the book, three units of huts create a rural family context and the woman is cooking in a large pot outside the huts. With the three children sitting and fowls in the yard, the impression created is of a rural home, the woman's roles probably being that of mother and wife who is responsible for the raising up of children.

While the pictures present both male and female learners side-by-side, the male learners are depicted as active and assertive. They take leading roles and speak most of the time while the female learners exist passively, quietly playing the roles of watching what the boys do and listening to the boys speaking. Actions done by male learners are standing and speaking, thinking, doing presentation, reading books, doing experiments and researching. The female learners are presented sitting or listening. Adult females are presented in traditional roles of cooking, holding babies or telling stories.

In this book the invisibility and non-existence of women has been compounded by their identity being integrated with that of husbands. For

instance, in the passage on 'Pollution', Doctor Little is described, as a 'very busy little man with a beard', while his wife is invisible. Dr Little is active and speaks to the animals. He is a doctor and an inventor who has a new invention—a space ship (TSM)—and he solves the problem of pollution. Dr Little's wife has no identity of her own in the story as she depends on her husband's surname for recognition and identification. She is defined as Doctor Little's wife by words like, 'his plump, jolly wife', 'my wife and I'and 'Mrs Little'. There is no mention of her name and she is silent throughout the story only existing on a page as a passive illustration next to her husband, Dr Little.

However, not just any male is the 'norm', or the 'example' or 'active' in the book: it must be an able-bodied male. The males who are physically challenged are represented as a category standing on their own and focus on their blindness makes their 'disability' more salient. The six men in the passage, 'The blind men and the elephant' are presented as 'stupid'. When they touch the elephant, they cannot feel that the parts of the elephant are joined together. So, they make wild, far removed guesses saying that the elephant's trunk is a snake, the tusk is a knife, the ear is a leaf, the tail is a rope, the leg is a tree and the body is a wall.

UVulindlela[2] meaning 'Paving the way'

Table 2: Character roles and actions in *UVulindlela*

Social and professional roles	Gender of the characters	Action
Fire fighter Soccer player Learners Doctor Builder Artist	Males	Running Playing basketball Reading a newspaper Speaking Painting Listening to a radio
Housewife Mother Learners	Females	Fetching water and firewood Playing netball Skipping rope Cooking Serving tea

[2] This is an isiZulu name for a male person and the book has been personified.

In *Vulindlela*, an *isiZulu* language book for the first language speakers of *isiZulu* there are five themes and four were analysed. As illustrated in Table 2 the males are represented in a variety of social and professional roles while the females are stereotyped as housewives and mothers doing domestic work of cooking, serving tea, fetching water and firewood, and so on. In the theme *ISIKOLE* (school), the males are stereotyped as doctor, builder and females work in hospital and sew wedding dresses.

The ability of the male to make decisions—whether good or bad— for themselves and standing by their decisions is evident in the poem '*Ngikhathele Isikole*' (I'm tired of school). This poem is about the boy who does not want to wake up and go to school. His sister pleads with him to go, bribing him with chocolate cake and ice cream. However, he does not want any sympathy, nice stories or scary things and stubbornly says, '*A-N-G-I-V-U-K-I*' (I'm not waking up). The girl in the poem plays the role of a female who takes responsibility for the wrong decision that the male has made about his own life. This, she does by trying to plead with the boy who is stubborn, and does not want to go to school. She is going to be late for school herself.

The stereotype of a man who is the sole provider in the family is greatly highlighted in the passage '*Amabombo Abheke Ekhaya*' meaning 'Going Home'. A man who works far from home arrives in a taxi with a lot of goods that he has bought for his family. The passage emphasises the 'joy' in his family when he arrives home. He does not want to be dropped off by the taxi next to his home but prefers to be dropped at a distance so that the children, wife and dog can run to meet him. The picture also shows the dog, three children and the wife running to meet him and among the goods that he has bought for the family, female shoes obviously meant for the wife, are particularly mentioned to emphasise that she is also dependent on him.

Daybreak

Table 3: Character roles and actions in *Daybreak*

In *Daybreak*—an English language book—eight themes of eleven were analysed. Table 3 illustrates that in this book, males are presented in a variety of social roles as compared to females who play limited roles of 'housewife', nurse and singer.

Not only is the female presented within the confines of the domestic sphere, but she is also shown as lacking in confidence to move out of this

Social and professional roles	Gender of the characters	Action
Uncle Ticket officer Tractor driver Taxi driver Bus driver Grandfather Cyclists Learners Criminals/thieves Police	Males	Making tea Selling tickets Driving tractor, taxi and bus Providing Steal diamonds Catch thieves Escapes from thieves Control emotions Sad, angry, happy, frightened
Nurse Housewife Singer Grandmother Learner	Females	Giving medicine Cooking Buying necklace Knitting Chatting to each other Holding a baby Lonely, shy, excited, sad

allocated sphere. She is presented as needing and dependent on male support when she is outside the domestic confines. In the passage 'Benji wants to see his grandfather', Benji's father works in a business and Benji's mother works at home doing house chores and the picture shows her cooking. When Benji asks his mother that they visit his grandfather, his father is too busy at work to come with them, and Benji's mother is shown as not confident enough to travel alone without her husband. She is described as being 'a bit worried about this' and she indicates that she would rely on Benji's help on the journey. The help Benji's mother is referring to is not about luggage since they are not carrying lots of bags/luggage. Benji's mother has only her sling bag and Benji is carrying his backpacker bag. So, this need for help implies dependence and lack of confidence. In the pictures, Benji is the one who speaks to the ticket officer and he walks confidently with his mother following slightly behind.

The male-dominated world of risk-taking, bravery, ingenuity and emotion control is demonstrated in the passage 'Stolen diamonds' where the thieves have put stolen diamonds in Justice's pocket. They kidnap him to get

their diamonds back. The thieves and police are males and Justice is a brave, clever young boy who controls his emotion of fear, takes risks and 'outwits' the thieves thereby leading them to being arrested by police.

IsiZulu Sempela meaning 'proper isiZulu language'

Table 4: Character roles and actions in *isiZulu Sempela*

Social and professional roles	Gender of the characters	Action
Driver Business owner Salesperson Business Manager Human resource manager Financial manager General manager Radio Broadcaster	Males	Reading a newspaper Listening to a radio Driving Writing Phoning using landline and cell phone Sitting in front of computer Employing people Broadcasting Watering the garden Raking leaves Marketing
Public relations officer Mother/housewife	Females	Helping the injured people Talking to people Washing clothes

In isiZulu Sempela, an isiZulu language book for the first language speakers of isiZulu there are ten themes and five were analysed. In the book, both pictures and text show the world of business. Table 4 illustrates that in this book males are represented in office environments, occupying a wide range of high paying jobs and mostly management (thus decision-making) positions as compared to

females who are represented in limited roles of wife, mother and public relations officer. In a formal complaint letter in the theme *UMFUNDI NENDAWO AHLALA KUYO* (The learner and the environment), Mr Mdletshe is either the owner of the store or the manager and the shop assistant is clearly a female who is described by the words '*intombazane eyayingisiza*', meaning 'a girl who helped me'. Social roles are clearly gendered as the female do the laundry while the males are watering the garden and raking the leaves.

The stereotype of news being a domain for males is evident in the passage about the importance of the radio and newspaper. This passage emphasises that the radio and newspaper are important for news dissemination though there is also mention of other programmes that are broadcast. The males are reading the newspaper and listening to the radio. With the heading on the front cover of the newspaper, 'Peace in DRC' and the back cover heading, 'Soccer Feast', a stereotype is clearly reinforced: the news is for men and what is newsworthy is what interests men (male domain).

Nuwe Afrikaans Sonder Grense

Table 5: Character roles and actions in *Nuwe Afrikaans Sonder Grense*

Social and professional roles	Gender of the characters	Action
Learners Father Grandfather Shopkeeper	Males	Listening to the radio 'Braai wors' Taking photos
Learners Mother Grandmother	Females	Knitting Baking Cleaning Rides bicycle Plant mealies Buying Selling produce

The Afrikaans book, *Nuwe Afrikaans Sonder Grense*, has eight themes of which four were analysed. The book is written for learners who take Afrikaans

as a second additional language. So, in this phase learners are at their elementary stage of learning Afrikaans. The book is mainly intended to improve their vocabulary.

However, gender stereotypical roles are evident in the book. For instance, in the picture of the theme of *VROLIKE FAMILIES*, each family member is represented in a gender stereotypical role. Grandfather is listening to the radio, grandmother is knitting, mother is cleaning the wall, father 'braai wors' and Mpuka (male child) is taking photos using a camera. Again, the contents of a fridge to teach the vocabulary of the groceries in 'Wat is in die yskas?' (What is in the fridge?) are presented in a kitchen context with a female picture.

Dynamic English

Table 6: Character roles and actions in Dynamic English

Social and professional roles	Gender of the characters	Action
Learners Father Doctor Driver Mechanic	Males	Speaking Working in the garden Doing the washing Fixes cars Play soccer and cricket
Learners Mother Teacher Beautiful lady Working at the bank Patient	Females	Speaking Studies at night Reads stories

In Dynamic English, an English language book written for the second language speakers of English there are nine themes in the book and seven were analysed. In this book in the theme *FAMILY AND FRIENDS,* the social and professional roles are clearly gendered in such a way that the binary of strong

and weak is evident. A doctor (healthy and strong) is male and the patient is female (sick and weak). Again, evidence of the undervalued, and thus not remunerated, jobs that women do is indicated in the passage 'Saturday in Town'. The passage also depicts the role of women as caregiver and child bearer. Mrs Zondo goes to town with her daughter, Lindi. She buys cough syrup from the pharmacy for her husband. They visit the library to read, visit a neighbour who has given birth to a baby in hospital, and then stop at many shops in the mall until they are hungry.

Furthermore, the idea of marriage as destiny is evident in Cobus's story that sounds like century-old fairy tales. In this story a lonely man, John, feeds an ugly cat that has come from nowhere with milk until the cat asks him to make a wish. Then he asks for a wife and is immediately given a 'beautiful lady', Stella, who appears from nowhere. As in the old fairy tales where the destiny and mission of females was to fulfill the two offices of being wife and mother, the story ends with John and Stella getting married, and the vague statement of 'they lived happily ever after'.

Conclusion

The major project of the DoE is to deliver the OBE-curriculum in schools. To ensure this delivery and that relevant materials are used by schools the education department has its monitoring systems. However, the blind spot in the horizon is that despite the monitoring systems of the DoE, the OBE-oriented schoolbooks are still not reflective of the curriculum that they intend to deliver. While the gender-sensitive language of 'he or she' is used in the books, and the pictures mostly represent males and females side-by-side, addressing issues of gender bias goes far beyond the putting of 'he or she' (whether in words or pictures) next to each other.

In the analysed books, pictures and characters in the passages still reflect traditional gender stereotypes where females are represented in the traditional roles of wife and/or mother as well as in limited professional roles of teachers, while the males are represented in a variety of professional roles where they have power to make decisions and control resources. In the books, there is absence of role models that girl children can identify with if they want to continue with their education and, much against the requirements of the NCS document, none of the passages and pictures in the books presented contexts where learners will use language to develop skills to identify and

challenge gender stereotypes. The question therefore is: Are the monitoring systems of the DoE effective enough to ensure that books and materials used to deliver the OBE-curriculum in schools, do not reflect and thus perpetuate the gender stereotypes that they are supposed to challenge?

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School Performance in Rural South Africa- *The Role of Verbal Reasoning*

Barbara Solarsh and
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Introduction

School success is directly related to adequate language, thinking skills a problem solving ability (Blachowicz 1994; Cummins 1985; Verzoni & Sw 1995; Westby 1994; Zachman, Jorgenson, Huisingh & Barret 1984). T importance of these skills is endorsed in The White Paper on Education a Training, which states that education, including curriculum, teaching metho and text books, should 'encourage independent and critical thought, the capac to question, enquire, reason, weigh evidence and form judgements, achie understanding ... and communicate clearly' (White Paper WPJ/1995: chap 4). a recent study of the Joint International UNESCO-UNICEF Monitori Learning Achievement (MLA) Project in African countries, South African gra 4 pupils (9 years) were found to perform on the lowest levels of the spectrum i numeracy and slightly better for literacy and life skills (Strauss & Burger 199 In addition, there is a well documented high failure and drop-out rate amon black South African primary school children (Macdonald & Bourroughs 199 Inadequate language skills and related cognitive skills, resulting in poor verb reasoning and ability to explain, have been postulated as playing a significa role in contributing to this situation. Being able to integrate language a thought, or to encode communication, has been shown to be more significant related to general cognitive ability than other factors such as age and soci economic status (Quay, Hough, Mathews & Jarret 1980).

Rural Zulu-speaking children are constantly faced with problems daily life, and successfully resolve these problems through the application of t appropriate linguistic and cognitive skills required of such experiences. Y when they have been faced with problem solving within the context of form

learning, the high failure and drop-out rate have indicated that they were not able to apply the appropriate verbal reasoning skills which would ensure success in this context (Macdonald & Bourroughs 1991).

The school system, demands of the child an ability to progress from using language primarily as a communication tool, to using language as the primary means of acquiring knowledge. This may be achieved through the literacy experience at progressive levels of complexity (Heath 1992). Research has shown that if children in the primary school phase and beyond, are to cope adequately with written language—language in its most context reduced and cognitively demanding form, a second stage of language development, and development of associated cognitive skills, must occur (Snow and Dickson 1991). It is through re-organizing and reformulating the linguistic structures already present in the child's language in response to new cognitive demands, both at a micro- and macro-structure level, that this is made possible (Westby 1982). This would provide children with the ability to reason and express causality, to make inferences, to devise solutions to problems, to anticipate problems and find ways to avoid them (Zachman, Jorgenson, Huisingh & Barret 1984).

In view of the fact that problem solving in the formal school context has been shown to be problematic for rural African children (Bentley, Kvalsvig & Miller 1990; Macdonald & Bourroughs 1991), educators must seek to understand problem-solving skills through a different context. Social or pragmatic reasoning has been shown to form the basis of abstract logico-deductive reasoning to follow (Hertzig, Birch, Thomas & Mendez 1986; Vygotsky 1962). It may therefore be within social reasoning that rural Zulu-speaking children have a better opportunity to demonstrate their ability to reason and explain.

The Test of Ability to Explain for Rural Zulu-speaking Children, (TATE-ZC) (Solarsh 2001) was developed to analyse how rural African children think, solve problems and verbally express this process within the context of a western education system. A serious attempt was made to take as many aspects of culture and social circumstance as possible into consideration, thereby making the test as culture fair as possible. It is a test that has been designed specifically for a rural Zulu culture and is thus presented in Zulu.

Through analysing verbal explanations about everyday social problems that are presented by primary school children, in which specific thinking skills are targeted, evidence for the development of the second stage of language and thinking skills may emerge. Understanding these processes could enable

educators to identify the extent to which such skills are present in children different ages in the primary school phase in relation to the demands made the academic curriculum. Thus, importance of second stage language thinking skills in contributing to progress in school may be highlighted (Sn and Dickson 1991).

Language for Learning

The main goal of primary school education is to produce children who effectively use decontextualized language as a tool for learning. This requi a certain level of language and cognitive skill prior to the acquisition literacy, which in turn may lead to the development of new language sk through the acquisition of literacy. The child in the primary school phase thus required to participate in literacy-based activities, which aside from new visual, auditory and motor skills being learnt, places new demands on child's oral language and cognitive skills. The language and cognit demands further increase as students move beyond the primary grade lev and they study subjects in which language becomes increasingly technical a less related to the language of everyday communication. The ability to rea and explain (Donaldson 1986; Wood 1992), closely associated with development of narrative skills (Applebee 1978; Kemper and Edwards 19 are noted developments during the early primary school phase.

Evidence has suggested that skill in the use of decontextuali language such as recounting personal narratives, planning future events a explaining ideas and reasoning, is a better predictor of literacy and sch achievement, than skill with other challenging language tasks (Snow a Dickson 1991). Decontextualized language embodies three dimensions, whi once achieved are manifest in all aspects of language and learning. Thus ability to engage in discourse: in the absence of an interactive conversatio partner; in the absence of presumed shared knowledge with the listener; a where the message is complex, ensures a level of school achievement and ability to engage effectively with literacy (Snow & Dickson 1991).

Cummins' (1985) concept of 'cognitive and academic langua proficiency', CALP, has highlighted the role of language in thinking, learni and literacy. Out of the social aspect of 'basic interpersonal communicati skills', (BICS), externalized in the form of pronunciation, grammar a vocabulary, the conceptual aspect of language, CALP, emerges which is covert function, resulting from the 'manipulation of language

decontextualized academic situations' (Cummins 1985:212). BICS and CALP may also be referred to as primary development of language, and second stage development of language respectively.

At a cognitive level, the emergence and development of these skills coincides with Piaget's concept of concrete operations. At this time the processes of decentration—the ability to hold more than one thought in one's mind, reversibility of thought—the ability to move back and forth between different aspects of the narrative, and ability to categorize hierarchically, become evident (Piaget & Inhelder 1968). These skills form the foundation of the ability to answer questions through reasoning, understanding cause and effect, and making inferences.

The role of prior knowledge of the world in problem solving and learning has also been stressed. Blachowicz (1994), has stated that essentially all learning is an attempt to make meaning through a process of problem solving based on prior knowledge of the world. It is the attempt to reconcile something new with something known. This requires skills to formulate what is already known, to hypothesize about various possibilities, and to collect, integrate and evaluate the new knowledge. This process is the result of a number of question and answer processes, which may be self formulated and initiated, or posed by an outside agent.

The importance of life experiences has also been stressed in the area of reading comprehension and text analysis. Pitts and Thompson (1984), have referred to cognitive theory and the concept of 'schemata', which are structures for representing concepts (based on life experience) in memory, and which are said to be the key units of the comprehension process. Inferences about portions of a text that are not explicitly presented are derived from these schemata to access full meaning. If a child possesses sufficient schemata that are easily accessible, cognitive processes such as inferencing are easily achieved. Inferencing enables a child to derive meaning from text by adding personal information in the form of schemata to textual information, thereby creating new meaning and comprehension (Shiro 1994).

At the core of the learning process is ability to encode new meaning that is created and answer questions effectively. This is based on accurate comprehension of the question itself, as well the implicit and explicit information presented, irrespective of whether the problem is concrete, such as solving physical problems in the world, pragmatic such as solving social problems, or decontextualized such as comprehension in reading.

Thinking Skills and Explanation

Thinking skills are those skills that emerge in an individual as a result of t development of language, of cognition, of socialization, and the integration cultural norms and life experiences. They are the skills that a child calls up in attempting to represent and explain events in the world. The ultimate goal the ability to think in a logico-deductive manner, yet social or pragma reasoning may play a significant role in achieving this.

Explanation is essential to education. On one hand a child takes explanations offered by others, and on the other, presents explanations convey the ability to reason and solve problems i.e. thinking skills. Henc explanations facilitate our understanding, or are used to convey o knowledge. Within an educational context, ability to explain is the prima means by which a child's knowledge is assessed. By evaluating childrer ability to explain we may gain an understanding of thinking skills and hc they impact on school achievement. Evaluating this within a rural Afric context will add to such a body of knowledge.

In formulating a psycholinguistic analysis of children's explanatior Donaldson (1986) has provided a theoretical framework for analysis questions and answers based on the integration of language and cognitio Thus in combining different clauses, a number of explanations may occu having both linguistic and cognitive origins and implications.

Three of the four different types of explanations she has identified a relevant to an understanding of thinking skills and were used in the TATE-Z(Explanation of an *event* (why did the car break down?), would result in a empirical answer (what happened to cause such an event?). Explanation of a *action* (why did you hit the boy?) would result in an intentional answer (f what purpose or reason?). Explanation of a *conclusion* (how do you know the are at a wedding?) would result in a deductive answer (how do you know? Procedural explanations (how do you bake a cake?) were omitted.

Related to event, action and conclusion are three content categories c explanations related to type of causality. *Physical causality* relates to an empi rical answer based on the event. *Psychological causality* relates to a motiva tion for action or reason for action. *Logical causality* relates to a deductive an swer, which may be based on an inference, leading to a conclusion. The ling uistic formulation of each of these requires cognitive skill in specific areas.

An empirical explanation (what happened to cause?) requires the ability to deal with temporally sequential events in which the explanation

relates to a prior event, which must have occurred. Linguistically, this would be expressed using 'because'. An intentional explanation (for what purpose or reason?) requires an answer related to a purposive, goal directed aim or behavioural intent. Linguistically this would be expressed as 'want to, is going to, would, could'. A deductive explanation (how do you know that?) relates to a concept, idea, judgement, inference or conclusion, i.e. a mental act. This is a situation in which one mental act requires justification in terms of another mental act, rule or observable evidence. Linguistically this would be expressed as 'can tell that, know that, must' Thus whereas an empirical explanation can be considered to require concrete thinking skills, intentional and deductive explanations require abstract thinking.

The issue of the role of language in thought, and vice versa, has been clarified by considering the distinction drawn by Donaldson, between content and mode of explanations.

Content refers to the type of relations, which holds between events, states, actions or mental acts, which are referred to in an explanation. These relations are independent of language, but may also be expressed linguistically. This may also be referred to as the level of competence.

Mode refers to how the speaker's own view of the task affects the type of relation, which he/she expresses in the explanation. These relations are dependent on the use of language, and must be expressed linguistically. This may be referred to as the level of performance.

Explanation, therefore, exists in the complex relationship between content and mode, facilitated by the use of causal connectives, resulting in an overlap between semantics, syntax and pragmatics. Such an analysis may form the basis of a criterion referenced scoring system, which may be used in research into children's ability to explain. (Table 1)

Table 1: Summary of content/ mode, and relationships expressed (Donaldson 1986)

Content/Mode	Relationships Expressed
Physical / Empirical	Cause and effect between 2 events
Psychological / Intentional	Cause and effect between 2 actions OR Cause and effect between 1 action + 1 intention
Logical / Deductive	A relationship between 2 ideas or judgements OR A relationship between a judgement and proof of its logical antecedent

Developmental Aspect of Explanation

Developmentally, Donaldson's research (1986) revealed that by 7 years children have acquired a number of skills in relation to their ability to explain Piaget also described developmental stages in relation to cognitive processes and problem solving behaviour (Ginsberg & Opper 1969). Van den Broek's (1997) overview of developmental patterns in event comprehension completes this section giving a comprehensive analysis of different ways of speculating about development of thinking skills.

Donaldson stated that by 7 years, children are able to distinguish between cause and effect. They are able to distinguish between physical psychological and logical relations. They can produce well-formed causa sentences. Their ability to explain includes the empirical and intentiona modes. By 9 years they know an action can be explained in terms of th agent's intention to achieve a particular result. This is also the age at whicl true narratives, containing all story grammar components begin to appea (Applebee, 1978), reinforcing the relationship between logical thinking an narratives.

At a cognitive level, Piaget identified three interdependen components of thought that show developmental sequence, viz. centration decentation of thought, static/dynamic reality and irreversibility/ reversibilit of thought. Whereas the pre-operational child (5-7years) shows irreversabilit of thought, and is attentive to limited amounts of information, which are of particularly static or concrete nature, the concrete operational child (7-1 years) shows reversibility of thought, can focus on several aspects of situation simultaneously, and is therefore sensitive to dynamic aspects o reality. The inter-dependence of these skills is emphasized.

Further they have a direct influence upon the manner in whic children at different stages approach a problem-solving task. Pre-operationa children are said to approach a task in a haphazard way, reporting results i terms of expectations not observations and drawing faulty conclusions base on unrelated evidence. Concrete operational children are said to investigate number of possibilities, but show limited skill in designing an experimenta process, resulting in the process of analysis being unsystematic. Children wh achieve formal operations (12years+) are said to be able to plan, tes possibilities and design experiments well. They observe results accurately an draw proper logical conclusions. They should, therefore possess all the skill necessary to analyse and explain social problems proficiently.

Finally, it is the study of the development of the ability to detect causal relations between events that has given rise to an understanding of the developmental aspects of event comprehension. It is assumed that like all other language activity, comprehension must precede the expression of such causal relations.

Event comprehension has been related to three main skills, viz the emergence of the ability to recognize multiple causation; to do this at increasingly more complex levels of event organization; and to relate increasingly to internal psychological causes. The different types of events and relations described by van den Broek (1997) show close correlation with types of causal relationships described by Donaldson (1986).

He described observable events as actions and physical events, and non-observable events as goals and intentions, which may include different types of relations such as motivations, enablements, necessary and/or sufficient causal relations, with one or more human protagonist.

His analysis of causality incorporates two important dimensions. One is that causal relations differ in terms of the kind of events they connect, and two is that causal relations differ in their strengths. Thus physical causality refers to relations between two physical events, motivational causality refers to relations between intentions and consequences, psychological causality refers to the effects of events on internal states such as emotions, feelings, intentions. Strength of causal relation refers to whether an antecedent is necessary and sufficient for a consequence to occur, or whether it is necessary but not sufficient and therefore prevents enablement as a consequence. In addition, because events may be caused by multiple antecedents, multiple consequences are possible. Thus explanations may be offered at multiple levels involving a complex of integrated skills.

In the construction of developmental stages for event comprehension, van den Broek (1997) analysed research which attempted to answer the question: Do causal relations between events, affect children's ability to comprehend and recall the events? This has implications for the setting down of schemata and subsequent use of these schemata in answering questions.

A number of age related trends emerged (see Table 2 for summary). Children as young as 4 years consistently recognized causal relations between concrete and observable events such as physical events and actions, but had difficulty with goals and motivations. At 6 years it was noted that the level of coherence in a narrative (measured by no of coherence markers in the form of conjunctions) did not influence the level of recall of causal relations and there

continued to be a focus on concrete observable events. This trend appears continue till 7 years, when children demonstrated some understanding of goa and actions, and a weak understanding of motivation. By 8 years childr continue to focus strongly on directly observable events in answeri questions, but they do start to recognize the causal relations between goal intentions and other events. This occurs only within the same episode. 10 ye olds demonstrated that level of coherence did improve recall of caus relations, as did events with multiple causality. By 10 - 11 years childr demonstrate an understanding of all causal relations both within and betwe episodes and can therefore give an answer reflecting the global structure of t events. The final stage in integrating and interconnecting events, which occu in adolescence, lies in the ability to identify themes or topics that conne events into a cohesive whole, which ultimately lead to the ability to mal inferences about more complex concepts such as morals and values. It is al the time at which children enter Piaget's period of formal operations wh logico-deductive reasoning increases.

In conclusion, van den Broek recognized the many unanswer questions in relation to development of event comprehension and suggest that a possible way to explore further was to look at the product comprehension in the form of questions and the encoded answers produced, has been attempted in this research.

Table 2: Developmental Trends in the Comprehension of Complex Even (van den Broek 1997:335).

	Observed ages in Text and Television research				
Developmental Trend	4	6	8	10-11	14-Adul
Increasing centrality of causal structure	Some effect of causal con-nections	Stronger effect of causal con-nections		Very strong effects of causal con-nections	

Shift from focus on within-episode connections only to focus on between episode connections to focus on themes	Within episodes	Within episodes	Within episodes when cognitive demands are low Between episodes when cognitive demands are low	Within episode; between episodes	Within episodes; Between episodes; themes
Shift from focus on observable, concrete actions to focus on internal states (goals, motivations)	Focus on actions	Focus on actions	Some focus on goals, but actions still prominent	Strong focus on goals	
Note: Ages provided for relative rather than absolute comparison					

Explanation as a Production Exercise

There has been support for the study of explanation and causality as a production exercise rather than a comprehension exercise for a number of reasons. Primarily, the goal of education is to facilitate the development of thinking skills in children, which are demonstrated by them first through oral verbal expression and then through written verbal expression as the children enter higher classes. Thus mode, modality and content becomes relevant in revealing to us a child's ability to express thoughts and ideas, and why from a cognitive-linguistic point of view, s/he may be unable to achieve these goals of education.

However, production experiments have also been shown to be of particular value when working in a cross cultural context. The main difference between production and comprehension lies in the balance between choice and control that exists between the child and the investigator. In a comprehension study, control rests with the experimenter in that a particular target, decided upon by the experimenter, is present or absent in the child. In a production study, control lies with the child who presents a response borne of the child's own mode of explaining and avoids presupposition about the child's cognitive processes. It has further been shown that when children themselves have selected the events for event comprehension tasks, level of performance has

been achieved at an earlier age (Trabasso & Nickels 1992). Thus locus o control can affect test outcome. This is of particular value cross-culturally ir the South African context, as so little in known of thinking skills in rura African children.

Production studies also have been shown to be more reliable wher working across socio-economic boundaries. This was demonstrated by a study, which aimed at analysing the communicative accuracy of middle socio economic status (SES) white children, lower SES white children and lowe SES black children in the USA (Quay, Mathews & Schwarzmueller 1977). I was found that whereas there was no difference in performance for decodin information between the three groups of children, there was a difference ir encoding information between the middle SES group and the lower SES grou irrespective of race. A test that evaluates production ensures that reliability a this level has been accounted for.

Finally, production studies of narratives have been shown to be th more accurate diagnostic measure, in the identification of learning disability ir students (Feagens & Short 1984). Whereas 6-7 year old normal ability an learning disabled children displayed equal competence with language whe enacting a story told to them, there was a significant disparity between the tw groups on a variety of verbal production measures. This may also be relevan for disadvantaged children, in that disadvantaged children possess elaborate codes, which they were unable to use effectively when demonstratin cognitive ability in a formal context (Hertzig, Birch, Thomas & Mende 1986).

Pragmatic versus Logico-deductive Explanation

Although Pretorius (1994) has refuted the idea that the reasoning achieved ir relation to everyday life is equal to formal reasoning, it might be a precurso and facilitate it. This notion was reinforced by the outcome of a trainin programme for 14 year olds in which pragmatic reasoning schemas presented assisted the students in bridging the gap between concrete and formal though (Verzoni & Swan 1995).

These positive effects were explained by the belief that th adolescents learned to use memory of domain-specific (contextualized inferential rules, to assist them with achieving proficiency wit decontextualized reasoning. The pragmatic reasoning schemas facilitated th development of inferential rules from experiences occurring in everyday life

Thus understanding how rural African children reason within a pragmatic context may have important implications for intervention programmes, resulting in more positive educational outcomes through better event comprehension and inferencing in literacy.

An integration of all the above theoretical concepts created the basis of what informed the development of the Test of Ability to explain for Zulu-speaking Children (Solarsh 2001).

The Test of Ability to Explain for Zulu-Speaking Children (TATE-ZC)

The Thinking Skills

The specific language based thinking skills used in the TATE-ZC which were identified as indicators of verbal problem solving ability by Zachman, Jorgenson, Huisingh and Barret (1984) were:

- The ability to determine causes of a problem
- The ability to determine solutions for a problem
- The ability to explain inferences about the problem
- The ability to identify ways of avoiding problems
- The ability to reason in relation to a negative why question.

These abilities would place both linguistic and cognitive demands on the child. They would require that the child was able, not only to understand the immediate problem, but to draw on world knowledge and past experience, as well as the ability to produce new, creative and imaginative options.

The Test of Problem Solving (TOPS) (Zachman, Jorgenson, Huisingh & Barret 1984), which provided the basic model for the TATE-ZC, is an example of a test that targeted children's verbal problem solving ability through analysing the five thinking skills outlined above. Tables 3-7 have attempted to relate these thinking skills to the education process, and to demonstrate the role each one plays in ensuring academic success.

The tables identified:

- Each thinking skill
- The type of question used to elicit this skill
- The cognitive skills required in order to answer the question

- The linguistic skill required to demonstrate ability to apply the thinking skill
- The mode of explaining
- And the problems with learning, which may result for the child due to the lack of that particular skill.

Analysing each thinking skill in terms of the exact structure of the question that elicits the appropriate response, was critical to the reliability of the test An understanding of the cognitive skills involved provided a basis for criterion-based evaluation. Analysing the relevant linguistic skills to be applied, provided a structural format for analysing thinking skills and for remediating deficiencies. Understanding the mode of response required to answer a particular thinking skill, identified its level of complexity and was important for a developmental analysis of thinking skills. Identifying the problems that may result due to a lack of that particular thinking skill could alert educationists and researchers as to how the problem may manifest academically. Failure in these academic areas may then be remediated through the development of abstract thinking skills.

Table 3: Explaining Inferences: An Analysis of Linguistic and Cognitive Skills

Target Skill	Quest-ion	Cognitive Skill	Ling-uistic Skill	Mode Empirical / Intentional/ Deductive	Problems due to Lack of Skill
1 Explainig Inferencs The child is asked to explain how he knows that something he sees is true.	How do we know... ...	Must understand intention of the question. Must sort relevant from irrelevant information. Must critically evaluate the illustration Must identify specific feature related to question	Encode for syntax and seman-tics	Deduc-tive thinking mode	Difficulty comprehending questions. Unable to determine most critical factor. May lack syntax or semantics

Table 4: Determining Causes: An Analysis of Linguistic and Cognitive Skills

Target Skill	Question	Cognitive Skills	Linguistic Skills	Mode Empirical Intentional Logical	Problems due to lack of Skill
2 Determining Cause The child is asked to state a logical cause for a situation he sees in the picture	Why - for what reason? How - how did it come to pass?	Must understand the intention of the question Temporal sequence must be analysed Backtracking/ reversibility of thought must take place to determine a likely cause Cause must be evaluated Must draw on life experience	Must encode correct linguistic form- use 'because' Must select accurate lexical items	Empirical mode	Difficulty with sequencing of events Difficulty with comprehending science experiments Difficulty with predicting outcomes Difficulty explaining own behaviour

Table 5: Negative Why: An Analysis of Linguistic and Cognitive Skills

Target Skill	Question	Cognitive Skill	Linguistic Skill	Mode Empirical Intentional Logical	Problems due to lack of skill
3 Negative Why *The child is asked to give a reason why one would not behave in a certain way.*	Why..... not? Why would you not behave in a particular way OR carry out a particular action?	Must understand the intention of the question Must note the negative component in the question Must understand the meaning of the question and how the neg. influences the answer Must understand the type of information required Must identify the appropriate answer	Encode the correct linguistic form	Concrete Intentional Logical	Difficulty with problem solving. Difficulty following instructtions

Table 6: Determining Solutions: An Analysis of Linguistic and Cognitiv Skill

Target Skill	Question	Cognitive Skills	Linguistic Skills	Mode Empirical / Intentional/ Logical	Problems due to la of Skill
4 Determining Solutions The child is asked to solve various situational problems that are illustrated and presented verbally.	What should/ could they do?	Must understand the intention of the question Child must place self in position of other Must consider various possibilities Must identify the critical one Must rely on past experience	Encode correct syntactic form 'should have / could have'	Concrete Intentiona l Logical	Problems with readin studies Problems with maths Problems with story sums difficulty planning ahead

Table 7: Avoiding the Problem: An Analysis of Linguistic and Cognitiv Skills

Target Skill	Question	Cognitive Skills	Linguistic Skills	Mode Empirical /Intentional /Logical	Problem due to Lack of Skill
5 Avoiding Problems The child is asked to find ways the problem presented could have been avoided.	What could be done so that ... would not occur?	Must understand the intention of the question Must understand the problem at hand Must have reversibility of thought Must identify possible causes Must identify problem to be avoided Must match the problem with the solution	Encode appropriate linguistic structure 'should have/ could have' Establish correct tenses	Empirical Logical	Cannot backtrack in time Poor compreher sion of complex linguistic structure Difficulty with cause/effec

These five tables highlight the complex nature of an apparently straightforward task- answering a basic question, which formed the basis of the test instrument used in this study.

The motivation for developing a test such as the TATE-ZC has emerged from the recognition that academic achievement is a function of language and thinking skills. Despite this, culture fair tools to measure this essential function have not been developed. If useful programmatic interventions are to be implemented to improve academic progress for rural children, base-line measures of skill are necessary to provide a sound scientific point of departure. This research project was an attempt to provide such a measure.

Methodology

Main Aim

The main aim of this study, was to analyse the verbal solutions of rural Zulu-speaking children to everyday problems, elicited through the use of The Test of Ability to Explain for rural Zulu-speaking Children (TATE-ZC) (Solarsh 2001), as a measure of the development of abstract thinking skills.

Sub-aims

The main aim was achieved through the following sub-aims:

1.The administration of the **T**est of **A**bility **T**o **E**xplain—for **Z**ulu-speaking **C**hildren (TATE-ZC) to six groups of rural Zulu-speaking children (N= 292), aged 7-12 years, to obtain a comprehensive sample of 'ability to explain' presented by these children in six years of the primary school phase.

2. To analysis of data obtained on the above test forms the basis of the following procedures:

(i). To identify age levels at which statistically significant development had taken place, and present a tentative set of ages for criterion-based evaluation for the development of thinking skills in rural primary school children.

(ii). To identify whether one thinking skill in particular correlated better with the total score, i.e. represented overall ability to explain

(iii). To analyse the mean scores of the sub-tests at each age level to

attempt to identify a developmental process in the emergence of think skills viz. which thinking skill emerged first and which was m challenging.

(iv). To compare the extent to which school performance correlated w results obtained on the TATE-ZC.

(v). To analyse whether gender differences existed in the development thinking skills, in the sample as a whole and at each age group.

Research Design

A quantitative analytical survey design was used.

Selection of Subjects

Subjects were selected on the basis of a stratified purposive samp Stratification occurred at six age groups and in six different grades. purposive sample attempted to account for uncontrolled variables thro stated criteria for selection. Teachers were trained to identify children who within a 6 month age range per class, and who fulfilled the following criteri

- **Age:** The chronological age of each of the children had to fall within specified 6 month age range for the grade.
- **Gender:** An equal distribution of male and female was needed to con for social and developmental factors that may influence performance.
- **Academic Record:** The children had to have a record of no failure repetition of a school year, to exclude low cognition as a factor.
- **Sensory Impairment:** The children had to be identified by teachers appearing to have no visual or auditory impairment which may impact development and test performance.
- **Social and Medical History:** Children had to be identified by teacher having no social or medical problem which may impact on development test performance.

Selection of Schools

Six schools in the Valley of a Thousand Hills participated in this study primary schools (Grade 0-7), 1 junior primary schools (Grade 0-4) an senior primary school (Grade5-7). The schools were selected on the basis the principals' willingness to participate, and their access to roads. All schools were within a 10 km radius, thus drawing on children in sim

contexts, giving recognition to the fact that even within a disadvantaged community, there is a range of 'poverty' and 'relative wealth'. The subject selection was based primarily on identifying children who complied with the criteria for selection, and who fell within the 6-month age range identified per grade. There was, therefore, no attempt to identify a critical number of children per school. Pupil-teacher ratio's varied from approximately 30-40:1 (Table 8).

Table 8: Selected schools and teacher-pupil ratios

School	Total No of Children	No of teachers	Pupil Teacher ratio
1 Senior primary	440	11	40:1
2 Junior primary	501	15	33:1
3 Primary	797	20	40:1
4 Primary	584	14	42:1
5 Primary	564	14	40:1
6 Primary	586	20	29:1
Total	3472	94	37:1

The description of the schools that follows has been included to contextualize the learning environment of rural Zulu-speaking children. All schools were situated on sand roads, with a high pupil-teacher ratio (see Table 8). All schools had minimal resources, with most classrooms having only desks for children and a table and chair for the teacher. There was minimal evidence of teaching materials or wall charts. There was electricity in the classrooms, but this was sparingly used, thus most classrooms were fairly dark and sparse. Children had their own exercise books and some textbooks were used. All schools were included in the government nutrition programme, thus children were receiving some nutritional supplementation. It was noted that the majority of children made a small purchase, e.g. a lollipop, a small packet of chips or even a small packet of biscuit crumbs from the bottom of the biscuit boxes, from the local women who sold food and sweets outside each school at break-times and after school. Attempts had been made by some schools to create gardens around the classrooms to improve the atmosphere of the school, and all had a rough sandy sports field adjacent to the school. All schools were surrounded by expansive and beautiful rolling hills, with clusters of traditional homes as well as simple more western homes dotted on the hills and along the

roads, which resulted in children walking long distances to school in many cases.

Research Assistants

Three female Zulu-speaking research assistants (RA) were involved in the data collection. All the RA's work in this capacity for the Child Development Unit at The University of Natal, and were therefore experienced in the process of scientific data collection. Two training sessions took place. In the first, the researcher gave the RA's some theoretical background to the study, and explained the process up to and including pilot studies I and II. The second session involved training in terms of the subject selection procedure, the orientation session, the test itself, test administration with an emphasis on probing technique, and discussion on how to monitor and control number of subjects per age group.

Each RA was given a testing kit including: a copy of the TATE-ZC, a tape recorder, a lapel microphone, extra batteries, audio cassettes, the front cover page for each test script, to record each child's details, school, date of testing and RA involved, an exam pad, stationery and packets of sweets as rewards for the children.

Using a hired vehicle, the RA's moved independently from school to school. Besides on-going telephonic communication to deal with any arising queries, the researcher monitored the data collection on two occasions. Once in the early phase of setting the research up and once during the data collection to ensure that data collection was reliable.

The Test Instrument Used: The Test of Ability To Explain for Zulu-speaking Children (TATE-ZC) (Solarsh 2001)

The TATE-ZC consisted of a test booklet in which 16 black and white, line drawn, realistic pictures of different contexts relevant to the life of a rural Zulu-speaking child, and 53 Zulu questions with the English translation below, were adjacently arranged. 1 picture was a demonstration item, and 15 pictures were the test stimuli. 3 of the questions related to the demonstration item, and 50 were test items. There were 2 - 4 questions per picture.

Each question related to one of the five thinking skills identified. The thinking skill linked to each picture was dependent on the context of the picture. There was no specific pattern in which thinking skills were targeted. Thus the total of 50 questions was made up of 10 questions per 5 thinking

group and thereafter an attempt would be made by the group to remember each child's name and action. After this icebreaker the children all sat down together in the circle once again.

The RA then explained that in order to further get to know one another and because the children would be asked to speak into the tape recorder, they should practice by each one individually telling a little about themselves, their families and interests. The RA also participated and used the opportunity to encourage the children to speak loudly and engage in a conversation with the RA.

Before the children were sent back to their classrooms to be called individually for testing, they were instructed not to talk about the test to each other.

Individual Testing

On entry into the testing setting, each child was welcomed by the RA, thanked for participating and informal interaction took place for a few moments to settle the child. Thereafter, the following instructions were given by the RA:

- I am going to show you some pictures and then I will ask you some questions about the pictures.
- Nobody except myself will be hearing your answers.
- This is not like a school test because there is no right and wrong answer. I am just interested to hear what you think and have to say about the pictures.
- You must give the very best answer that you can.
- I am going to tape-record what you say so that I don't have to try and write it down as you speak. Please speak loudly so we can hear you clearly on the tape recorder.
- When you have completed the test and go back to your classroom, I would like to ask you not to talk about the test to the other children.

These instructions were followed by the presentation of the training item.

- Lets look at the first picture together.
- Can you tell me what you see?
- Good. Now you can answer the questions. You can tell me as much as you like.

Each training question was individually presented. If the child gave a good answer, the RA praised the child and stated clearly what was good about the answer, encouraging the child to give more than one answer if desired. If the child gave a poor answer, the RA asked facilitating questions to elicit the answer and/or presented the child with an appropriate answer, so that by the end of the training item the child understood how to answer a question in the best possible way. Three questions were asked, thus the child went through the above procedure three times.

On completion of the training item, the RA proceeded as follows:

- Now let's start the test. You must try to answer the questions as I have explained to you.

The lapel microphone was attached, and the test administered in one sitting, with all 50 questions being administered to each child. Testing took 15-25 minutes per child, depending on the age and competence of the child. Finally the child was again thanked, given a sweet and again reminded not to talk about the test.

During testing, the two identified probes, 'mmmm' (1) to encourage further elaboration, and 'is that all?' (2) when child appeared to have completed the answer, were consistently presented for each question.

Translation and Transcription of the Data

After testing was complete, the RA's went through each cassette, translating and transcribing what the children had said, by listening to each answer then writing it down in English. Each script was concurrently coded for the relevant probes (1) or (2). The cover page for each child was attached to the translated script, and it was then ready to be scored. On completion of all translation and transcription, 11 subjects were randomly selected, and each of the three RA's translated and transcribed those scripts as has been described above, which would form the basis for the inter-translator reliability test, to be carried out at a later stage.

Scoring of Scripts

Using the scoring criteria and guidelines giving examples for each score for

skills, which were randomly presented according to the possibilities offered by the different contexts.

In addition to the test booklet of pictures and questions, a form for the recording of personal details for each subject, and a scoring form were also prepared. A booklet of Scoring Criteria provided guidelines for allocating scores to each answer.

Equipment

The following equipment was used to ensure clear audio-tape recordings of the answers presented by the children.

- 3 x Philips D6280 computer compatible cassette recorders were used..
- 3 x AIWA lapel microphones.

Procedure

Subjects in the Study

292 children participated in the study. The target was 50 children per age group, with an equal gender distribution. Due to logistical and practical problems experienced, e.g. listing girls in the boys list as it was sometimes difficult to identify from the name, tape recordings being inadequate in a few instances, the following subjects participated as subjects in this study (Table 9).

Table 9: Subjects in the Study

Age	Grade	Female	Male	Total No.
7.6-7.11	2	27	24	51
8.6-8.11	3	27	24	51
9.6-9.11	4	26	24	50
10.6-10.11	5	23	25	48
11.6-11.11	6	23	22	45
12.6-12.11	7	26	21	47
TOTAL		152	140	292

As stated, it was not intended that a critical number of children be selected from each school. Emphasis was placed on age and passing the selection criteria. Table 10 describes the distribution of children per school and grade.

Table 10: Distribution of Subjects per School

School	Grades	Female	Male	Total
1	Grades 5-7 10-12 years	35	35	70
2	Grades 0-4 5-9 years	24	24	48
3	Grades 0-7 5-12 years	68	44	112
4	Grades 0-7 5-12 years	13	13	26
5	Grades 0-7 5-12 years	9	11	20
6	Grades 0-7 5-12 years	3	13	16
Total		152	140	292

Data Collection

The data was collected over a period of 6 weeks, with each RA testin approximately 80-100 children. The RA's travelled to the schools on a dail basis and testing took place from 9:00am - 2:00pm each day. Testing wa interrupted from time to time by sports events, school functions, choi competitions etc.

In five out of the six schools testing took place in a room where th child and RA were seated at a table. In one school testing took place at a chai and table on the veranda of the school, but the setting was generally quiet.

Group Orientations

In order to reduce the possible effects of independents variable such as lack o test experience and anxiety about test performance, a group orientatior process was introduced.

A group of 10-15 children was called together, and they were seatec in a circle with the RA. The RA welcomed and thanked the children, and gave a brief description of what they would each have to do. Emphasis was placed on the fact that they did not have to be frightened and that their performance results would be confidential. This was followed by an 'ice-breaker' game in which each individual, including the RA had a chance to say his/her name and simultaneously do an action (It was noted that many children found this task difficult and had to be assisted). This action was to be imitated by the whole

each question, which were devised for the TATE-ZC, the researcher scored 30 scripts. After a period of 6 weeks, these 30 scripts plus all the remaining scripts were scored by the researcher resulting in an accumulated 125 hours of scoring or 25 minutes per script. The 30 scripts that were re-scored formed the basis of the intra-scorer reliability test.

An additional 29 (10%) randomly selected scripts were photocopied, and with the test booklet, the scoring criteria and guidelines, given to a second scorer. The second scorer was a speech pathology lecturer, with extensive experience in test administration and scoring. The results of her scoring were used as the basis for the inter-sc orer reliability test.

In the scoring of each question, the scorer read the answer presented by the child, then reviewed the options provided in the scoring criteria. Use could also be made of a set of scoring guidelines which were derived from the pilot studies and stated examples presented by the children for each score rating, for each question an attempt was made to identify the level of complexity of the answer. Was the answer wrong or irrelevant (Score 0)? Was the answer vague and imprecise, but indicated some understanding of the question (Score1)? Did the child present one concrete fact in the answer, identified in the illustration (Score 2)? Did the child present two concrete facts indicating an awareness of multiple causation or did the child present psychological causality or intent showing use of abstract thinking (Score 3)? Did the child give a full answer in which the critical relationship or factor was clearly identified and clearly expressed (Score 4)? Scores from 0-4 were accordingly allocated. Some answers were obscure and required repetitive review until the appropriate score could be identified. In such cases references could be made to the scoring guidelines, and the child's answer compared with the range of answers in the attempt to identify the correct level.

When each question had been analysed and scored, scores of each subject were calculated out of 200, which was converted to a percentage for total score (50 questions) , as well as for each of the five sub-tests or scales (5 x 10 questions).

Collection of Academic Results

When all the tests had been scored, the RA's returned to the schools and requested permission to record academic results for each child. Permission was granted and the results of the July exams or tests were used. The subjects

targeted were Zulu oraliteracy, as the children's first language and language used for semantic contextual reasoning, and mathematics or numeracy as the subject in which logico-deductive reasoning would take place. Exact marks were recorded where available. Where symbols (A-E) or ratings (1-5) were used in the lower grades, consistent percentage values were allocated for statistical procedures.

These scores formed the basis of the correlational analysis, to evaluate the relationship between pragmatic reasoning skill and academic performance.

Data Analysis and Statistical Procedures for the Main Study

All statistical procedure for the main study were done using SAS. Statistical procedures presented in Table 11 were implemented to evaluate:

1. Validity and reliability of the test instrument
2. Reliability of the testing procedure
3. Analysis of the data

Table 11: Table of Statistical Procedures used in the Experimental Stage

Process	Procedure	Application
1. Validity and reliability of the Test Instrument	ITEMAN Conventional Item Analysis Program (1989)	Item- Test Analysis- The mean of all subjects on an item was correlated with the mean for all subjects for the total score The Pearson product moment correlation between the item scores and total score for that test, was calculated. Item-scale Analysis and The Cronbach Alpha reliability coefficient- This was calculated for each age and the total population Inter-scale correlation: Correlation of scales at different age groups

2.Reliability of Test procedure	Friedman Procedure using the BDMP programme. This is a non-parametric test for paired samples* Pearson's Correlation Coefficient*	2.1 Reliability of Translation: A comparison of % error between 3 Translators on the same 5 scripts. 2.2.1 Reliability of scoring procedure: Inter-scorer correlation in which scorer 1 and scorer 2 each scored 26 scripts 2.2.2 Reliability of scoring procedure Intra-scorer correlation in which scorer1 scored the same 30 scripts twice, with 6 week break between score 1 and score 2)

3. Analysis of the data	ANOVA with Scheffe's Procedure, for definite difference in means*	Significant difference for age: Significant difference in means between the different age groups for the total score Significant difference for age: Significant difference in means between the different age groups for each scale or thinking skill Significant difference for gender: Significant difference in mean scores between the two genders for the test as a whole and for each scale
	Pearson's Correlation Coefficient*	Correlation between TATE-ZC and academic performance. Correlation of 3 sets of scores, TATE-ZC, *Zulu/literacy and mathematics/numeracy*
	Descriptive statistics- Comparison of mean scores*	Comparison of mean scores for each age group and thinking skill Comparison of mean scores to detect developmental process

*= (Steyn, Smit, du Toit & Straheim 1994)

Results

Reliability of the Test Instrument

The test instrument was found to be valid and reliable (Solarsh 2001). A more detailed presentation of results has appeared above.

Reliability of Translators

A Friedman non-parametric analysis of variance was performed. The following results were computed on scores, which reflected whether there was concordance or difference in the language of scripts translated and transcribed from Zulu audiotapes into English. No significant difference between the translations of the 3 RA's was found, confirming reliability of the translations used. Table 12 reflects the means, Standard deviations and the Friedman test statistic.

Table 12: Results from the Friedman Procedure for inter-translator reliability

Translators (T)	Mean scores	Std Deviation	Friedman Test Statistic	p value
T1	47.7272	1.6181	0.59	0.7442
T2	48.2727	1.3484		
T3	47.7272	1.6181		

$p < 0.05$

Reliability of Scoring Procedures

A Pearson's Correlation Coefficient was calculated. Two calculations were computed (see Table13)

- Scorer 1 scored the same set of 30 scripts with an interval of 6 weeks between scorings- intra-scorer reliability.
- Scorer 1 and Scorer 2 each scored 29 scripts and results were compared- inter-scorer reliability.

The high levels of significance across all scales and for the test as a whole indicates that the scoring criteria, the 5 point scale and examples for each

score that were devised are reliable for evaluating thinking skills using the TATE-ZC.

Table 13: Pearson's Correlation Coefficient for Reliability of Scoring

Scale (Thinking skill)	Scorer 1, on 2 occasions	Between Scorer 1 and 2
Explaining Inferences	.97647	.90999
Determining cause	.96135	.87106
Negative why	.98030	.94183
Determining solutions	.92099	.85075
Avoiding the problem	.82800	.88230
Total Test	.97551	.93922

P < .0001

These scoring criteria may therefore form the basis of a criterion-based system of evaluation, which has been suggested as being more applicable for non-mainstream population groups.

The Results of the Administration of the TATE-ZC

The results presented in Figure 1 and Figure 2 formed the basis of the analyses of the five thinking skills (Explaining Inferences- EI, Determining Cause- DC, Negative Why- NW, Determining Solutions- DS and Avoiding Problems- AP). They were analysed by age for each thinking skill and for the test as a whole, as well as for each thinking skill by age and for the sample as a whole.

Figure 1 demonstrated the clustering of the 7 and 8, 9 and10, and 11 and 12 year age groups. It also showed that while Explaining Inferences tended to have the highest scores, Negative Why and Determining Solutions appeared to be the most difficult.

Figure 2 indicated that while the trend is not absolutely consistent, there was a pattern in scores within each age group, as to the thinking skills that appeared to be easier as opposed to those that were more difficult.

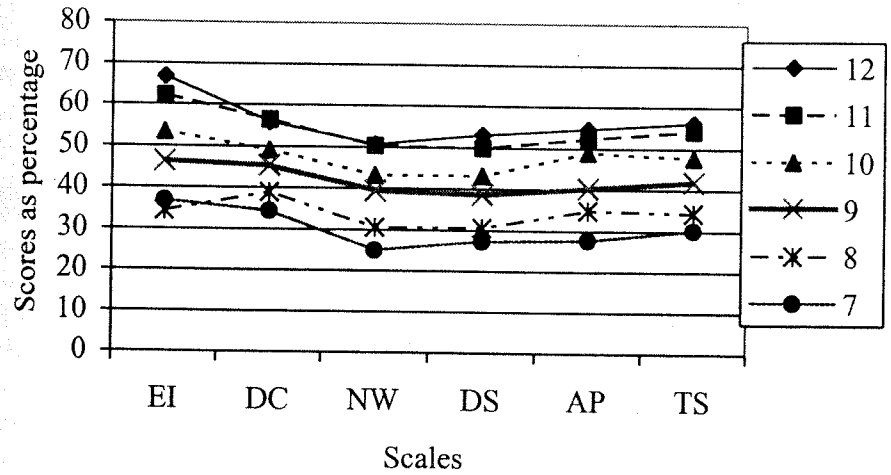


Figure 1: Mean scores per age and scale

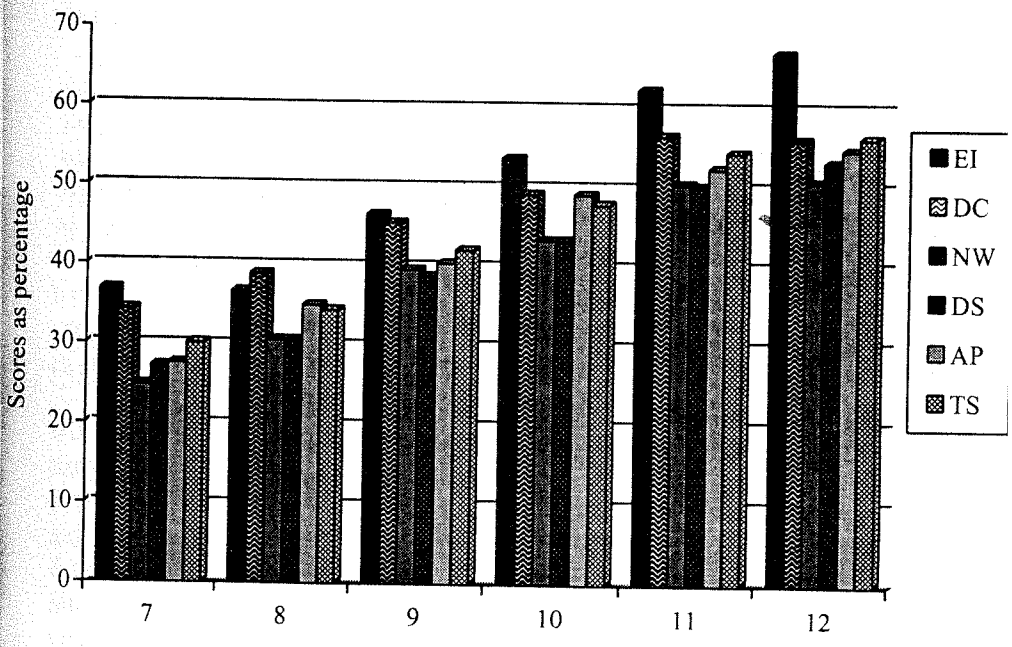


Figure 2 Scores per age and for the total group

Analysis of the data

Analysis of the data has focused on five areas related to the research questions in sub-aim 2:

1. Significant difference between scores at each age group
2. Correlation between mean scores for each scale and for the total score
3. Identification of a developmental process in the emergence of thinking skills
4. Correlation of scores for TATE-ZC with academic performance
5. Significant difference between the scores for the two gender groups

1. Significant Difference between Scores at Each Age Group

The motivation to answer the question of how thinking skills develop from year to year in the rural Zulu-speaking primary school child has formed the basis for the whole research project.

Significant difference was computed from mean scores obtained for each age group and the group as a whole, on each scale and for the test as a whole.

An ANOVA, using Scheffe's test, a post hoc test for pair-wise comparisons, was applied to these results. Measures for significant difference were calculated between means for each age group for each scale, and for the total score. These results indicated that over all the comparisons made, there were only 3 instances in which significant difference (improvement) in performance in a particular thinking skill was evident on an annual basis, i.e. each year. *In the majority of cases, significant difference was noted every two years and in a few instances, significant difference was noted over 3 years.* This result is a cause for great concern in the education of rural children in South Africa today.

These results indicated that there were only 3 instances out of all the age groups, on all scales and for the total test, in which statistically significant development took place from one class level to the next. On the test as a whole, and in two thinking skills only, Explaining Inferences and Negative Why Questions, statistically significant development took place from grade 3 to grade 4 over 1 year. Although this was not a generalized trend even for the 8-year group, it could be explained in terms of indications that education may be improving, and that this improvement was starting to be seen in the younger children.

The finding that for three of the thinking skills, the children of 10 - 12 years, did not show significant improvement over 3 years has critical implications. It implies that there was an even greater limitation in the development of Cognitive and Academic Language Proficiency (CALP) in the second phase of the primary school, during which there is a heavy emphasis on language for learning, than the first. If children are only showing significant development in thinking skills every two years, then by the end of the primary school phase, they would only have progressed to a class 5 level of thinking skill at the most. This has great implications for their ability to use language for learning and to access information independently, as well as for their ability to access literature and make appropriate inferences from reading materials. It also has implications for high school, with children entering the next academic phase with CALP appropriate for a grade 5 pupil.

2. Identification of a Particular Thinking Skill Showing High Correlation with the Test as a Whole

This research question aimed to identify whether one particular thinking skill correlated very highly with the total score and could be used as an accurate indicator of thinking skill as a whole (see Table 14). Implications here were that a shorter test or screening test could be devised. All thinking skills showed a high correlation with the total score, and were therefore equally representative of the construct of thinking skills. Thus a shorter screening test could be devised.

Table 14: Correlation between Scores per Scale the Total Test for the Whole Group (N=292)

	Total Score
EI	.86394*
DC	.87106*
NW	.86720*
DS	.85203*
AP	.85403*

P < .0001

3. *Identification of a Developmental Process in the Development of Thinking Skills*

A non-inferential analysis of mean scores as well as patterns in the inter-scale correlation per age group, provided the data for this section.

Table 15 provides the mean scores for the different ages and for the group as a whole, for each scale. An attempt was made to identify whether a particular thinking skill emerged earlier by ranking the scores for each thinking skill from one to five for each age group and the group as a whole (see Table 15)

Table 15: Ranked Order of Mean Scores for the Different Thinking Skills

Ranked order	7year group	8year group	9year group	10year group	11year group	12year group	Total Group (n=292)
1 (highest score)	EI	DC	EI	EI	EI	EI	EI
2	DC	EI	DC	DC	DC	DC	DC
3	AP	AP	AP	AP	AP	AP	AP
4	DS	DS	NW	DS	NW	DS	DS
5	NW	NW	DS	NW	DS	NW	NW

Table 15 showed that in the majority of instances Explaining Inferences scored the highest, followed by Determining Cause and avoiding the problem. This was followed by Determining Solutions and the Negative Why. Although this order was not 100% consistent, it was relatively consistent and may therefore provide a basis for further investigation into a developmental order, for the development of thinking skills in rural children.

4. *Correlation between TATE-ZC Scores and Academic Performance*

The attempt to collect accurate marks for academic performance at the rural schools proved to be problematic. This was due partly to poor administrative

infrastructure in the schools, and partly due to a lack of consistency i allocating grades.

In some instances marks for some classes were not available becaus the teachers had taken the mark books home for safekeeping and the teacher were not available on the day of the data collection. In other cases, particularl in the junior classes, teachers did not have a defined mark for Zulu o Language. It was therefore decided that a mark for literacy and numerac would be interchanged with Zulu and maths. Due to the confusing change with education at present with the Outcomes Based Education (OBE approach being introduced then withdrawn, and traditional marking schema being changed to symbols, there was little consistency within the schools Some grades within one school were on previous traditional programmes some were on OBE, some grades defined academic performance by marks others by symbols 1-5 or A-E.

Despite the total lack of consistency in the recording of academi performance, the researcher decided to persevere with the attempt to correlat the TATE-ZC scores and academic performance. This was done by usin actual marks, if they were available and converting symbols to an equivalen mark allocated by the researcher. This was considered to be the best option a the Spearman Correlation coefficient used for this analysis, computes ranke scores (see Table 16).

Table 16: Correlation of TATE-ZC Scores with Academi Performance using the Spearman Correlation Coefficient

Age Group	Correlation between TATE-ZC and numeracy/ maths	Correlation between TATE-ZC and Literacy/Zulu	Correlation between Numeracy/maths and literacy/Zulu
7year (N=43)	.22811	.21482	.92056*
8year (N=38)	.46849	.46431	.84189*
9year (N=38)	.19392	.10827	.68526*
10year (N=44)	.25499	.33748	.36211*
11year (N=33)	-.07650	.04826	.69973*
12year (N=39)	.15549	-.05962	.62133*

$p < .0001$

Results indicated that there was no significant correlation for any of the age groups between academic performance as measured by teachers at the schools, and thinking skills as measured by the TATE-ZC. There was significant correlation between the literacy and numeracy marks as allocated by the teachers, for all ages.

Children were passing each year, but are not showing statistically significant increases in certain cognitive skills as measured by the TATE-ZC, required for academic progress. Although demographically this sample was small, it did provide some statistical evidence for the fact that rural schools have a low standard of education, and that children were reaching the end of the primary school phase without adequate skills for secondary education.

5. Significant Difference between Scores for Gender

An ANOVA using Scheffe's procedure was performed in which gender was related to means for each scale or thinking skill and the total score, and levels of significant difference calculated. Table 17 indicated the significant difference between the genders for most thinking skills.

Table 17: ANOVA Measures of Significant Difference for Gender

Scales	p value	Mean Values
Total Score	P=.0076*	M=45.3 F=42.1
EI	P=.2942	**M=50.7** **F=49.1**
DC	P=.0003*	M=48.9 F=43.8
NW	P=.1438	**M=40.6** **F=38.3**
DS	P=.0447*	M=41.7 F=38.7
AP	P=0170*	M=44.7 F=40.8

p<0.05 M=Male F=Female

The result of significant gender difference, in which males did better than females in 4 out of the 6 measures, was unexpected. Equal performance appeared to be demonstrated for the two thinking skills at either end of the developmental scale. Explaining inference means the thinking skill to develop

fastest and the Negative Why, the thinking skill which appeared to be most difficult.

Overview of Results

The following results were obtained:

1. The test instrument was shown to be valid and reliable.
2. Translation of scripts by the three translators was found to be reliable.
3. The test procedure was also shown to be reliable in terms of scoring, particularly in terms of scoring criteria identified, the 5 point scale and inter- and intra-scorer reliability.
4. A high level of inter-scale correlation indicated each of the thinking skills in the test represented a valid aspect of thinking skills, and all were testing the same theoretical construct.
5. There was no indication that one of the thinking skills in particular measured the construct of thinking skills better than any of the others.
6. Statistically significant development in thinking skills in rural African children was shown to occur every 2 years in the majority of cases, and every 3 years in 3 instances.
7. Non-inferential statistics and an inter-scale correlation indicated there was a pattern in the emergence of thinking skills and that some thinking skills tested were more challenging and developed later that others.
8. No correlation was found between scores on the TATE-ZC and academic performance for any of the age groups.
9. Some statistical differences in scores between the genders were shown to be present.

Discussion

The three most pertinent issues arising from the above results related to:

- test evaluation: norm-based versus criterion-based;
- the relationship between performance on the TATE-ZC and academic performance;
- the difference in performance by boys and girls.

Norm-based versus Criterion Based Evaluation

The most salient issue requiring further discussion relates to a criterion-based evaluation system as opposed to a norm-based evaluation system when working in a cross-cultural context.

The 5 point scoring schedule for the TATE-ZC has been presented in Table 18, and the associated criterion-based evaluation system in Table 19. It was felt that the score plus criterion-based evaluation provide a much more useful result in understanding the performance levels of these children. Table 20 relates the score and criterion-based evaluation to results obtained by the children, and cautiously compares them with equivalent scores demonstrated by American children on an equivalent test, The Test of Problem Solving (TOPS) (Zachman *et al.* 1984).

Table 18: Scoring Criteria for the TATE-ZC using a 5 Point Scale

Each question will be given a score using the following criteria as a guideline.

Score	Criteria
0	* No response. * Simple affect is used as the explanation * **The response is inappropriate or irrelevant.**
1	* There is indication that the question has been understood, although the most relevant information for the problem is not presented. * Precise vocabulary is not used. * The answer may be correct, but does not directly relate to the context in the illustration * **The answer is vague and imprecise in relation to the question.**
2	* There is indication that the question has been understood in that the response relates accurately to the question. * Use is made of precise vocabulary. * Physical causality related to the context of the illustration is expressed. * **One concrete/observable factor is presented in the answer.**
3	* The response reflects clear understanding of the context. * Use is made of precise vocabulary * The answer relates directly to the context of the illustration * **Two or more concrete factors** may be presented in relation to physical causality between two events. OR * **One abstract factor** in relation to psychological or logical causality may be expressed between: two actions or an event/agent and an action
4	* The response reflects a clear understanding of the context. * Use is made of precise vocabulary and language is clearly formulated * Physical or psychological causality is presented in addition to logical/deductive causality. * At least one concrete factor plus one abstract factor is presented. * **A complete answer giving cause and effect / A creative answer**

Table 19: Criterion-based Evaluation Indicators from the TATE-ZC

TATE-ZC score	Categories of TATE-ZC scoring criteria	Related skills or criteria	Related educational level	Age
0-25	Answer vague and imprecise	Demonstrates some understanding of the question. Must be able to engage in a question/answer discourse	Entry into preschool	3 years
26-50	1 concrete factor presented. Precise vocabulary used	Concrete reasoning presented. Able to derive an answer from a picture and express it verbally	Entry into formal education- Grade R (reception class equivalent to a pre-school preparatory year)	5-6 years
51-75	2 concrete factors or 1 abstract factor	Able to see multiple reasons. Abstract reasoning presented. Accurate verbal expression	Entry to formal learning and literacy	6-7 years
76-100	Complete cause and effect reasoning. Creative answers	Ability to draw on world knowledge and previous schemata. Language reflecting an identification of the critical issue for that question. Competent verbal skills.	Entry to class 5. Emphasis is now shifted from developing oral language and acquiring literacy, to using language and literacy for learning	10 years +

Table 20: Comparison of TATE-ZC and TOPS Scores for the Test as a Whole

Age Group	TATE-ZC mean score per age group	TOPS mean score allocated to each age group, i.e. norm	TATE-ZC criterion and age equivalent (from Table 23)	TOPS age equivalent for TATE-ZC score (column 2)
7 yr	30	53	Concrete reasoning presented. Able to derive an answer from a picture and express it verbally. Entry into more formal education- Grade R (reception class equivalent to a pre-school preparatory year) 4-6 years	4.4 years Entry into a pre-school programme
8yr	34	60		4.9
9yr	42	67		5.8
10 yr	48	73		6.5
11yr	54	78	Able to see multiple reasons. Abstract reasoning presented. Accurate verbal expression Entry to formal learning and literacy 6-7 years	7.2
12 yr	56	83		7.5

When the results obtained on the TATE-ZC were evaluated according the criteria identified in Table20, they indicate that, at the level of verbal reasoning, the responses of the grade 2,3,4, and 5 children (7-10year), were equivalent to those required by children entering a pre-school or readiness programme or 4-6 years. They had the ability in general to give one concrete answer using precise vocabulary. They did not spontaneously provide multiple answers, and did not demonstrate use of abstract thinking skills. The 11 and 12-year group demonstrated verbal reasoning skills equivalent to those required for entry into literacy, or 7 years. They were able to present multiple

reasons, show some level of abstract reasoning and make use of acc verbal expression.

Although it was with great caution that results on the TATE-ZC compared with results on the TOPS, it was interesting to note that comparison did tend to confirm the findings discussed. Table 20 presente TATE-ZC and TOPS scores and age /criterion equivalents. Not only di identified stages of the TATE-ZC criterion-based evaluation correlate wit TOPS age equivalents, but so did the TATE-ZC scores themselves.

An almost equivalent gap in achievement levels between the Z speaking and the American children has been demonstrated using the Be Gestalt test of visual-motor perception (Viljoen *et al.* 1994). In this test, A rican children reached maturity for this skill by the expected 9 years, whe Zulu-speaking children reached the same level at 13 years. Although the ginal test had not been altered in any way, the researchers had been extre sensitive to cultural difference in the administration of the test. In the TA ZC, what was demonstrated by the Zulu-speaking children in terms of a v reasoning test at 12 years was demonstrated by American children at 7.

This demonstrated that even when as many cultural and lingu aspects as possible were attended to, rural Zulu-speaking children demonstrated limited performance in skills related to academic performa In the instance of the TATE-ZC, we can say with a fair amount of confid that the performance levels demonstrated were reliable, and not the produ an inappropriate test.

TATE-ZC results, indicating a significant development in thin skills only every two years rather than annually, highlighted that developr of cognitive skills was slower for rural African children. It must be noted emphasized that the development of thinking skills as tested by the TATE is second stage language development or CALP and would develo *response to external stimulation.* It is *not* a comment about the child's inhe potential. It serves to focus on the fact that the children could achieve b academic results if opportunity was provided to improve abstract thin skills.

In the study using the Bender Gestalt the rural Zulu-speaking chil were shown to improve more slowly and continued to improve until 18 y whereas the American children showed maximum improvement betwe and 10 years when development was complete. Further with signifi development taking place every 2 years, children of 12 would emerge f primary school with a level of thinking skill of a grade 4-5 year child (

years). Postulating that this trend would continue through high school would imply that children in grade 12 (17years) would demonstrate thinking skills of a grade 7 (12 year) child. The direct relationship between ability to explain, make inferences and reason, orally and in literacy or in text, make the findings of the TATE-ZC critical for intervention programmes aimed at improving academic performance even at tertiary levels.

What this indicates, is that there is a strong relationship between the level of reasoning developed at the pre-school level, where oral reasoning first emerges, and performance at universities where high level reasoning must be applied to high level content. It indicates that the ability to reason or understand events and causal relationships, must develop into a clear ability, to recognize and express multiple causal relations, at increasingly more difficult and complex levels of event organization, with a greater focus on internal and psychological causes (van den Broek 1997), if children are to achieve academically.

The type of errors made by the children in the TATE-ZC, were typical of errors made by disadvantaged students at a tertiary level (personal experience of the researcher)
The majority of errors in the TATE-ZC were made in four main categories:

- Errors due to problems with the analysis of the question, e.g. the answer to a question in the scale Avoiding the Problem, would be presented as Determining the Cause, demonstrating lack of attention to the need to process questions analytically.
- Errors due to giving literal not inferential responses, demonstrating a high level of concrete thinking.
- Errors due to language in terms of clearly identifying the referent, demonstrating a high level of pre-supposition in thinking style.
- Errors due to a failure to pick up the critical cue or 'rule' in the context, in which the relationship between the two events in the context is clearly recognized and expressed, demonstrating limited abstract inferential thinking. This last feature is what would have earned the child 4 points (maximum) per question, and is what is required of children from grade 5 (10years) for adequate academic performance.

The error analysis emphasizes yet again, the great need to develop abstract thinking skills in oral language, as a precursor to effective literacy and learning.

Thinking Skills and Academic Performance

A review of the findings showing lack of significant correlation betwe academic performance and the scores on the TATE-ZC for any of the a groups was cause for some speculation. It indicated that when scores for the children were ranked, children who perform best academically do r necessarily perform best for thinking skills and vice versa. The similar patte of performance of Zulu-speaking children on the TATE-ZC and Bend Gestalt (Viljoen *et al.* 1994), as well as previous findings of the reliability the TATE-ZC uphold the overall reliability of the test itself. It thus raises tl question of the reliability of school marks as a reflection of achievement leve for these children.

What was of concern was that there were children who wer performing relatively well on the TATE-ZC, but are not demonstrating th academically. These children needed to be followed up individually. A deepe analysis of SES, regularity of school attendance, distance child lives fro school, social environment in terms of other stressors, attitude of parents an the child to schooling and education, as well as teachers' attitudes t education and to the particular child, may provide some explanation for thi finding.

If one considers the broad findings of UNICEF-UNESCO Monitorin Learning Achievement Project, levels of academic achievement amongst th grade 4 pupils were considerably lower than the expected range of schoo marks. This indicated that high marks for the children on school work, while following a normal distribution for the class, should in the majority of cases be clustered around the lower end of the distribution. This may contribute to some extent to improving the correlation between TATE-ZC findings and academic performance.

Thinking Skills and Gender

Results indicated that boys performed significantly better than girls for the test as a whole and for three of the five thinking skills (DC, DS, AP). This was also found for grade 1 children, on a measure of receptive vocabulary (Pakendorf 1996), but was not a significant issue in the development of visual-perceptual skills (Viljoen *et al.* 1994). This very small sample of tests did indicate that, unexpectedly, on the language based tests the boys were out-performing the girls. Explanations given for such findings usually revolve

around the status of the 'boy-child', who joins the male-dominated adult Zulu society, self-perception of sex-role and attitude of teachers to boys and girls. If gender bias was proven to be true, intervention should focus extensively on enhancing the aspirations and self concepts of the girls, because of the strongly held belief that: 'When you educate a man, you educate one person. When you educate a woman, you educate the nation.'

Conclusion

The test results of rural Zulu-speaking children when tested on the TATE-ZC, have been shown to lack the necessary cognitive and academic language proficiency (CALP) that would enable them to reach their full potential as learners. The cause of this has been noted to be due to a multiplicity of recognized factors, but lack of exposure to stories and books, which are essentially language-based activities do play a significant role. Using the five thinking skills identified in the TATE-ZC in combination with an intensive campaign to up-grade levels of literacy in the community as a whole could offer a programmatic option for improving the academic future of children in Africa.

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The Role of Cognitive Instrumental Processes, Social Influence Processes and Perceived Behavioural Control in the Acceptance of the Internet as a Learning Tool

Irwin T.J. Brown

1. Introduction

The adoption and use of the Internet and World Wide Web (hereafter referred to as the Internet) for learning purposes has increased rapidly over the past few years, and a plethora of new web-based learning tools and technologies have begun to emerge (Mioduser, Nachmias, Lahav & Oren 2000). The use of such tools has not been restricted to the traditional distance learning environment, and their adoption by institutions for internal courses as well is now commonplace (McClelland 2001).

The Internet by itself, however, contains a vast amount of information and resources that can be harnessed for learning with or without the use of dedicated web-based learning tools. In fact, many of the technological components contained in web-based learning tools are also available on public Internet web sites. Examples include, among others, email, group calendars, and chat rooms. It is therefore feasible to examine the adoption of the Internet for learning, without regards to a specific tool or web site. The overall aim of this study specifically is to determine what factors influence end user acceptance of the Internet as a learning tool. Armed with such an understanding, educators and trainers may be in a better position to encourage students to use this invaluable tool for purposes other

than entertainment or leisure (Venkatesh 1999). Insights gained from such a study are furthermore useful for those involved in designing and implementing web-based learning environments, as many of the factors that apply to general Internet-for-learning acceptance will also apply to specific web-based learning tools.

In the next section, the conceptual background to technology acceptance will be discussed, which will lead into the development of the research framework and hypotheses. In the research method section, the means of testing these hypotheses is outlined. A report on the results follows, with a discussion of the results thereafter. Recommendations for future research are made, and the paper is then concluded.

2. Conceptual Background

In attempting to understand what factors lead to technology adoption by end users, researchers have typically turned to the tried and tested technology acceptance model (TAM) (Davis 1989). The TAM in its most basic form posits that a user's intention to use a technology (and in turn, the subsequent use of that technology) is influenced principally by the perceived usefulness and perceived ease of use of that technology. The former has a greater influence on user's intentions than the latter, with perceived ease of use also having a direct effect on perceived usefulness (Davis 1989).

Whilst the basic TAM is useful in predicting technology usage behaviour, in order to better understand the adoption process, richer descriptions of user beliefs, attitudes, intentions and usage behaviour are required (Taylor & Todd 1995). This holds true especially with relatively new technologies such as the Internet. As a result many studies on Internet technology adoption have been grounded in alternative theoretic frameworks, or have attempted to combine different theories together. Examples include the Triandis social psychological model (in Cheung, Chang & Lai 2000), the diffusion of innovations theory (in Agarwal & Prasad 1997) and the decomposed theory of planned behaviour and diffusion of innovations theory (in Tan & Teo 2000). Other studies have simply sought to extend and modify the TAM to capture the richness of Internet adoption (Lederer, Maupin, Sena & Zhuang 2000; Jiang, Hsu, Klein & Lin 2000; Teo, Lim & Lai 1999). At the same time, the underlying theories

themselves are being extended, a case in point being the extensior suggested for the TAM (Venkatesh & Davis 2000; Venkatesh 2000).

Common to all frameworks, is the premise that user perceptions of technology are important predictors of the user acceptance of tha technology. The dependent variable that measures acceptance has typicall been either use of the technology or the intentions to use the technology, o even in some cases both (Venkatesh & Davis 2000). The independen variables (perceptions, beliefs, attitudes, system characteristics) are man and varied, and findings with regards to the value of some in predictin technology acceptance have been mixed (Agarwal & Prasad 1997). Som studies based on the TAM furthermore assume that all factors, other thar perceived usefulness and ease of use, influence acceptance indirectl through these two variables (Venkatesh 2000). In order to gain a bette understanding of the different variables, they are listed and defined in Table 1.

Table 1: Variables used in Internet Acceptance Studies

Variable	Abbrevi-ation	Definition
Perceived relative advantage	RADV	Extent to which a person views an innovation as offering an advantage over previous ways of performing the same task (Agarwal & Prasad 1997)
Perceived usefulness	PU	The degree to which a person believes that using a particular system would enhance his or her job performance (Davis 1989)
Perceived near-term consequences	NTCONS	The extent to which an individual believes that using a system can enhance job performance (Cheung *et al.* 2000)
Perceived long-term consequences	LTCONS	The increased flexibility to change job or increased opportunities to have a more meaningful job (Cheung *et al.* 2000)
Perceived ease of use	EOU	The degree to which a person believes that using a particular system will be free of effort (Davis 1989)

Perceived complexity	CMPLEX	The degree to which an innovation is perceived as relatively difficult to understand and use (in Cheung *et al.* 2000)
Result demonstrability	RDEM	The tangibility of the results of using an innovation (in Agarwal & Prasad 1997)
Affect	AFF	Feelings of joy, elation, pleasure, or displeasure, hate or disgust associated by an individual with a particular act (in Cheung *et al.* 2000)
Perceived enjoyment	PENJ	The perceived degree of enjoyment with using a system (Teo *et al.* 1999)
Perceived playfulness	PPLAY	The perceived degree of concentration, curiosity and enjoyment when using a system (Moon & Kim 2001)
Compatibility	COMPAT	The degree to which an innovation is viewed as being consistent with the existing values, needs, and past experiences of users (in Agarwal & Prasad 1997)
Banking needs	BNEED	The extent and breadth of banking services used by an individual (Tan & Teo 2000)
Visibility	VIS	The extent to which users see the innovation as being visible in the adoption context (in Agarwal & Prasad 1997)
Trialability	TRIAL	The extent to which users perceive that they have an opportunity to experiment with the innovation prior to committing to its usage (Agarwal & Prasad 1997)
Perceived risk	RISK	A person's perceived sense of risk when using the Internet for financial transactions (Tan & Teo 2000)
Experience	EXP	Prior experience of using an innovation (Jiang *et al.* 2000)
Social Factors	SFACT	An individual's internalisation of the reference group's subjective culture in social situations (in Cheung *et al.* 2000)

Subjective Norm	SNORM	A person's perception that most people wl are important think that he/she shou perform the behaviour in question (in Tan Teo 2000)
Image	IMG	The perception that using an innovation w contribute to enhancing the social status an individual (Agarwal & Prasad 1997)
Perceived Voluntariness	VOL	The extent to which users perceive tl adoption decision to be voluntary (Agarw & Prasad 1997)
Facilitating conditions	FCOND	The availability of resources needed engage in the behaviour (in Tan & Teo 200
Self efficacy	SEFF	An individuals' self-confidence in his or h ability to perform a behaviour (in Tan & T 2000)
Usage	USE	Usage of an innovation
Intentions to use	IUSE	Future intentions to use an innovation
Enquiry task	IENQ	Intentions to use Internet for enquiry tasl (Gefen & Straub 2000)
Purchasing task	IPUR	Intentions to use the Internet for purchasir tasks (Gefen & Straub 2000)

From this table it can be seen that some variables are very similar i definition. For example, near-term consequences, relative advantage ar perceived usefulness are all defined and measured in very much the sar way. Similarly, affect, perceived enjoyment and perceived playfulness sha commonality in definition. The same can be said of social factors an subjective norm. Complexity and ease of use are not generally examine together in any study, and although they may be distinct constructs, the on is more or less the opposite of the other.

Findings from key studies that have examined the impact of thes variables on Internet acceptance are displayed in Table 2. The findin reported in this table relate to those where either use or intentions to us have been the dependent variable, and a direct relationship betwee independent variables and the dependent variable has been found. Th

studies may have found other relationships but these are not of relevance to this study, where direct influences on adoption are the focus.

*** Table 2: Summary of Studies on Internet Acceptance**

Study	Independent Variables	Depen-dent variable (s)	Findings	Technology
Agarwal & Prasad (1997)	RADV, EOU, COMPAT, TRIAL, VIS, RDEM, IMG, VOL	USE IUSE	VOL – USE VIS – USE COMPAT – USE TRIAL – USE RADV – IUSE RDEM – IUSE	Internet/WWW for work/study
Lederer *et al.* (2000)	PU, EOU	USE	PU – USE EOU – USE	Web site for work
Teo *et al.* (1999)	PU, EOU, PENJ	USE	PU – USE EOU – USE PENJ – USE	Internet
Venkatesh (1999)	PU, EOU	IUSE	PU – IUSE EOU – IUSE	(Internet) computer-based training
Cheung *et al.* (2000)	CMPLEX, NTCONS, LTCONS, AFF, SFACT, FCOND	USE	CMPLEX – USE (-) NTCONS – USE SFACT – USE FCOND – USE	WWW at work
Jiang *et al.* (2000)	EXP, NTCONS, LTCONS, FCOND	USE	NTCONS – USE LTCONS – USE FCOND – USE EXP – USE	Internet/WWW for study

Gefen & Straub (2000)	PU, EOU	IENQ IPUR	PU – IENQ PU – IPUR EOU – IENQ	Ecommer
Tan & Teo (2000)	RADV, COMPAT, EXP, BNEED, CMPLEX, TRIAL, RISK, SNORM, SEFF, FCOND	IUSE	RADV – IUSE COMPAT – IUSE EXP – IUSE BNEED – IUSE TRIAL – IUSE RISK – IUSE SEFF – IUSE (FCOND – IUSE)	Internet banking
Chang & Cheung (2001)	CMPLEX, NTCONS, LTCONS, AFF, SFACT, FCOND	IUSE	NTCONS – IUSE AFFECT – IUSE SFACT – IUSE FCOND – IUSE	WWW at work
Moon & Kim (2001)	PU, PPLAY, ATT	IUSE	PU – IUSE PPLAY – IUSE ATT – IUSE	WWW

*** See Table 1 for meaning of abbreviations.**

These variables and relationships form the basis for developing the research framework for this study, and will be discussed further in the next section.

3. Research Framework and Hypotheses

One of the major reasons for examining factors that influence the acceptance of the Internet as a learning tool is to identify how to promote and encourage the sustained long-term use of this tool by students. In such cases, assessing intentions to use is the more appropriate dependent variable, rather than the more immediate current usage (Chang & Cheung 2001). This choice in turn determines which factors are to be used as independent variables, from the possibilities listed in Table 1. Variables that will not be considered further, together with the reasons for dropping them are given in Table 3.

***Table 3: Variables to be Dropped**

Variable to be dropped	Reason
RADV	PU, a similar variable, will be used
NTCONS	PU, an identical variable, will be used
CMPLEX	EOU, the opposite of complexity will be used
AFF	PENJ, a similar variable, will be used
PPLAY	PENJ, a similar variable, will be used
SFACT	SNORM will be used.
BNEED	Relevant to Internet banking only (Tan & Teo 2000)
TRIAL	Trialability was shown to be relevant only for initial adoption (use) of the WWW (Agarwal & Prasad 1997). It is also of greater relevance when examining a specific Internet application, such as Internet banking (Tan & Teo 2000).
RISK	Risk is deemed not relevant to the acceptance of the Internet as a learning tool, given that this variable refers to risk with regards to financial transactions (Tan & Teo 2000).
IMG	This factor had no significant influence on either intentions to use, or initial usage where reported in a study of Internet adoption (Agarwal & Prasad 1997).
VIS	Visibility was shown to have influence on immediate initial use, rather than long-term future usage intentions (Agarwal & Prasad 1997)

*** Refer to Table 1 for the meaning of abbreviations.**

The remaining variables will thus form part of the research model. Given the large number of variables, a means of categorising them into higher order dimensions would be useful. A novel way of categorising such factors is provided by Venkatesh and Davis (2000) and Taylor and Todd (1995) respectively. Venkatesh and Davis (2000) categorise variables as either cognitive instrumental processes, or social influence processes. Taylor and Todd (1995) provide a further category that is relevant to this study—that of perceived behavioural control.

Cognitive Instrumental Processes

Cognitive instrumental processes can be defined as the menta representations that people use in order to make a decision as to whether t adopt a technology or not (Venkatesh & Davis 2000). Variables that can b included in this category include perceived usefulness, perceived ease of use result demonstrability, compatibility with values/learning style, long-ter consequences of use and perceived enjoyment. Hypotheses relating to thes variables are therefore as follows:

Hypothesis 1. Perceived usefulness will have a positive effect on intention to use.
Hypothesis 2. The perceived long-term consequences of use will have positive effect on intentions to use.
Hypotheses 3. Perceived ease of use will have a positive effect on intention to use.
Hypothesis 4. Result demonstrability will have a positive effect on intention to use.
Hypothesis 5. Perceived compatibility with values/learning style will have positive effect on intentions to use.
Hypothesis 6. Perceived enjoyment will have a positive effect on intention to use.

Social Influence Processes

Social influence processes are defined as those social factors that may influence a person's decision to adopt an innovation (Venkatesh & Davis 2000). This dimension will be represented by subjective norm, and perceived voluntariness. Findings with regards to the influence of voluntariness or Internet adoption have been mixed. Agarwal and Prasad (1997) found perceived voluntariness to have an influence only on initial use and not long-term intentions to use. However, in the learning context, it was deemed appropriate to include it, as whether the use of a tool is mandatory or voluntary for a specific course will have a bearing on student's adoption decisions. This, then leads to the following hypotheses:

Hypothesis 7. Subjective norm will have a positive effect on intentions to use.

Hypothesis 8. Perceived voluntariness will have a negative effect on intentions to use

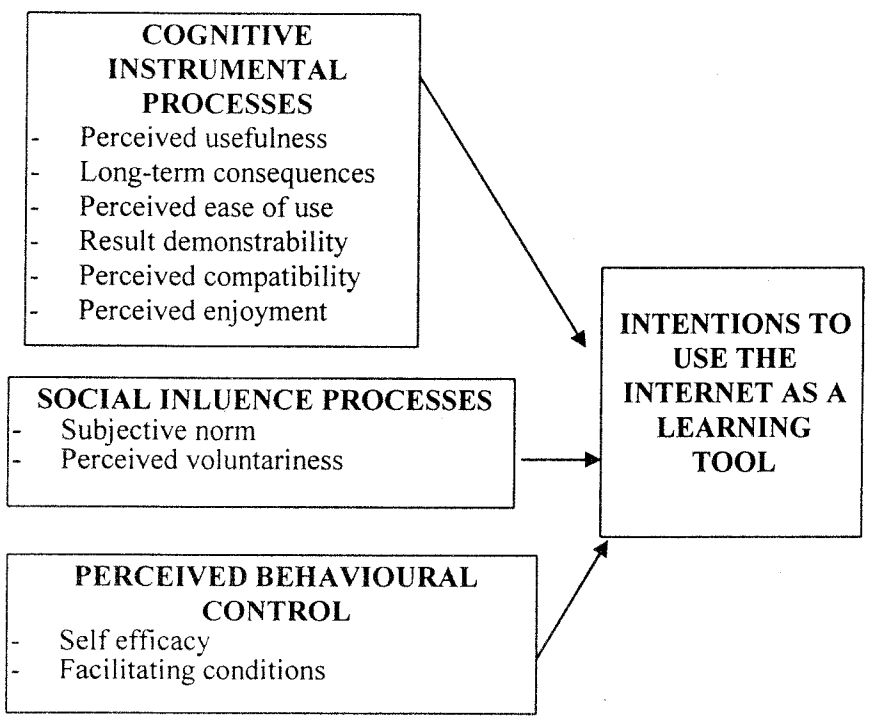
Perceived Behavioural Control

Perceived behavioural control is made up of internal control (self-efficacy), and external control (facilitating conditions) (Venkatesh 2000). Hypotheses concerning these variables are:

Hypothesis 9. Self-efficacy will have a positive effect on intentions to use.
Hypothesis 10. Facilitating conditions will have a positive effect on intentions to use.

The research framework is illustrated in Figure 1 below.

Figure 1: Research Framework



4. Research Method

4.1 Research Procedure

In order to test these hypotheses, a questionnaire was developed and distributed to University students who were studying an introductory course in Information Systems. This group was chosen, for its relative diversity, and accessibility. Demographic information was gathered about the respondents, such as their age, gender, degree program, year of study, and home language. Their experience with the Internet was also assessed through a three-item measure that examined the number of years using the Internet, the frequency of usage, and intensity of usage (number of hours on average per day). Diversity of Internet usage was assessed through an 8-item 7-point Lickert scale, ranging from 'Never' used at one end, to 'A great extent' of use at the other. Each of the 8 items related to a common use that is made of the Internet. The other measures on the questionnaire related to the constructs to be used in testing the hypotheses, and are discussed in the next section.

4.2 Construct Measures

In order to operationalise the constructs, measures for each were identified from the literature, and in some case modified to suit the context of the Internet for learning. A summary of the measures, the type of scale used, the number of items in each scale, and the references for the measures is displayed in Table 4. In most cases a seven-point Lickert scale anchored by Strongly Disagree (1) at one end, to Strongly Agree (7) at the other was employed. A copy of the questionnaire items is included in Appendix 1.

Table 4: Construct Measures

Construct	Number of Items	Type of Scale	Reference
Cognitive Instrumental Processes			
Perceived Usefulness	4	7-point Lickert Scale	Davis (1989)

Long-term Consequences	5	as above	Cheung *et al.* (2000)
Perceived Ease of Use	4	as above	Teo *et al.* (1999)
Result Demonstrability	4	as above	Agarwal & Prasad (1997)
Perceived Compatibility	3	as above	Tan & Teo (2000)
Perceived Enjoyment	5	7-point Semantic Differential Scale	Teo *et al.* (1999)
Social Influence Processes			
Subjective Norm	3	7-point Lickert Scale	Tan & Teo (2000)
Perceived Voluntariness	2	as above	Venkatesh & Davis (2000)
Perceived Behavioural Control			
Self-efficacy	3	7-point Lickert Scale	Taylor & Todd (1995)
Facilitating Conditions	4	as above	Cheung *et al.* (2000)

4.3 Subjects

4.3.1 Demographic Profile

A total of 322 completed questionnaires were received, of which 294 formed the sample. The remainder were rejected, as they were deemed to be insufficiently complete to be of any use. Of the 294 respondents in the sample, 41% were male, and 59% female. Their ages varied from 17 to 26, with the majority being in the 18 to 21 year -old bracket (94% of sample). Approximately one third were Social Science students, the remainder being from the Commerce faculty. Of the Commerce students, only 8% were majoring in Information Systems. Thus, on the whole, they were not students who had a career interest in information technology. 83% of the subjects were in their first year, with progressively fewer in second, third, and fourth

year/postgraduate level, respectively. English was indicated as the home language for 61.3% of the sample, with 30.5% indicating another official South African language, and the remainder indicating a foreign language. A summary of this demographic data is provided in Table 5 below.

Table 5: Demographic Profile of Sample

		Number	%
Gender	Male	116	41
	Female	169	59
Age	17	7	2.4
	18	134	45.9
	19	88	30.1
	20	41	14.0
	21	11	3.8
	22 to 26	11	3.8
Degree Program	Social Science	92	32.1
	Commerce	180	62.7
	Commerce (IS)	15	5.2
Year of study	First	240	83.3
	Second	27	9.4
	Third	14	4.9
	Fourth/PostGrad	7	2.4
Home Language	English	179	61.3
	Other South African (Official)	89	30.5
	Other	24	8.2

Numbers may not add up consistently due to missing values

4.3.2 Internet Use

In terms of years of Internet use, there is considerable diversity, with 28.3% claiming to have been using the Internet for a year or less, 18.7 % for 1 to 2 years, 18.7 % for 2 to 3 years, 15.6% for 3 to 4 years, and 18.7% for more than 4 years. 70.9% of the sample furthermore claims to use the Internet a

few times a week or more, and 90.4% use it for 2 to 3 hours or less on an average working day.

For the items on diversity of use, the highest mean score was for using the Internet for email (5.9, on a scale of 1 to 7), indicating that email is used to quite a great extent by the sample. The only other mean score greater than 4 is for using the Internet to get information for pleasure or entertainment (5.1). Using the Internet for getting information for study purposes has a mean of only 3.9, which on a scale of 1 to 7 is quite low. The lowest mean scores are for electronic commerce tasks, such as financial transactions (1.4) and purchasing/shopping (1.5), indicating that for this sample, electronic commerce is almost never carried out. A summary of the Internet usage statistics is shown in Table 6 below.

Table 6: Internet Usage Statistics

		Number	%
Internet Years	<=1	82	28.3
	1 to 2	54	18.7
	2 to 3	54	18.7
	3 to 4	45	15.6
	> 4	54	18.7
Frequency of Use	Almost Never	10	3.5
	Less than 1/ month	13	4.5
	Few times / month	30	10.4
	Once / week	31	10.7
	Few times / week	108	37.4
	Once / day	51	17.6
	Few times / day	46	15.9
Hours per average working day	Almost never	26	9.2
	Less than ½ hour	46	16.2
	½ hour to 1 hour	76	26.8
	1 to 2 hours	87	30.6
	2 to 3 hours	33	11.6

	3 to 4 hours	7	2.5
	> 4 hours	9	3.2
		Mean	**Standard Deviation**
Diversity of Use (on a scale of 1 to 7)	To get information for degree program	3.9	1.8
	To get information for leisure/entertainment	5.1	1.7
	For email	5.9	1.6
	To get product support	2.6	1.6
	To down load free resources	3.0	2.0
	For chat rooms	2.5	1.8
	For Purchasing/Shopping	1.4	0.9
	For financial transactions	1.5	1.2

5. Data Analysis and Results

5.1 Reliability

The constructs were assessed for reliability using the Cronbach alpha. A minimum alpha of 0.7 is required for a construct measure to be deemed reliable (as in Agarwal & Prasad 1997). As can be seen from Table 7, all items had scores greater than 0.7, with perceived voluntariness being the exception . This was because, for the Cronbach alpha to be assessed using the Statistica software package employed in this analysis, a construct should contain at least 3 items. In the case of voluntariness, there were only 2 items present.

Table 7: Reliability Analysis

Dimension	Construct	Number of Items	Cronbach Alpha
Cognitive Instrumental Processes	Perceived usefulness	4	0.92
	Long-term consequences	5	0.87
	Perceived ease of use	4	0.91
	Result demonstrability	4	0.88
	Compatibility	3	0.89
	Perceived enjoyment	5	0.97
Social Influence Processes	Subjective norm	3	0.85
	Voluntariness	2	-
Perceived Behavioural Control	Self-efficacy	3	0.87
	Facilitating conditions	4	0.76

5.2 Descriptive Statistics

The means, standard deviations, and correlations for the various constructs are displayed in Table 8. The correlations between dependent variables are all less than 0.52, indicating that they are distinct constructs, with those significant at $p < 0.01$ highlighted.

Table 8: Descriptive Statistics

	Mean	Std. Dev.	*Correlations										
			PU	LT	EOU	RD	COMP	PE	SN	VOL	SE	FC	IU
Perceived Usefulness	5.33	1.20	1.00										
Long-term Consequence	5.32	1.02	***0.51***	1.00									
Ease of Use	5.50	1.08	***0.19***	***0.18***	1.00								
Result Demonstrab.	5.30	1.12	***0.28***	***0.24***	***0.37***	1.00							
Compatibility	4.60	1.22	***0.45***	***0.29***	***0.35***	***0.48***	1.00						
Perceived Enjoyment	5.19	1.53	***0.34***	***0.24***	***0.30***	***0.20***	***0.32***	1.00					
Subjective Norm	5.10	1.30	***0.33***	***0.30***	0.15	***0.26***	***0.30***	***0.22***	1.00				
Voluntariness	5.57	1.28	- 0.04	0.03	***0.29***	***0.18***	0.09	0.07	0.05	1.00			
Self Efficacy	5.26	1.25	0.08	0.07	***0.52***	***0.39***	***0.34***	***0.22***	***0.21***	***0.27***	1.00		
Facilitating Conditions	4.87	1.11	***0.20***	***0.25***	***0.35***	***0.28***	***0.32***	***0.17***	***0.17***	0.14	***0.30***	1.00	
Intentions to Use	4.99	1.31	***0.51***	***0.37***	***0.20***	***0.35***	***0.60***	***0.37***	***0.26***	-0.09	***0.24***	***0.18***	1.00

*** Coefficients highlighted are significant at $p < 0.01$**

5.3 Construct Validity

Construct validity was demonstrated through the use of factor analysis with varimax rotation, as displayed in Table 9. If items have factor loadings greater than 0.5 on their expected factors, and less than 0.4 on the others, then construct validity is demonstrated (as in Tan & Teo 2000). For the items in the study, it was expected that 10 constructs should be evident, and so a 10-factor structure was suggested with a minimum eigenvalue of 1. All items loaded on their expected factors with factor loadings greater than 0.5, and less than 0.4 on other factors, thus construct validity was proved. The extracted factors accounted for 77% of the variance.

****Table 9: Factor Analysis**

	LTCONS	EOU	PENJ	RDEM	SN	FCOND	PU	COMPAT	SEFF	VOLUNT
PU1	0.22	0.01	0.14	0.11	0.12	0.08	***0.79***	0.08	-0.02	-0.06
PU2	0.16	0.05	0.19	0.07	0.08	0.02	***0.83***	0.19	0.00	0.02
PU3	0.22	0.04	0.13	0.07	0.07	0.07	***0.86***	0.15	-0.03	-0.04
PU4	0.26	0.09	0.10	0.11	0.14	0.03	***0.83***	0.11	0.06	-0.01
LT1	***0.72***	0.06	0.10	0.12	0.10	0.09	0.33	-0.08	0.02	-0.11
LT2	***0.77***	0.13	0.13	0.10	0.03	0.08	0.25	0.03	0.02	-0.03
LT3	***0.81***	0.08	0.10	0.09	0.05	0.00	0.24	0.10	0.06	0.06
LT4	***0.84***	0.06	0.03	0.06	0.07	0.05	0.10	0.05	0.04	0.07
LT5	***0.73***	-0.06	0.04	-0.01	0.12	0.14	0.03	0.18	-0.11	-0.03
EOU1	0.02	***0.83***	0.12	0.12	0.02	0.09	0.11	0.06	0.19	0.09
EOU2	0.01	***0.86***	0.13	0.13	0.03	0.10	0.04	0.12	0.19	0.07
EOU3	0.06	***0.79***	0.14	0.11	0.00	0.20	0.05	0.17	0.15	0.02
EOU4	0.15	***0.81***	0.09	0.18	0.04	0.10	0.00	-0.01	0.19	0.07
SE1	0.03	0.31	0.14	0.18	0.04	0.04	0.04	0.04	***0.81***	0.06
SE2	0.01	0.20	0.08	0.12	0.14	0.17	0.00	0.17	***0.79***	0.04
SE3	-0.05	0.23	0.03	0.19	0.03	0.11	-0.04	0.07	***0.84***	0.05
FC1	0.07	0.20	0.10	0.10	-0.05	***0.57***	-0.04	0.01	0.08	0.28
FC2	0.07	0.09	0.04	0.00	0.05	***0.85***	0.00	-0.03	0.03	0.04
FC3	0.09	0.03	0.00	0.13	0.02	***0.82***	0.09	0.16	0.09	-0.08
FC4	0.13	0.20	0.09	0.13	0.13	***0.64***	0.19	0.18	0.14	-0.07
SN1	0.05	0.06	0.06	0.07	***0.90***	0.05	0.08	0.17	0.01	0.04
SN2	0.11	0.04	0.07	0.10	***0.93***	0.01	0.11	0.12	0.04	-0.03
SN3	0.22	-0.03	0.14	0.14	***0.67***	0.09	0.22	-0.07	0.20	0.00
RD1	0.15	0.16	0.09	***0.78***	0.11	0.06	0.06	0.10	0.11	0.04
RD2	0.10	0.07	0.04	***0.86***	0.04	0.04	0.07	0.15	0.08	0.01
RD3	0.05	0.14	0.05	***0.78***	0.09	0.12	0.08	0.09	0.21	0.09
RD4	0.03	0.15	0.04	***0.82***	0.08	0.12	0.14	0.17	0.09	0.00
C1	0.10	0.16	0.24	0.32	0.06	0.10	0.30	***0.65***	0.21	0.00
C2	0.08	0.10	0.07	0.18	0.10	0.04	0.19	***0.89***	0.08	0.05
C3	0.15	0.13	0.13	0.21	0.13	0.18	0.17	***0.80***	0.09	-0.03

V1	0.19	0.29	0.08	0.11	0.08	0.07	0.01	0.06	0.31	***0.60***
V2	-0.12	0.03	-0.03	0.03	-0.02	0.03	-0.08	-0.02	-0.02	***0.87***
PE1	0.10	0.12	***0.90***	0.11	0.09	0.02	0.12	0.08	0.09	-0.01
PE2	0.07	0.10	***0.93***	0.03	0.08	0.02	0.11	0.08	0.05	0.00
PE3	0.07	0.10	***0.95***	0.02	0.04	0.07	0.10	0.05	0.04	0.01
PE4	0.07	0.05	***0.93***	0.06	0.04	0.05	0.12	0.04	0.07	0.01
PE5	0.07	0.12	***0.92***	0.03	0.03	0.07	0.12	0.07	0.01	0.02
Eigen-val	**3.49**	**3.31**	**4.63**	**3.14**	**2.33**	**2.40**	**3.37**	**2.26**	**2.46**	**1.27**
Cum-ul Var.	**9%**	**18%**	**31%**	**39%**	**46%**	**52%**	**61%**	**67%**	**74%**	**77%**

**** See Table 1 for definitions of constructs**

5.4 Hypotheses Testing

The 10 hypotheses that have been formulated were tested using multiple linear regression analysis. Before carrying this out, however, it was necessary to establish whether multi-collinearity would pose a problem. If the variance inflation factors (VIFs) for the independent variables are greater than 10, then multi-collinearity could unduly influence the results of regression analysis (as suggested by Tan and Teo 2000). The VIFs were less than 1.67 for all independent variables in this study, thus indicating that multi-collinearity would not be a problem. The independent variables were regressed on the dependent variable (Intentions to use), with the results shown in Table 10.

Cognitive Instrumental Processes

Of the cognitive instrumental processes, there is support for hypothesis 1 (Perceived usefulness influences intention to use the Internet for learning), hypothesis 2 (Long-term consequences influence intentions), hypothesis 5 (Compatibility influences intentions), and hypothesis 6 (Perceived enjoyment influences intentions). Of these, hypothesis 5 is the most significant, with compatibility being a very strong influence on the intentions to use the Internet for learning (beta = 0.40, $p < 0.000001$). The influence of perceived usefulness (beta = 0.21, $p = 0.0002$) is next in line, followed by

perceived enjoyment (beta = 0.15, p = 0.002), and long-term consequences (beta = 0.12, p = 0.02). Ease of use, and result demonstrability showed a weak influence on intentions, and as such there was no support for hypotheses 3 and 4.

Social Influence Processes

Of the social influence processes, perceived voluntariness had a significant negative influence on intentions to use the Internet for learning (hypothesis 8 supported, beta = -0.14, p = 0.002), but there was no support for subjective norm as an influence (hypothesis 7 not supported).

Perceived Behavioural Control

In the perceived behavioural control dimension, neither self-efficacy nor facilitating conditions had any significant influence on intentions to use the Internet for learning, thus hypotheses 9 and 10 were not supported.

Table 10: Results of Regression Analysis

Dimension	Independent Variables	Beta	p-level
Cognitive Instrumental Processes	***Perceived Usefulness***	0.21	***0.0002***
	Long-term Consequences	0.12	***0.0217***
	Perceived Ease of Use	-0.06	0.2526
	Result Demonstrability	0.07	0.2052
	Compatibility	0.40	***0.0000***
	Perceived Enjoyment	0.15	***0.0014***
Social Influence Processes	Subjective Norm	-0.01	0.8110
	Voluntariness	-0.14	***0.0022***
Perceived Behavioural Control	Self-Efficacy	0.10	0.0724
	Facilitating Conditions	-0.05	0.3415

Adjusted R squared = 45.83%

6. Discussion and Implications

6.1 Cognitive instrumental processes

Compatibility: The strong and significant influence of compatibility on intentions to use the Internet for learning is in line with the findings of Tan and Teo (2000), who found compatibility with values to be a significant influence on user intentions to adopt Internet banking. In the context of learning, this result clearly illustrates the importance that must be attached to learning styles, when web-based learning environments are introduced. Those who find use of the Internet to be compatible with their learning and working styles will quickly adapt to this environment, whilst those who do not may avoid its use. It may be necessary, therefore, to develop facilitation mechanisms to assist such students, as all indications are that web-based learning environments are becoming pervasive in many learning institutions.

Perceived Usefulness: The significant influence of perceived usefulness is not surprising, as it has consistently been shown to influence technology acceptance in general, especially as part of the TAM (Davis 1989). Providing students with links to sites that are useful for the courses they are studying will thus promote Internet acceptance for learning.

Long-term Consequences: Findings with regards to the influence of long-term consequences have been mixed, with one study showing it to have a significant influence on Internet use (Jiang *et al.* 2000), while another showing it as having a weak influence (Chang & Cheung 2001). In the context of the sample group in this study, this factor was significant, as for university students concerned about their future careers, if the Internet is perceived as enhancing career opportunities, there is a greater possibility of its acceptance for learning purposes. Thus, the use of the Internet in specific careers should be made known to students.

Perceived enjoyment has been shown in previous studies to have an influence on Internet acceptance (Teo *et al.* 1999; Moon & Kim 2001; Chang & Cheung 2001). This study confirms this to still hold true when the intention is to use the Internet for learning purposes. Teo *et al.* (1999) refer to perceived enjoyment as intrinsic motivation, whereby intentions to use the

Internet are motivated by an internal sense of pleasure with its use. This is in contrast to extrinsic motivation (perceived usefulness), whereby the Internet is adopted because it is perceived to be of benefit to learning. Thus, by allowing students to use the Internet for leisure and entertainment (within limits), institutions can foster this sense of enjoyment.

Ease of Use had no significant influence on intentions to use the Internet for learning. This lends weight to the argument of Jiang *et al.* (2000), who state that a rapidly diffusing innovation such as the Internet that is highly user friendly, makes ease of use of no great significance in adoption. Agarwal and Prasad (1997) support this view. Furthermore, the subjects in this study were on average fairly experienced Internet users, and so ease of use was not of concern in their adoption decisions.

Result Demonstrability: The same can be said of result demonstrability. Since the subjects were already using the Internet (albeit not always for learning purposes), the results of using it were clear to them, and result demonstrability was not a significant factor in the decision as to whether to use it for learning purposes.

6.2 Social Influence Processes

Subjective Norm: Findings with regards to the influence of peers, colleagues and superiors on Internet acceptance have been mixed. Chang and Cheung (2001) found this factor to have an influence on intentions to use the Internet at work, whilst Tan and Teo (2000) found it to have no influence on intentions to use Internet banking. Venkatesh and Davis (2000) furthermore demonstrate that the strength of its influence is moderated by the perceptions of voluntariness. Where usage is mandatory, subjective norm has a greater influence on intentions to use than when use is voluntary. In this study, subjective norm had no influence on intentions to use the Internet, and given that on average, subjects perceived its use to be voluntary (mean of 5.6, on a scale of 1 to 7), this is perhaps not surprising.

Voluntariness: Voluntariness had a significant negative influence on intentions to use the Internet for learning, in line with expectations. The explanation for this is that in the learning context, where a particular tool

such as the Internet is prescribed for a course (i.e., mandated), stud would be more likely to use it than if it were not.

6.3 Perceived Behavioural Control

The behavioural control factors, ***self-efficacy***, and ***facilitating condit*** had no significant influence on the intentions to use the Internet for learn This is in contrast to many previous studies on Internet acceptance (Jian *al.* 2000; Chang & Cheung 2001; Tan & Teo 2000). Once again, the sar group were relatively experienced Internet users, and thus confident in t ability to use the Internet. As a result, self-efficacy did not feature a influence on their adoption decisions. In the same way, external sup (facilitating conditions) was not important as an influence on their intent to use the Internet for learning. These factors have furthermore been sh to be important predictors of ease of use, rather than intention to u technology (Venkatesh 2000). Their impact, therefore, may be indirect.

7. Limitations and Future Research

The subjects that made up the sample were mostly first year stud studying either social science or commerce. Thus, any findings must into account this profile. Future research may then also examine subj from a more diverse sample, and may include students from other facul such as health and engineering as well as postgraduate and MBA stud Including students that study through distance learning mode as wel through on-site courses may further diversify the sample. This will ai generalisation of the findings.

Rather than examining the Internet in general, a specific lear web site or web-based learning tool may be assessed, so that responses be more directed (Lederer *et al.* 2000).

The perceptions of lecturers and trainers on the adoption of v based learning environments may also provide an additional perspectiv this new and exciting development in education.

The data that has been collected allows for further analysis t done. For example, the differences in adoption decisions between ger language and degree groups can also be examined. If language is used proxy for culture, the role of culture in adoption decisions can be examin

Using techniques, such as structural equation modelling, other relationships between the independent variables may be examined. For example, self-efficacy and facilitating conditions have been shown to influence ease of use (Venkatesh 2000). Although in this study ease of use was found to have a weak influence on adoption, it has been shown in other studies, to have an influence on perceived usefulness (Davis 1989). Perceived usefulness in turn has been shown to influence long-term consequences, as well as adoption (Jiang *et al.* 2000).

A large number of factors have been considered in this study, but by the same token, there are a large number of additional factors that could have also been included. Examples include, among others, computer anxiety, and computer playfulness (Venkatesh 2000). More specifically, Internet anxiety and Internet playfulness can be considered. If a specific web site or tool is to be examined, web site characteristics such as information quality may also influence adoption decisions (Lederer *et al.* 2000).

Finally, the strong influence of compatibility on the adoption of the Internet as a learning tool warrants further investigation into this factor specifically, with antecedents of compatibility possibly being examined.

8. Conclusion

This study has sought to examine the role of cognitive instrumental processes, social influence processes, and perceived behavioural control in the acceptance of the Internet as a learning tool. Based on a survey of 294 university students, it was found that the cognitive instrumental processes perceived compatibility with values/learning style, perceived usefulness, perceived enjoyment, and perceived long-term consequences of use significantly influenced the acceptance of the Internet as a learning tool. Likewise, the social influence process perceived voluntariness was shown to have a significant negative influence, whilst none of the perceived behavioural control factors (self-efficacy and facilitating conditions) had any effect on acceptance. In all, the 5 influential factors accounted for 45.8% in the variance of intentions to use the Internet for learning.

In order to promote the use of the Internet as a learning tool, therefore, educators and trainers should make it a requirement for students to use the Internet in their courses. This can be done through setting tasks that

require the student to use the Internet, and/or through the establishment of web-based learning environment using any one of many web-based toc available on the market.

Sites that are useful for a specific course can be made available fro the course web site through hyperlinks, and/or be included in course reade The uses of the Internet in specific careers should also be amply illustrated.

Students who enjoy using the Internet are more likely to use it f learning purposes, so institutions should not be too restrictive on studer using the Internet for leisure or entertainment outside of class times. Th helps to make the use of the Internet more compatible with student experiences and learning styles, thus preparing them for a learni environment in which the Internet and related applications are becomi increasingly pervasive.

Whilst encouraging students to use the Internet for learnin educators should nevertheless at the same time warn them against using th tool for plagiarism and cheating. The potential of the Internet for good countered by the potential for its abuse.

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Appendix 1: Questionnaire Items

Internet Usage

Please answer the following with regards to your Internet usage.

1. For how many years have you been using the Internet?	Less than 1	1	1-2	2-3	3-4	4-5	More than 5
2. On the average, how frequently do you use the Internet?	Almost never	Less than 1/month	Few times/ month	Once/ week	Few times/ week	Once/ day	Few times/ day
3. On the average working day, how much time is spent on the Internet?	Almost never	Less than 1/2 hour	1/2 hour to 1 hour	1 -2 hours	2 -3 hours	3 -4 hours	More than 4 hours

Diversity of Internet Usage

Please indicate the extent to which you use the Internet for the following:

	Never						A great Extent
1. To get information for my degree program.	1	2	3	4	5	6	7
2. To get information for pleasure or entertainment.	1	2	3	4	5	6	7
3. Email	1	2	3	4	5	6	7
4. To get product support	1	2	3	4	5	6	7
5. To download free resources.	1	2	3	4	5	6	7
6. To use chat rooms							
7. For purchasing/shopping.	1	2	3	4	5	6	7
8. For financial transactions.	1	2	3	4	5	6	7

Perceived Usefulness

	Strongly disagree	Dis-agree	Some-what disagree	Neutral	Some-what agree	Agree	Strong-ly agree
1. Using the Internet would improve my performance in my degree program.	1	2	3	4	5	6	7
2. Using the Internet in my degree program would assist my learning/study.	1	2	3	4	5	6	7
3. Using the Internet would increase my effectiveness in my degree program.	1	2	3	4	5	6	7
4. The Internet would be useful in my degree program.	1	2	3	4	5	6	7

Perceived Ease of Use

	Strongly disagree	Disagree	Somewhat disagree	Neutral	Some-what agree	Agree	Strongl y agree
1. The Internet is easy to use.	1	2	3	4	5	6	7
2. The Internet is easy to learn.	1	2	3	4	5	6	7
3. The Internet is user friendly.	1	2	3	4	5	6	7
4. The Internet is easy to master.	1	2	3	4	5	6	7

Long-term Consequences

	Strongly disagree	Disagree	Some-what disagree	Neutral	Some-what agree	Agree	Strong-ly agree
1. Using the Internet will increase the opportunity for preferred future job assignments.	1	2	3	4	5	6	7
2. Use of the Internet will increase the amount of variety in my work.	1	2	3	4	5	6	7
3. Use of the Internet will increase the opportunity for more meaningful work.	1	2	3	4	5	6	7
4. Use of the Internet will increase the flexibility of changing jobs..	1	2	3	4	5	6	7
5. Use of the Internet will increase the opportunity to gain job security.	1	2	3	4	5	6	7

Self-efficacy

	Strongly disagree	Disagree	Some-what disagree	Neutral	Some-what agree	Agree	Strong -ly agree
1. I would feel comfortable using the Internet on my own.	1	2	3	4	5	6	7
2. If I wanted I could easily use any of the Internet tools and functions.	1	2	3	4	5	6	7
3. I would be able to use the Internet even if there is no one around to show me how to use it.	1	2	3	4	5	6	7

Facilitating conditions

	Strongly disagree	Disagree	Some-what disagree	Neutral	Some-what agree	Agree	Strong-ly agree
1. The Internet is available to me when I need it.	1	2	3	4	5	6	7
2. A person (or group) is available for assistance with Internet difficulties.	1	2	3	4	5	6	7
3. Specialised instruction concerning the Internet is available to me.	1	2	3	4	5	6	7

4. Overall the use of the Internet is very supportive.	1	2	3	4	5	6	7

Subjective norm

	Strongly disagree	Disagree	Some-what disagree	Neutral	Some-what agree	Agree	Strong-ly agree
1. My friends think that I should use the Internet.	1	2	3	4	5	6	7
2. My classmates think that I should use the Internet.	1	2	3	4	5	6	7
3. My lecturers think that I should use the Internet.	1	2	3	4	5	6	7

Result Demonstrability

	Strongly disagree	Disagree	Some-what disagree	Neutral	Some-what agree	Agree	Strong-ly agree
1. I would have no difficulty telling others about the results of using the Internet.	1	2	3	4	5	6	7
2. I believe I could communicate to others the consequences of using the Internet	1	2	3	4	5	6	7

3. The results of using the Internet are apparent to me.	1	2	3	4	5	6	7
4. I would have no difficulty explaining why using the Internet may be beneficial.	1	2	3	4	5	6	7

Compatibility

	Strongly disagree	Disagree	Some-what disagree	Neutral	Some-what agree	Agree	Strong-ly agree
1. Using the Internet is compatible with my learning style.	1	2	3	4	5	6	7
2. Using the Internet fits well with the way I like to study.	1	2	3	4	5	6	7
3. Using the Internet fits into my working style.	1	2	3	4	5	6	7

Voluntariness

	Strongly disagree	Disagree	Some-what disagree	Neutral	Some-what agree	Agree	Strong -ly agree
1. My use of the Internet is voluntary.	1	2	3	4	5	6	7
2. Although it might be helpful, using the Internet is certainly not compulsory in my degree program.	1	2	3	4	5	6	7

Perceived enjoyment

Using the Internet for my degree program would be:

Unenjoyable	1	2	3	4	5	6	7	Enjoyable
Dull	1	2	3	4	5	6	7	Exciting
Unpleasant	1	2	3	4	5	6	7	Pleasant
Boring	1	2	3	4	5	6	7	Interesting
Frustrating	1	2	3	4	5	6	7	Fun

Intentions to use

	Strongly disagree	Disagree	Some-what disagree	Neutral	Some-what agree	Agree	Strong -ly agree
1. I intend to use the Internet frequently in my degree program.	1	2	3	4	5	6	7
2. I intend to be a heavy user of the Internet in my degree program.	1	2	3	4	5	6	7

Cognitive Therapy for Social Phobia: The Human Face of Cognitive Science

David Edwards,
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Both the terms 'science' and 'cognitive' can have a hard face. They are not terms which immediately make one think compassionately and in depth about the existential struggles of human beings. Keller (1985) accuses science of being a particularly masculine enterprise and shows how masculine metaphors played a dominant role in the shaping of the principles of science in seventeenth century Britain:

> Henry Oldenberg, Secretary of the Royal Society, announced ... that the intention of that society was 'to raise a Masculine Philosophy ... whereby the Mind of Man may be ennobled with Solid Truths' (Keller 1985: 52).

These values are often represented by the image of conquering and exerting mastery over the natural world. This is achieved by cultivating distance and objectivity, avoidance of emotional involvement with what one is studying, and the search for an understanding which will provide prediction and control.

Related to this is an interest in explanations in terms of mechanism. Psychologists, for example, are interested in the physiology of nerve cells, because it is assumed that the action of 10 billion of them working together is the foundation of human experience. At its inception, science often drew on mechanical metaphors like clockwork. At the turn of twentieth century, the metaphor of a telephone exchange appealed to psychologists as it

provided a mechanism through which behaviour could be understood in terms of how stimuli became associated with other stimuli or with responses. More recently, we have learned to think of the brain as an amazing kind of computer, and to expect that we can explain the complexities of human experience in terms of the processing of information encoded as digital strings running round neural circuits. This metaphor has led to cognitive science becoming such an important field.

'Cognitive' is another term which may be experienced as masculine and alien to the feminine spirit. It is often equated with 'rational' and taken as the opposite of 'emotional' or of 'intuitive', so that investigation of the cognitive side of human experience may overlook these important aspects, which do not, of course, feature in information processing in computers. It also forecloses any psychological discourse in terms of words like spirit or soul. Furthermore, most research in cognitive science takes the form of specialized and strictly controlled laboratory experiments on thinking, memory and perception, and some of it involves searching for neurophysiological mechanisms that underlie these processes. What is often called the 'cognitive revolution' is a shift from one mechanistic metaphor to another.

So we must be alert for the hidden ideological connotations of a term like 'cognitive science'. Both words may draw us away from doing full justice to our humanity. It may be a hard trip to lay on women in particular, to ask them to embrace, in the name of progress, an approach which, ideologically, is profoundly masculine and against which, over the last decades, women's consciousness has often protested (Keller & Longino 1996).

However, for some scientists, the cognitive revolution signifies a deeper shift. Sperry (1995:506), famous for his split brain experiments of some forty years ago, remarks that the former stark, strictly physical, value-empty, and mindless cosmos previously upheld by science becomes infused now with cognitive and subjective qualities, values and rich emergent macrophenomena of all kinds.

This perspective seems more feminine in that it is holistic and systemic rather than mechanistic, the aim is to co-operate with rather than dominate the natural world, and human experience is given a central place in our understanding and not dismissed as a mere by-product of brain processes.

Cognitive therapy is an approach to relieving human distress which is founded on this kind of holistic approach. This is because it was

developed not in the laboratory but in the clinical setting. Its practitioners had a general familiarity with the principles of learning and cognitive theory, but largely drew on their own pragmatism and common sense in developing interventions (Gelder 1997). Cognitive therapy and cognitive science have evolved separately but in parallel:

> Cognitive science has firm roots in the laboratory and relatively little basis in the clinic. Although cognitive-behavioral therapy has drawn on the constructs of cognitive science, it remains a relatively independent endeavour. For the clinician, ... the clinical relevance of the cognitivist approach may seem unclear (Stein 1997:2f) .

This came about because the aim of cognitive scientists has been to understand cognitive processes as they appeared in the controlled and circumscribed setting of the laboratory. They never set out with the aim of solving clinical problems, and were largely not equipped to do so.

The advantage of laboratory experiments is that variables can be strictly controlled and hypotheses rigorously tested. This allows researchers to establish internal validity, which simply means that they can confirm a hypothesis by ruling out alternative explanations for the findings. However such carefully controlled research, while safeguarding internal validity, can result in external validity being sacrificed. Experiments become removed from everyday life, so that findings have limited meaning in real life situations. The masculine emphasis on detachment and control can create an artificially rarefied approach which loses touch with life as it is lived. Cognitive science can easily look as if it is taking place in the mythical 'ivory tower'.

However, for at least two decades, there has been fruitful cross-fertilization between theories of psychotherapy and concepts from cognitive science. John Bowlby's (1979) influential conceptualization of attachment in terms of 'self-other working models' was directly taken from cognitive information processing theories. In cognitive therapy in particular, there has been concern that clinical theory should develop in synchrony with laboratory research findings. Theorists with a background in both have developed important integrative theories (Power 1997; Power & Brewin 1991; Teasdale 1996; 1997) and clinical theory increasingly incorporates concepts from cognitive science (Stein & Young 1993). Cognitive therapy,

while drawing on technical knowledge, offers a sensitive and detailed understanding of human beings struggling with everyday difficulties. It is science with a human face.

Cognitive therapy is founded on the view that what people think or believe is the foundation of what they experience. Hamlet (Act 2, Scene 2) tells Rosencrantz that he is experiencing Denmark as a prison. However, he remarks, 'there is nothing either good or bad but thinking makes it so'. He recognizes that it is not that Denmark really is a prison. Rather, it his own thinking patterns that are at the root of his experience. A cognitive therapist would not try to change Hamlet's belief that Denmark is a prison by simply arguing with him, or reminding him of the spacious countryside that he can travel through. A fuller understanding is needed, and a little questioning would reveal that the source of Hamlet's distress is his 'bad dreams'. Rosencrantz and Guildenstern mistakenly conclude that the 'dreams' are Hamlet's ambitious hopes for the future. In fact, of course, Hamlet is referring to the ghostly appearances of his dead father. Actually, this is the kind of problem which is more likely to be taken to an African healer than to a Western therapist, and African healers might be better equipped to deal with it. Later in the play, when the ghost appears again, Hamlet makes the famous comment, 'There are more things on earth, Horatio, than are dreamt of in your philosophy'. Many cognitive scientists might be in the same boat as Horatio here. However, holistic their models, they do not handle appearances of dead ancestors all that well.

So let us turn to an experience which cognitive therapists have a great deal of experience with: social anxiety. Over the past two decades, researchers have developed a thorough understanding of the cognitive processes that give rise to this kind of emotional distress. Beck and Clark (1997) present the contemporary cognitive science approach to anxiety. They point out that a great deal of cognitive processing happens rapidly and automatically and so is outside of our awareness. In situations in which they anticipate danger, individuals are oriented towards scanning for potential threats. However, there are marked individual differences. For example, most people are not oriented towards threat if they drive across a bridge. However, for some people, bridges are a threat cue, and the knowledge that they are approaching one automatically orients them to threat. Once alerted to danger, individuals automatically go into a primal threat mode, a

specialized response which prepares them to deal with the threat. There is (1) arousal of the autonomic nervous system which results in symptoms such as increased heart rate, sweating and muscular tension; (2) preparation for behaviour to deal with the threat by escaping from the situation or avoiding it altogether (stop the car, close the eyes); (3) primal thinking, characterized by automatic thoughts and images related to the threat ('the bridge will collapse' ... 'I will fall over the edge'); (4) a feeling of fear; (5) vigilance for further threat cues ('the bridge is shaking' ... 'The car is going too close to the edge'). Selective attention to threat can result in the actual danger being seriously overestimated. Next, individuals rapidly assess whether they have the resources to cope with the threat. If they believe that they do not, the situation appears more threatening and anxiety increases. If they believe they can cope, the situation seems less threatening and anxiety decreases. The term self-efficacy refers to the sense that one can handle whatever threats one faces (Bandura 1997).

Social phobia refers to anxiety in social situations arising from fear of being humiliated or embarrassed, criticized or mocked. Detailed cognitive models of this kind of anxiety (Clark 1997a & b; Clark & Wells 1995; Rapee & Heimberg 1997; Wells 1997) emphasize the manner in which negative beliefs give rise to dysfunctional behaviours which, in turn, reinforce the negative beliefs and create a self-fulfilling prophecy. Picture Nbongiseni, a shy first year student, arriving at a student social gathering. The invitation activates her primal threat mode and evokes threat-related images and thoughts. She imagines other people at the party ('the perceived audience') as confident, critical, mocking or ignoring her; she pictures herself ('negative self image') as small, dull, uninteresting—she may even think that she has a funny nose or poor taste in clothes. She thinks, 'How will these confident, mocking people behave towards this dull uninteresting girl with the funny nose?' She imagines them talking among themselves critically, ignoring her or even laughing at or about her. As these thoughts and images are activated, her anxiety increases. She begins to feel shaky, sweaty, finds it hard to breathe, feels her heart pounding. New thoughts arise which contribute to her negative self image: 'people will see me shaking, they'll wonder what's wrong with me'—she may even picture herself shaking visibly. Other thoughts lower her self efficacy: 'I won't be able to think clearly, I will freeze, maybe I'll faint'.

Someone walks up to her and asks her a question. She is so focussed on these thoughts and images, so aware of her racing heart, her sweaty palms, her shaking hands that she cannot take in the person who has addressed her, and she stumbles over her words. To help her cope she engages in 'safety behaviours': she accepts a drink and grips it tightly to stop her hand shaking; she avoids eye-contact and stands back a little in the hope that the other person will not see how anxious she is; she talks quickly, in the hope that the other person will not notice how boring her conversation is. Although these safety behaviours make her feel less anxious, they are self-defeating. To other people she seems distant, aloof, disinterested. They mistake her anxiety for arrogance and withdraw from her. When people do not stay to continue the conversation, she concludes that it is because she is unattractive and dull. After a while, lonely and humiliated, she quietly leaves. Back in her room she replays the scene in her mind (a '*post mortem*'). She focusses on her negative self image, her lack of competence in social situations, her shaking hands and stumbling words, the thought that others find her dull and uninteresting, the observation that people seemed to withdraw from her. All her negative beliefs are reinforced by this process. She concludes, 'I'm anti-social, a social misfit, there's something terribly wrong with me, I simply can't function in these situations'.

Around 20% of people have experienced anxiety like this at some time or other in some social situations, especially if they have to speak in public. Around 3% are sufficiently distressed and disabled by it to be given a diagnosis of social phobia (American Psychiatric Association, 2000). Sadly, although many people develop social phobia while they are teenagers or even children, very few actually seek treatment until much later. Fortunately, for those who do, the cognitive information processing models described above provide the basis for an effective treatment (Heimberg, Liebowitz, Hope & Schneier 1995; Rapee & Sanderson 1998). Heimberg and Juster (1995) reviewed several outcome studies, many of which used a treatment programme developed by Heimberg and his colleagues. These show that a large number of people can gain significant help and many can overcome their social anxiety altogether.

The Programme and the Participants

In this paper we describe a treatment developed by Clark and Wells (1995)

which has been shown to be effective (Bates & Clark 1998; McManus, Clark & Hackmann 2000) and which Clark (personal communication) believes is even more effective than the Heimberg treatment. Previous studies used the programme in individual therapy. We adapted it into a group therapy format. It was highly structured and closely followed Clark's (1997b) guidelines. Sessions were led by the first author, assisted by the other two authors, and ran once or twice weekly for 1-2½ hours. After each session participants were given homework tasks to complete before the next meeting. Each session began with participants discussing their experiences of the homework assignments. This gave them a confidential space to express and share their feelings and concerns, allowed members to learn from each other, and gave the facilitators a detailed understanding of participants' problems. Next, new concepts and interventions were introduced through a psychoeducational presentation. After this, participants would discuss the new concepts, and engage in practical exercises as a group or in pairs. The sixth session prepared them for a two-hour individual role play session which was conducted outside the group. This will be described more fully later. A further five group sessions followed. The entire programme consisted of 13 group sessions and an individual role-play session for each participant.

Participants were students who responded to posters placed around campus. They attended two initial interviews in which we established whether they met the criteria for social phobia, checked that they did not have any other serious disorder (such as an eating disorder, severe depression or a substance-related problem) that might interfere with the treatment, and obtained a case history and information about how they spent a typical day. Seven students began the programme (age range: 19-21; ethnicity: 1 = white; 6 = black; gender: 3 = female, 4 = male). Two dropped out after session 5.

The research methodology was a multiple case study design (Barker Pistrang & Elliott 1994; Edwards 1996). We constructed graphical records of each participant's progress using scores on several self-report scales administered at every session: the Beck Depression Inventory (BDI-II: Beck Steer & Brown 1996), the Beck Anxiety Inventory (BAI: Beck & Steer 1990) and three measures of social anxiety (Clark 1997b). Against these records, we juxtaposed case narratives of each participant constructed from

extensive qualitative data which was derived from a range of sources: a brief case history; video-recordings of every session; copies of all records made by participants of their in-session and homework exercises; a debriefing interview conducted a few weeks after the formal programme was over; a follow-up interview conducted six weeks after that.

This methodology allowed us to investigate the experience of participants in some depth and to examine objectively their response to the programme. We wanted to see whether the process of the therapy would unfold in the way that Clark and others had claimed that it would and how much participants were able to overcome their anxieties and phobic behaviour. In this paper we present one of the case studies. It serves to illustrate how the cognitive model of social phobia works in practice when applied to one person's life situation. Case studies of the other participants are in the process of being written.

Tabelo: A Case Study

Tabelo, a 19-year-old second year student, born in Mpumulanga, spends much of his time working on the computer. He also plays basketball and watches a lot of television. He prays when he wakes in the morning and always 'looks forward to a brighter day'. However, he also complains about his life a lot and he dislikes doing that. Before going to sleep at night, he reviews and analyses the events that happened during the day. Although he tries hard to get along with people, he does not have deep friendships, and sees himself as a 'very anti-social person' and as a 'one-man person'. He watches others in interpersonal relationships and wishes that he could be more like them. He has wanted a girlfriend for a long time and has recently become attracted to a girl. However, he has been afraid to approach her in case he says the wrong thing. He has read several books about self-confidence in the hope that they would help him to change but he now realises that he needs some practical help.

Sessions 1-5: Building a Model

The first five sessions focussed on self-monitoring and self-assessment. Participants learned to identify the ways in which their thoughts, feelings and behaviours in feared situations interacted and reinforced one another. They learned to organize the material in terms of the Clark & Wells model,

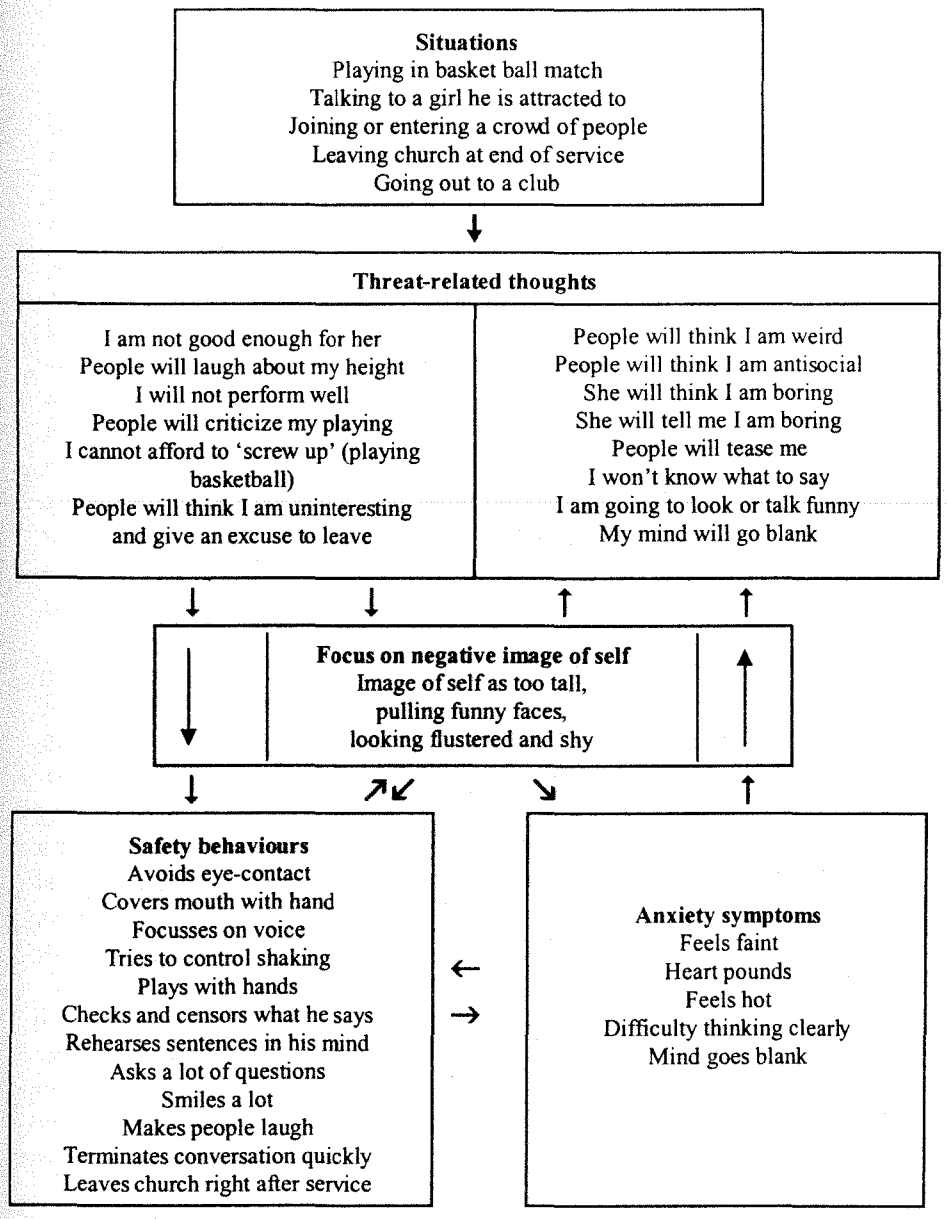
the main features of which are set out in figure 1. In each session, one or more aspects of the model was explained. They then split up into pairs and, using structured questions provided by the facilitators, helped each other identify these aspects in their own everyday situations. For homework they were asked to enter situations in which they felt anxious and to collect further information. Much of the information that Tabelo collected is summarized in Figure 1. You can see that he identified several ***situations*** in which he became extremely anxious. In addition to his anxiety about meeting an attractive girl, he also became anxious about people watching him playing at a basketball match, when he went out to a club, or when he left church after attending a service.

His ***threat related thoughts*** concerned fears that: (1) people would find him dull and uninteresting and might therefore laugh at him, criticize him, tell him how boring he was, or simply terminate the conversation; (2) people would think he looked funny either because he was so tall, or because his face looked funny when he talked; (3) people would laugh or be critical if he made any playing errors during basketball games; (4) he would become so anxious that his mind would go blank or he would fail to speak clearly, and this would lead to people thinking he was weird or antisocial. He would ***focus on a negative self image***, picturing himself as taller than anybody else, imagining his face screwed up and looking funny and imagining himself looking flustered and shy.

All this activated his autonomic nervous system, and he would notice ***anxiety symptoms*** such as his heart pounding, feeling hot, and feeling dizzy and faint. He would also find it hard to concentrate and at times his mind would go blank. These symptoms contributed to the threat related thoughts, since he was worried that people would notice how hot and flustered he was feeling, or that he would make a fool of himself because he could not think clearly.

Tabelo was able to identify several ***safety behaviours*** through which he tried to reduce the threat that he felt. These included avoiding eye-contact, covering his mouth with his hand and smiling a lot. He would check everything he said before he uttered it, in case he said something embarrassing, would rehearse in his mind things to say, and ask a lot of questions so that there would be no awkward silences and so the other person could not ask him something he could not answer.

Figure 1
Cognitive Behavioural Analysis of Tabelo's Social Anxiety



In order to reassure himself that people were still interested and feeling positive about him, he would say things to make people laugh and observe how they responded. He would sometimes avoid people altogether or end a conversation prematurely. For example after church he would hurry away rather than speak to other members of the congregation.

The cognitive therapy model assumes that all this is self-defeating because it interferes with a person's capacity to engage in a spontaneous and relaxed conversation. This was true of Tabelo. At one session he described how he had unexpectedly met the girl he was interested in. He felt as though he was going to faint and his heart was pounding. He rated the degree of anxiety as 90/100. His automatic thought was 'I am not good enough for her' and then he said to himself 'Just greet her and go'. So he was able to get as far as greeting her, but he terminated the encounter before it could develop further. He was so preoccupied with his threat-related thoughts and negative self-image that he had not much attention left for looking at other people to see how they were feeling or responding or for attending to what they were saying. Indeed, by avoiding eye-contact he was cutting out this useful source of feedback altogether. In addition, his rehearsal of things to say next and his belief that it was safest to keep asking questions made it impossible for him to be spontaneous and allow the conversation to flow in a natural way. The whole process thus became a self-sustaining system.

Despite all this, before entering a situation, Tabelo was often able to focus on positive and optimistic thoughts and did not always experience a great deal of anticipatory anxiety. However it did not take long before his beliefs about the threatening nature of the situation began to set the anxiety cycle in motion. As he began to experience anxiety and his self-defeating safety behaviours automatically kicked in, he would be unable to sustain a spontaneous and natural conversation. The result was that, each time he did get involved in a conversation, his threat related-beliefs would be reinforced. He was caught in a trap and felt guilty because he saw himself as lacking the courage to deal with the situation.

After the first five sessions, Tabelo realized that the exercises were giving him insight into the nature of his problem, and was feeling optimistic about being able to make meaningful changes to his behaviour. Once we started again at the beginning of the next term, exercises would be introduced which would involve actively working to change his

dysfunctional behaviour. Some of the members found this a frightening prospect. But Tabelo was looking forward to it. He felt that he was being empowered to work towards goals that were very important to him.

The Safety Behaviours Role-play and Video Feedback Session

At the first group meeting after the vacation, participants reported back on their homework activities over the past few weeks. Then, the facilitators explained and made arrangements for the individual sessions in which group members would do the safety behaviours role play. Group members were asked to select a social situation which could be simulated in role play. Tabelo elected to role play meeting and conversing with an attractive young lady. This was organized by the facilitators who recruited another student to take part who was not known to Tabelo. By the time Tabelo's role play was conducted, another group meeting had taken place in which other group members had described how valuable they had found the experience. Tabelo was excited, but also anxious at the prospect of having to converse with a strange young woman, especially as the role play was to be videotaped. It was agreed that he would approach the volunteer, as if on the way to a lecture, and begin a conversation with her.

When interviewed beforehand, he predicted that he would not know what to say to the volunteer and that she would notice how shy he was and would think that he was uninteresting. When asked to identify all the safety behaviours he would normally use in this situation, he listed the following: avoid eye-contact, hide mouth, ask lots of questions (try to dominate conversation), play with hands, try to control shaking, rehearse sentences in his mind. It was explained that in the first role play he should adopt all of these safety behaviours. This would be followed by a second role play in which he would, as far as possible, attempt to interact without them. Each role-play was to last approximately 7 minutes, and for the first three minutes he was instructed not to leave the situation, but after that he could if he wanted to. The volunteer was briefed about the situation to be role played and told it was part of a social psychological study. She did not know anything about Tabelo's social phobia or the group programme.

In the role play, Tabelo engaged in all of his safety behaviours, as instructed. Afterwards, he was interviewed and said that his behaviour had

been 'the usual' and that he had felt very aware of the time. He had been afraid of 'screwing up', and, although he had tried to flow with the conversation, he didn't really listen to what she was saying and kept asking her the same thing because he was so focussed on coming across well and keeping the conversation interesting. He was sure she had noticed he was very shy and anxious and she seemed to have tried to get him to make eye-contact and to have repeatedly looked at his hands fidgeting. The volunteer did indeed think he looked anxious and self-conscious (8½ out of 10) but she rated his social interaction skills at a reasonable level (6 out of 10).

In the second role-play, Tabelo managed to drop most of his safety behaviours. He maintained eye-contact for most of the time and, when interviewed after this role play, he said that he had not been aware of the time because the conversation was flowing more easily. He felt he had managed to drop most of his safety behaviours, and had not rehearsed what he was going to say, although he had been very conscious of making an effort to listen and to make eye-contact. He was sure that the volunteer had noticed his nervousness. The volunteer did indeed perceive him as having rather low self-confidence, however she noticed that he was more relaxed, spoke more openly and maintained eye-contact. She did not think that his anxiety was unusual for someone meeting another person for the first time. She rated him as markedly less self-consciousness than before (5 out of 10), and rather more skilled at social interaction (7½ out of 10).

Next, Tabelo viewed the videotape of both role-plays with the facilitators. First, he was asked what he was expecting to see. He felt anxious about watching it as he expected to see evidence for his existing beliefs about how he appeared in social situations and did not expect to enjoy this. He expected that his voice would 'sound funny', his speech would be too slow, he would see himself making ridiculous faces, and he would look shy. As they watched the video, the facilitators stopped it at various places so that specific parts could be discussed. Tabelo was shocked as he watched himself. He looked even more shy than he had expected. He kept saying to himself, 'Look it's true, I do look ridiculous and my voice is slow and comical'. He noticed what he called his 'funny facial expression' and 'funny smile' and said, 'of course people will laugh at me with that look'. Watching the video confirmed many of his negative predictions and he felt embarrassed and humiliated. The facilitators then presented him with the

volunteer's feedback about him. He was surprised to hear that she had thought his social skills were a bit above average and that although he did look shy and self-conscious, she had not said anything about his voice or facial expression. He began to realize that his perception of the interaction as he watched it on the video was much more unfavourable than it appeared to others.

While watching the second role-play, he noticed the effect of dropping his safety behaviours. He did not look unusually shy, and actually liked what he saw. He looked more at ease in the conversation and made more eye-contact. Although he looked out for them, he could not see any funny expressions on his face. He realized that when he made eye-contact he looked more natural and did not make any strange facial expressions. He also realized that he looked better for not slouching in the chair or trying to hide his face. Another observation that surprised him was that a pause in the conversation which had seemed abnormally long at the time seemed no different from those he had observed in other people's conversations and looked quite natural. He realized that the conversation was flowing easily and this was because he was attending to the conversation rather than thinking of questions to ask. He could now see that, in the first role-play, by looking away and continually asking questions, he had made it difficult for the volunteer to have a natural conversation with him. His old conclusion, that there was something wrong with him, was clearly mistaken. The problem was his safety behaviours which interrupted the flow of the interaction. Another belief that he had was that he was unable to make girls laugh. This was disconfirmed as the volunteer was clearly spontaneously amused by several of the things he said.

Thus Tabelo found no evidence to support his negative predictions. He was able to accept that the feedback given by the volunteer was accurate, and gained insight into how his negative beliefs had been self-fulfilling. At the end he said, 'Most of the beliefs I had do not hold true in watching this video. I have had these thoughts for so long that I had believed them and from them created images regarding how I appeared to others and therefore, in many ways, my beliefs caused me to behave in ways which made my beliefs come true'. Looking back later, Tabelo described this session as a turning point as it had vividly confronted him with just how inaccurate many of his strongly held beliefs were.

Final Sessions: Behavioural Experiments and Further Consolidation

During the final sessions, participants were encouraged to put to work the insights gained from the safety behaviours role play by conducting a series of behavioural experiments. In these, they were to select situations which they found anxiety provoking and plan to enter them and interact spontaneously without their safety behaviours. Before entering them they were to write down their negative predictions on a record sheet. After doing the experiment they were to examine whether their negative predictions had been accurate.

Over the next few weeks, Tabelo described engaging in many new behaviours and discovering he could behave naturally and spontaneously. In session 8 he told how he had gone to the residence of the girl he was attracted to and invited her out to a movie. At the residence he had chatted to and laughed with a group of girls. Previously he never would have believed that he could have an enjoyable conversation with a group of girls like this. In the session, the facilitator commented that he was seeming more at ease in the group and making much more eye-contact. At the next session he reported that he had worn a suit to go to a beauty pageant. Previously he would have avoided such situations because he predicted he would look ridiculous in a suit and people would make fun of him. However, he observed that several people complimented him on his appearance and no one laughed at him. In another experiment, he predicted that a group of girls that some friends introduced him to would find him boring. He obtained evidence to the contrary. The girls clearly enjoyed his company and he was complimented for his charming personality. He was finding people to be friendlier and more accepting than he could have believed possible before.

One of the most important experiments was to ask the girl he liked out to dinner. He felt some anxiety, especially as she did not arrive on time. Once she did arrive, the conversation began in a rather awkward way, but soon it was flowing so easily and naturally that 2½ hours sped by. He told the group members that this was a completely new experience. They then went back to her house and talked for two hours more. In the last few sessions, Tabelo was very encouraging to other group members. He had experienced that the programme worked for him. He could see how his previous beliefs had led to his becoming anxious and that his ways of

dealing with the anxiety had made the situation worse. More important, he had discovered that he had the capacity to interact naturally and spontaneously and had found this to be a rewarding experience. He often gave words of encouragement to other group members who were still struggling with negative beliefs and predictions.

Tabelo's Self-report Scales

The graphs of the five self-report scales are shown in Figures 2-6. His depression (Figure 1) rapidly shifted from a clinical to a normal level even before the first group meeting had taken place. This could be because, at the first interview, he was uncharacteristically depressed and he spontaneously returned to his normal state of not being depressed. Unfortunately we do not have any records of how depressed he was before he first came for interview, so we do not know whether this was an unusually high score for him. However, Tabelo's own explanation for these scores is that after the first interview, he began to have hope that he could solve his problems and have a better life. As the programme proceeded, this hope became a reality. We do know that there is a strong link between pessimism, hopelessness and becoming depressed. He wanted to help himself and he saw the programme as giving him the tools to do it. That is to say, from the start, the treatment approach had credibility and this credibility was sustained as the details of the programme unfolded. If this was the case, we might have expected that if he had not found the programme helpful, his depression would have returned.

Key to y axis in Figures 2-6	
P1, P2	= Interviews before programme started
S1, S2, etc.	= Group sessions
SBE	= Safety behaviours role play
F1	= Debriefing interview (3 weeks after S13)
F2	= Follow-up interview (6 weeks after F1)

Figure 2: Beck Depression Inventory-II

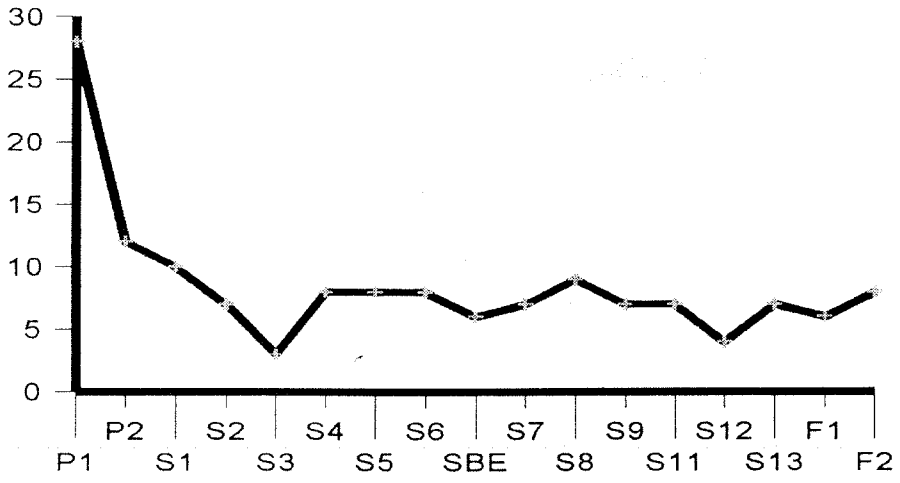


Figure 3: Beck Anxiety Inventory

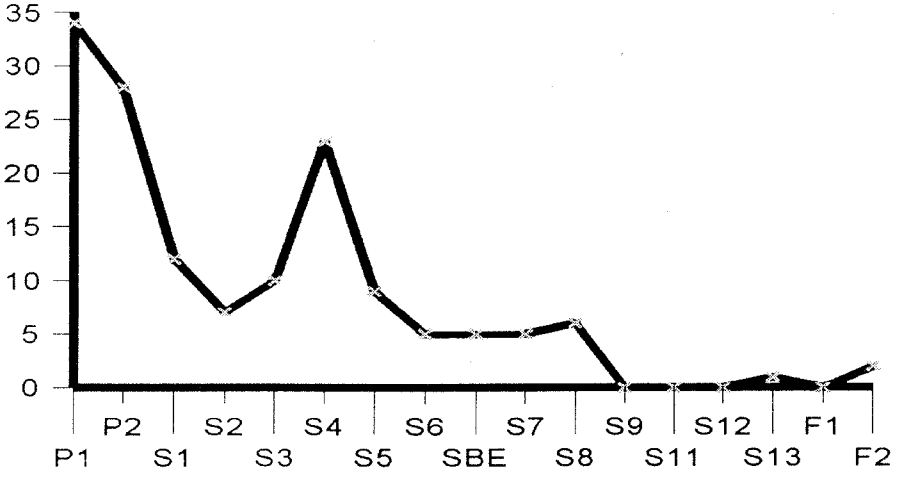


Figure 4: Social Cognitions Questionnaire

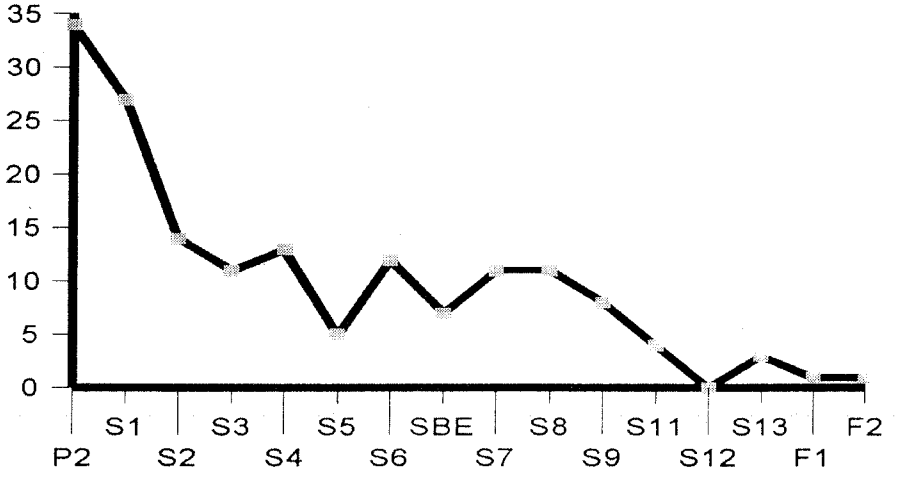


Figure 5: Social Summary Rating

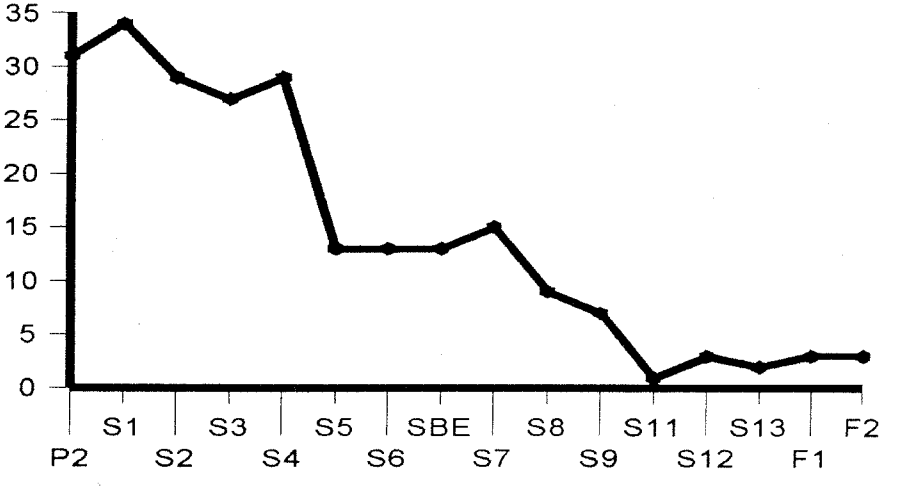
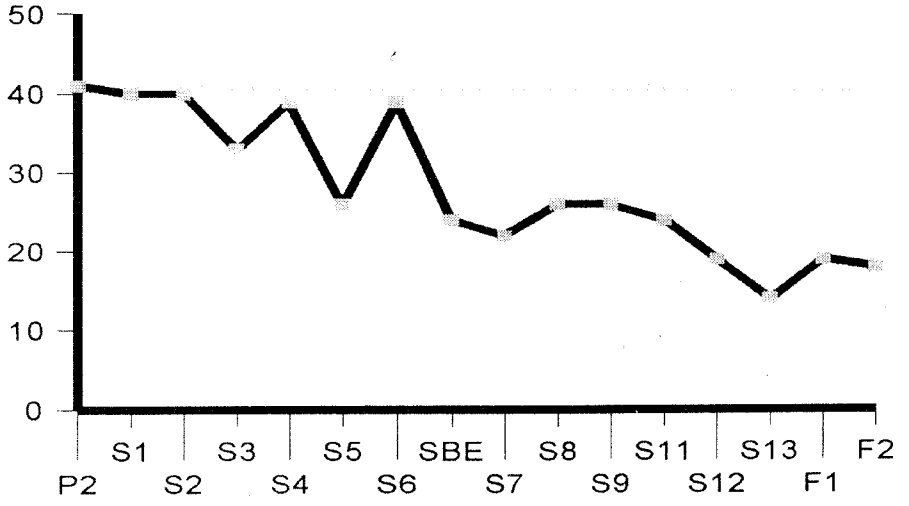


Figure 6: Safety Behaviours Rating



Beck Anxiety Inventory scores (Figure 3) reflect the intensity of anxiety symptoms. These also dropped markedly even before the programme began. Anxiety scores can fall when individuals successfully avoid threatening situations. This does not apply to Tabelo who regularly undertook homework activities which involved entering anxiety provoking situations. Anxiety also falls as individuals master their fears and develop self-efficacy. This seems to be the most likely explanation in Tabelo's case. Even though he had a lot to discover, the rationale for the programme and its credibility for him led him to believe that his difficulties were surmountable, so that, even at the beginning, he experienced less intense anxiety than before. The higher anxiety he reported at session 4 was precipitated by homework exercises in which he exposed himself to several anxiety provoking situations. Interestingly, although throughout the programme he continued to expose himself to more and more challenging situations, he never reported such high anxiety again. It seems likely that learning to observe his own thoughts, emotions and behaviour had enabled him to get some distance from them and this already helped to break aspects of the anxiety cycle. By the end of the programme he had discovered that he was able to interact spontaneously and that people liked him and found him attractive, and his anxiety disappeared almost completely even though he was now engaging in social activities that, at the start, he did not believe he would ever have the courage to take part in, let alone enjoy.

The Social Cognitions Questionnaire (Figure 4) lists twenty-two negative beliefs that social phobics commonly hold. Respondents indicate how often each one occurs when they feel nervous. Already by the second session, these thoughts were troubling him less often, and they had diminished considerably by the vacation break. Towards the end of the programme, as he continued to enter more and more challenging situations and discover he could not only function in them but could enjoy them, these negative thoughts disappeared almost entirely. The Social Summary Rating (Figure 5) has five subscales each rated from 0-8, tapping avoidance, anticipatory anxiety, self-focussed attention, and *post mortem* negative thinking. Again there is a steady decline, although the first marked drop came later than for the other measures, just before the vacation break. The next marked drop began after session 7. This was the period during which he engaged in more and more challenging situations and discovered his ability

to cope with and enjoy them. By the end of the programme, scores were very low. There was only a slight drop during the period up to the vacation on the Safety Behaviours Questionnaire (Figure 6) although there was a bigger shift at session 5. It seems likely that he had responded to the psychoeducational material and exercises which examined the role of safety behaviours in maintaining anxiety. Over the vacation his score increased to baseline levels again. However, it soon recovered, perhaps because of the continued emphasis placed on the role of safety behaviours in maintaining anxiety, specially in the safety behaviours role play. There was a further decline at the end. By now, of course, he was engaging in much more challenging situations and it seems likely that the continued exposure to more and more threatening situations resulted in his using these behaviours at times, even though he was also discovering that it was more rewarding to interact without them.

An important feature of all these scales is that the gains were maintained at follow-up, ten weeks after the final group meeting. Qualitative data obtained at the debriefing and follow-up interviews showed that the programme had enabled him to break out of the anxiety cycle he was in and replace it by a completely new mode of social interaction. This mode was enjoyable and satisfying and provided evidence for a positive view of himself as an interesting, likeable person capable of meaningful relationships.

Conclusions

In Tabelo's case, we see the same kinds of psychological processes that Clark and Wells have described. Not all participants made as rapid progress as this, although all those who remained in the programme showed the same kind of response, even some who started off with less clear motivation and less optimism than Tabelo. Together with the other case studies, not described here, this study provides confirmation of the treatment model and shows that it can be successfully adapted into a group therapy format.

Our discussion will focus on the important question of the relationship between cognitive science and this kind of practical therapy programme. Teasdale (1996; 1997) has argued that findings in cognitive science can throw light on difficulties encountered by cognitive therapists.

He comments that a great deal of the theory that underlies cognitive therapy is expressed in essentially lay, or everyday terms, rather than within the terms of any of the conceptual frameworks developed within cognitive psychology and cognitive science (Teasdale; 1996:26).

His Interacting Cognitive Subsystems (ICS) theory describes how different cognitive systems interact with each other to make up the complexity of human life and experience. It addresses the realities of the clinical situation, but is founded in cognitive science.

Two features of the model are of interest here. The first is that it postulates that there are two higher order systems for representing meaning, which Teasdale calls implicational and propositional. Propositional knowledge is encoded in a system which is logically coherent and where words refer to things in a manner that can be defined and the truth value of propositions can be determined by clear criteria. This is the kind of thinking that can be programmed on to a computer. However, implicational cognition is encoded quite differently and cannot be simulated by digitized information strings or logical circuits. It encodes more holistic understandings, many of which cannot easily be conveyed in words at all, or if words are used, they must draw on metaphor or poetry. Teasdale points out that one can change a person's propositional beliefs by reason and argument, but implicational meanings are not so easily shifted. That is why a person with a phobia may often say, 'I can see rationally that there is nothing to be afraid of, but I still feel anxious if I think about it or enter the actual situation'.

This relates to the second important feature of the ICS model which is that emotions are linked to the implicational system, not to the propositional system. This means that we will not bring about important change by cool, rational discussion, we have to change meanings in the implicational system if we are to bring about change in distressing emotional states. During rational discussion, a person's implicational meaning system may not be activated and it will not be listening, as it were. Cognitive therapists have long understood this. They use the term 'hot cognitions' to refer to thoughts and beliefs which are associated with intense emotion and recognize that these are the cognitions that must be the target of therapy.

So how do we change emotionally charged implicational meanings, if not by rational argument and discussion? Another concept that helps us here is that of 'situated cognition' (Stein & Young 1997). One of the

negative features of the masculine approach to science is that is breaks things up into small parts and easily forgets that they are part of a larger system. Cognitions cannot be understood in isolation. They are activated in real life situations. The having of an automatic thought, or the mobilization of a negative assumption is part of a complex systemic process in which the individual is in interaction with the environment, usually with other people. The Clark and Wells model of social phobic behaviour is a systemic one which recognizes the situatedness of cognition. First, the concept of self-fulfilling prophecy or self-defeating behaviour, which is central to cognitive conceptualisation, refers to the way beliefs are activated and reinforced within a complex interpersonal process. Second, cognitive therapists are never interested in how people feel or behave in general. They want to know what a person feels right now, or what they felt yesterday at 14h30 when they had to give a presentation to their tutorial group. Finally, although the treatment includes extensive psychoeducational presentations and training in rationally evaluating dysfunctional thoughts and attitudes, the crucial change processes depend on experiments in role played and real life situations. This helps us understand why such a central role is played by the safety behaviours role play and the subsequent video feedback, and by the behavioural experiments. Participants in the programme investigate their cognitions by entering the situations which activate their anxiety and are confronted, moment to moment, with the way in which these cognitions interact with their own behaviour and the behaviour of others. In this way the implicational meaning system is activated and the meanings within it are reconfigured.

Figure 7 presents a research model, based on the work of Salkovskis (2002), for developing clinical theory which overcomes some of the problems discussed above and which ensures that research will be both scientifically grounded and clinically relevant. At the centre of the model is clinical theory (E.). This is the kind of theory described above regarding the processes that initiate and maintain social phobic behaviour. It is this theory which provides the basis for clinical treatment models (D.) like the one used in this study. The source of this clinical theory is clinicians' reflections on their case work (A.). This can be made more systematic by conducting clinical case studies (C.) like the one described in this paper. These studies may confirm the validity of the theory in E. (as happened in the case study

described here) or it may call for it to be revised somewhat, which in turn will result in a revision of the treatment models (Edwards 1996; 1998).

The research model allows for the fruitful interchange between clinical theory and cognitive theory developed in non-clinical settings (F.), an interchange which is very much a feature of the contemporary literature. It also shows that the role of experimental studies (B.) is to provide a means of more formally testing hypotheses within clinical or non-clinical theory. As such they serve as a useful check on the development of clinical theory. Finally, the model shows the place of clinical outcome studies (G.) in which one or more treatments are compared with each other or with a control group (e.g. Heimberg, Salzman, Holt & Blendell 1995). These are important in determining whether a treatment works and whether it is an improvement on existing treatments. However, they make no contribution to theory development. Very often students are misled by their research method courses into thinking that the outcome study is the pinnacle of scientific research. This is simply not the case. When it comes to developing and refining clinical theory, case study research plays the most important role, but it is valuable to support it by specially designed experimental studies.

negative features of the masculine approach to science is that is breaks things up into small parts and easily forgets that they are part of a larger system. Cognitions cannot be understood in isolation. They are activated in real life situations. The having of an automatic thought, or the mobilization of a negative assumption is part of a complex systemic process in which the individual is in interaction with the environment, usually with other people. The Clark and Wells model of social phobic behaviour is a systemic one which recognizes the situatedness of cognition. First, the concept of self-fulfilling prophecy or self-defeating behaviour, which is central to cognitive conceptualisation, refers to the way beliefs are activated and reinforced within a complex interpersonal process. Second, cognitive therapists are never interested in how people feel or behave in general. They want to know what a person feels right now, or what they felt yesterday at 14h30 when they had to give a presentation to their tutorial group. Finally, although the treatment includes extensive psychoeducational presentations and training in rationally evaluating dysfunctional thoughts and attitudes, the crucial change processes depend on experiments in role played and real life situations. This helps us understand why such a central role is played by the safety behaviours role play and the subsequent video feedback, and by the behavioural experiments. Participants in the programme investigate their cognitions by entering the situations which activate their anxiety and are confronted, moment to moment, with the way in which these cognitions interact with their own behaviour and the behaviour of others. In this way the implicational meaning system is activated and the meanings within it are reconfigured.

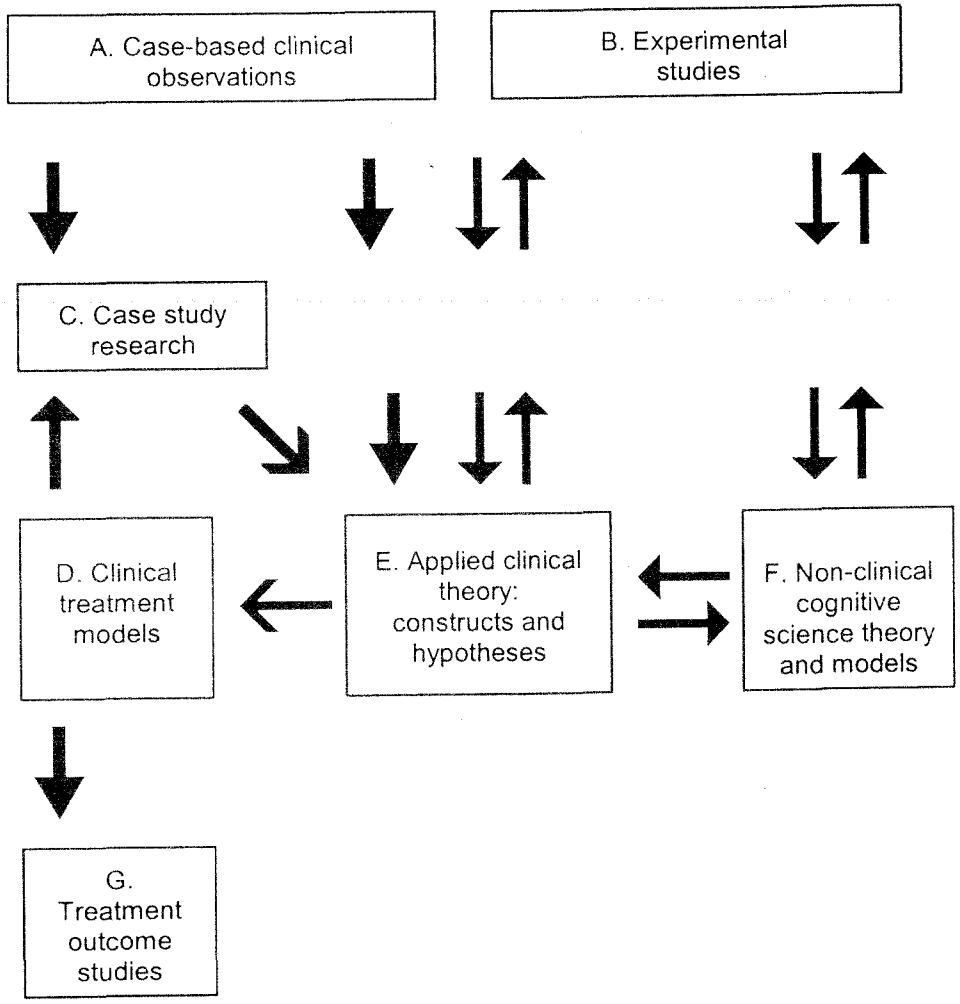
Figure 7 presents a research model, based on the work of Salkovskis (2002), for developing clinical theory which overcomes some of the problems discussed above and which ensures that research will be both scientifically grounded and clinically relevant. At the centre of the model is clinical theory (E.). This is the kind of theory described above regarding the processes that initiate and maintain social phobic behaviour. It is this theory which provides the basis for clinical treatment models (D.) like the one used in this study. The source of this clinical theory is clinicians' reflections on their case work (A.). This can be made more systematic by conducting clinical case studies (C.) like the one described in this paper. These studies may confirm the validity of the theory in E. (as happened in the case study

described here) or it may call for it to be revised somewhat, which in turn will result in a revision of the treatment models (Edwards 1996; 1998).

The research model allows for the fruitful interchange between clinical theory and cognitive theory developed in non-clinical settings (F.), an interchange which is very much a feature of the contemporary literature. It also shows that the role of experimental studies (B.) is to provide a means of more formally testing hypotheses within clinical or non-clinical theory. As such they serve as a useful check on the development of clinical theory. Finally, the model shows the place of clinical outcome studies (G.) in which one or more treatments are compared with each other or with a control group (e.g. Heimberg, Salzman, Holt & Blendell 1995). These are important in determining whether a treatment works and whether it is an improvement on existing treatments. However, they make no contribution to theory development. Very often students are misled by their research method courses into thinking that the outcome study is the pinnacle of scientific research. This is simply not the case. When it comes to developing and refining clinical theory, case study research plays the most important role, but it is valuable to support it by specially designed experimental studies.

Figure 7
`Research model for the development of clinical theory and treatment models in cognitive therapy

(Modified from Salkovskis 2000)



The first aim of this paper was to show that the current clinical models on which cognitive therapy treatments are based are, on the one hand complex and detailed, but on the other they are situated and human, in that they address the individual's problems pragmatically within real everyday contexts. The case study illustrated the application of one of these models in action and showed how case based research provides a basis for testing and refining both the underlying theory and the treatment model. The second aim of this paper has been to sound some warnings about the contemporary enthusiasm for cognitive science. Understood within the framework offered in this paper, it provides a basis for the development of useful practical knowledge. However, if not fully understood, unexamined assumptions can easily drive the researcher into *cul de sacs* which lead to dissatisfaction and disappointment. Within the context of present day South Africa, with its plethora of human problems, and of South African psychology, where the majority of practitioners are women, it is important not to be seduced by the overly masculine and hard face which cognitive science can present at times. Tabelo's story and the case study methodology which allowed it to be told, provide an example of how these dangers can be avoided.

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Privacy, Ethics and the Public Interest: Should the South African Media have Reported on Durban Businessman Glyn Taylor's Infamous Death in 1999?

Nicola Jones

The notion of privacy is a cognitive construct of enormous importance in the information society in which moral judgements characterise the content of the mass media. Making ethical decisions has been a concern of journalists at least since the early twentieth century, when many reporters wanted to be considered among the emerging groups of professionals. (Folkerts *et al.* 1998:388). However, attempts to determine exactly what standards of conduct and moral judgement constitute ethical behaviour have resulted in a continuing debate rather than absolute standards

This is perhaps most clearly illustrated through the debate on privacy versus the people's need to know. The ability of governments, journalists and businesses to invade the lives of private citizens has dramatically increased in recent years for many reasons, including advanced technological bugging devices and cameras, credit files, medical files, tax payment records, and many other kinds of formerly private information. The advent of the World Wide Web has greatly facilitated the flow of information. But perhaps more especially is the belief among many media professionals since the 1960s that there are times when the public's right to know takes precedence over the right of privacy of an individual (Folkerts *et al.* 1998:407).

In South Africa, hand in hand with the new political dispensation in 1994 came sudden government transparency. For the first time in decades, all government officials including the police had the ability to provide

journalists with details of all cases and incidents that were not *sub judice*. But where does transparency end and privacy begin?

As our ability to tap into information concerning people's private lives has increased, it could also be argued that our desire to know more intimate details about people has increased. This poses an extremely difficult question for media practitioners: how can we decide, and by what criteria, when an invasion of privacy is morally justified?

> Although some reporters believe that personal life has nothing to do with business or politics, others think that personal actions illuminate character. A candidate who breaks a solemn vow to someone as important as his or her spouse might also break promises to constituents (Folkerts *et al.* 1998:407).

How much of a public person's private life do people need to know? What constitutes 'the public's right to know' is an ethical question that media workers and the public share.

It was a question that provoked enormous debate when Durban businessmen Glyn Taylor's death in 1999 became headline news. *The Independent on Saturday*—Independent Newspapers Saturday newspaper in KwaZulu-Natal—was overwhelmed with public criticism after they ran a story highlighting his involvement with a prostitute at the time of his demise.

The Taylor controversy is clearly what Bugeja (1996:256) would describe as a 'taste-related privacy problem'. The story was gained through the mundane task of gathering information from the weekly police reports in KwaZulu-Natal.

> The task may be mundane, but the details in such reports or documents often are stark. When published, they can cause great pain to family and friends (Bugeja 1996:256).

According to *Independent on Saturday* journalist Melanie Peters—the reporter responsible for investigating the story—*The Mercury* ran with the story first on Thursday May 13 1999. The article was carried on the front page, just below the fold.

No 'juicy' details were included. The headline stated 'Top businessman Glyn Taylor dies', and the story simply stated that he had died from heart attack in a flat in Norge Road.

However, the implication of peculiar behaviour is there. 'Mr Taylor visited the flat at 2.15pm on Tuesday. While he was there, he keeled over clutching his chest. Efforts to resuscitate him failed'.

And the most telling implication: 'Police spokesman Bala Naidoo confirmed that Mr Taylor had died of natural causes, but would not comment on the circumstances surrounding his death'.

Peters said that *The Mercury* was fully aware that there was strange circumstances surrounding Taylor's death, but both they and the *Daily News* had taken an editorial decision not to investigate further. She said the police had indicated that they had been reluctant to tell Taylor's widow about the circumstances as they were worried 'she wouldn't be able to handle it', and had told journalists that if they wanted further information, they would have to pursue the story independently.

The Independent on Saturday subsequently discussed the situation at an editorial meeting. They knew that *The Sunday Tribune* was working on the story, and there was a strong feeling in the news team that they should pursue the story.

> Taylor was a public figure, outstanding and moralistic, Peters said. The newspapers were filled with comment about how he had helped society. We wanted to inform the public about how he met his death, and so we did.

Once assigned to the story, Peters began to investigate and went to the address given by the police. She began to look for the prostitute the police had told her was involved. She discovered that his heart attack had emerged during a 'session' with a Point Road prostitute, after Taylor offered her R50 for her services.

The prostitute told Peters that Taylor 'was not after intercourse', but wanted to 'watch me play with myself' while he masturbated. She said it had been the first time she had met him, but 'people around here have seen him before' (*The Independent on Saturday* May 15 1999).

Peters said she also interviewed another prostitute who claimed that Taylor had visited her frequently. 'She said they saw him often, and he was liked by them, they said he was respectful and greeted everybody. They weren't cold about it all, they felt sorry for him' (Peters November 23 2001).

The Independent on Saturday ran the story on May 15 1999 as the left-hand shoulder story on page 3—a prominent position. It was met with an immediate public outcry.

Headlined 'Chairman's death: street woman talks', the story states that 'Taylor's untimely death due to a heart attack occurred during a 'session' with a Point Road prostitute'.

All the Independent newspapers in KwaZulu-Natal were inundated with letters and telephone calls, and Peters, as the journalist responsible for the story, also received 'quite a lot of abuse' (Peters November 23 2001). *The Independent on Saturday* subsequently lost about 250 newspaper subscribers.

The Taylor affair has raised some interesting questions about the invasion of privacy for the South African press. Though many people show interest in private nformation about others, many others are offended by journalists' conduct, and that has led to increased distrust of the press (Hodges 1994:196). For example, when we see reporters filming the distress of a mother whose child was the victim of a rape, poking a microphone into her face and asking for comment, we tend to feel morally outraged. Similarly with victims of car accidents or murders, journalists harassment of members of families for details provokes the argument that this is an unnecessary intrusion into private grief, and in poor taste.

The public outburst that followed the publication of detail surrounding Taylor's death was along these lines. Many people clearly felt that by publishing his relationship and sordid death in the company of a prostitute, the media was violating both his and his family's privacy, especially his wife (described by both Peters and the police as a 'lovely old lady') and children, causing them undue grief and embarrassment.

Was the Taylor Story an Invasion of Privacy?

In order to establish whether the Taylor story constituted an invasion of privacy, it is necessary first to define an invasion of privacy.

According to Hodges (1994:197), the moral right to privacy consists of the power to determine who may gain access to information about oneself. Most people would agree that individual human beings need some measure of privacy in order to develop a sense of self and avoid manipulation by the state. In other words, privacy has to do with keeping personal information non-public or undisclosed, with personal information being that set of facts about oneself that a person does not wish to see disclosed or made public. Archard (1998:84) states that most of us would probably think of our sexual and financial affairs as 'properly private'.

Thus in its most elemental form, privacy can be defined as an individual's right to be let alone. It has also been defined as the right to peace of mind, in contrast to defamation, which is an attack on one's reputation (Gordon 1999:148).

What all of these definitions clearly do is highlight the difficulty of pinning down privacy as a concept. It takes little common sense to see that while one individual might have no problem with certain personal information being revealed, another might be furious about the same revelations. And there is also a great deal of debate about the degree to which 'newsworthy' people must give up their right to privacy in the interest of providing information that the public either wants or needs to have (Gordon 1999:148).

As a result, confronting these issues often leaves journalists facing a difficult moral dilemma. Goodwin and Smith argue that the question for journalists is not whether to invade privacy, but when and how much. In other words, journalists must be able to answer the question: At what point does an invasion of privacy pass from reasonable to unreasonable?

Archard (1998:82) believes there are four ways of determining whether a story or an image is an invasion of privacy. First, he argues that if information is obtained in a clearly impermissible way—for example, in some kind of clandestine way, or one which was illegal—then it could be argued that the subject of the story's privacy had been invaded. Similarly, if the journalist or photographer investigating the story had harassed anyone in any way in order to obtain the necessary information, this would also be wrong.

Archard also argues that if the publishing of information breached confidentiality of, say, a relationship with a source, this too would be clearly

wrong. And lastly, he argues that a publication of a story might cause moral concern if the choice of story or language used was clearly intended to humiliate, ridicule, belittle or unfairly stigmatise the subject.

> There is a point at which Schadenfreude at another's failings, which may be regretted if not condemned, passes into unacceptably vindictive persecution (Archard 1998:83).

The Taylor story clearly crossed none of these four barriers. There was no underhand method employed in obtaining the information. The police provided the basic details, and Peters, as part of her routine work, went to the address given her and sought out the prostitute allegedly involved. There was no harassment of anyone connected to the story, including Taylor's wife or children. There was no breach of confidentiality and no vindictive persecution—this was the first time that any newspaper had ever questioned Taylor's integrity.

However, it is clear that there were many people, including many editors and journalists, who felt that there was something wrong in publishing the story. Members of the public repeatedly expressed the belief that the press had no business revealing details about what Taylor did in private with another consenting individual, thus clearly invoking the notion of a wrongful invasion of privacy.

A common thread between the hundreds of letters sent to *The Independent on Saturday*, is that Taylor's indiscretions were 'no one's business but his', and the details published did little more than provide members of the public with a salacious thrill, while causing his family and friends unbearable hurt.

Private Lives versus Public Interests

This brings us to the question of 'newsworthy' people losing their absolute right to personal privacy.

Firstly, there is no doubt that Taylor was a prominent public figure and both a community and business leader. He spent 26 years with Illovo Sugar, 15 of them as chairman. Although he retired in 1997, he still retained a seat on the Illovo Sugar Board at the time of his death.

Taylor also served as chairman of both the Sugar Millers' Association and the South African Sugar Association, representing the latter on the International Sugar Association. He was the South African employers' representative at the International Organisation of Employers in Geneva for nine years. He was also a patron of the arts, being particularly dedicated to the Playhouse Company in Durban.

Over and above these public roles, Taylor was also something of a philanthropist. He spent an enormous amount of time and effort raising money for the underprivileged, supported a number of small rural schools, and was reportedly always ready to help those who had fallen on hard times. There is no doubt that he was seen by many as a strong community leader, a highly respected and good family man. Public perception was that he was an upstanding, faithful, God-fearing family man.

So was it in the public interest that the details surrounding Taylor's death were published?

Hodges (1994:202) argues that the right to privacy is not absolute.

> It stands beside a countervailing right of others to know quite a lot about us as individuals. These two legitimate rights – the individual right to a measure of privacy and the right of others to know some things about the individual – frame the moral issues.

He argues that because we are individual beings, we have a need (right) for privacy; because we are social beings, we have a need (right) to know. And people especially need to know quite a lot about those who have power over them – or indeed those who purport to be moral leaders within a community.

Hodges states that the privacy issue arises at two points in the reporting process. The first is at the point of gathering information, where decisions have to be made about intrusion by the journalist into the lives of subjects. The second is at the point of deciding what to publish, or in other words what private facts are appropriate for dissemination to the public. He suggests the following as a formal criterion: it is just for a journalist to violate the privacy of an individual only if information about that individual is of overriding public importance, and the public need cannot be met by any other means (Hodges 1994:203). In other words, morbid curiosity and prurient interest should not be taken into account when making ethical decisions (even if they do sell newspapers!)

I would argue in South Africa in particular, in the case of sexual misdemeanour, the touchstone for determining what to print about a public person's private life would seem to be the effect that private activity would have on the discharge of that person's public responsibilities

This criterion, however, does not tell us what information to publish in specific cases. Neither does it permit invasion of privacy to obtain and publish information that the public is interested in but that is not important for the public to know.

Similarly to Hodges, Archard (1998:86) states that there are three main reasons offered in justification of breaching an individual's privacy: when somebody is or becomes a public person he, by that very fact, loses his privacy; where a proven public interest can be shown to be served by the disclosure of the private; and where the public is interested in knowing what is private.

Interestingly, Archard argues that 'the idea that, in fairness or by agreement, public status comes with a loss of privacy is unpersuasive' (1998: 88). He argues that where sexual misdemeanours are concerned, people either feel that any kind of private immorality disqualifies a person from public office for no reason than adultery is wrong and fitness for public office requires a morally untarnished character, or that the adulterer is seen as a hypocrite and a man capable of breaking all vows if he is capable of breaking his marriage vows. Archard (1998:90) argues that this is fundamentally illogical.

> Nothing in the pattern of human dissembling reveals the adulterer, simply in virtue of his adultery, to be any less trustworthy or reliable in general. Most people can recognise the difference—in moral significance and motivation—between a personal betrayal and public treachery.

This brings us to the third reason Archard suggests might be given for breaching an individual's privacy. This is simply that the public is interested in knowing—not that there is a public interest in knowing, but just that most people would like to know and would derive some pleasure from knowing.

Normally a clear distinction is made between a story being in the public interest and story being one that interests the public, and the latter is always quickly dismissed as a good reason for publication. Archard argues that 'this distinction and dismissal is too hasty'. He says that society's interest in knowing about the private lives of its public figures may have value and thus, in a way hitherto ignored, help to define the moral space in which the press operates.

> It is not that a presumption in favour of individual privacy can only be defeated by showing in some specific case that invasion of this person's privacy serves a particular public interest. It is that a general norm of privacy is shaped and constrained, in the first instance and at a prior level, by an opposing general norm of social interest in knowledge. The best way to appreciate this is by thinking of journalism as print gossip (Archard 1998:90).

Archard (1998:91) states that there are three valuable social purposes served by gossip which have been noted in anthropological studies. The first is that gossip plays a role in defining a community and maintaining its unity. The second (and for purposes of this article possibly the most important purpose) has to do with the shared values of the community in which it is conducted. Archard argues that there are a number of ways in which this is so, including the fact that gossip is a way of testing or rehearsing these values by exposing conduct they would seem to proscribe, and by doing so these values (and also the identity and unity of the group which professes them) may be reaffirmed. Gossip also exposes the wrongdoer to public shame or ridicule and consequently functions as deterrent to such wrongdoing.

The third purpose gossip serves, which I believe is closely linked to the second, is that it demystifies the pretensions of public status; it can expose the ordinariness of the famous by showing them to be no more and no less capable of avoiding the failings we know ourselves to display all too often.

Conclusion

In conclusion I wish to make two points. First I would argue that the

KwaZulu-Natal media made the right decision. No doubt there were many individual journalists in the media who were saddened by Taylor's death, as he was widely known and came across to all involved as a man who loved his family dearly and cared deeply about both his province and his country. Judging by his involvement in the public sphere, he wanted to help make a difference to society. This was never in dispute, and judging by the media stories it was never the intention of the media to soil his reputation.

It has often been argued that journalists have not given enough thought to dealing with the conflicting pulls of privacy and public curiosity, of informing the public and showing compassion (Goodwin and Smith 1994:279). And there is no doubt that news stories can cause harm. As former *Washington Post* ombudsman Richard Harwood wrote,

> the 'media' in their long history have shattered countless reputations and destroyed countless careers. We have driven people to suicide. We have caused immeasurable emotional pain, suffering and humiliation not only to individuals but to families and (if the testimony of many black Americans is credible) to entire communities as well (in Goodwin & Smith 1994:280).

It is clear this potential for harm is part and parcel of journalism, and can never be eliminated. What is important is that journalists need to balance this with the public interest factor. Goodwin and Smith argue that if no public interest in involved, reporters ought to leave people aloe. However, they also make a clear distinction between ordinary people, and political and other leaders. 'We should also be able to expect public leaders to be honest about who they are' (Goodwin & Smith1994: 281).

Taylor was a prominent public figure in KwaZulu-Natal, and as such there was legitimate public interest in the manner in which he met his death. I would thus argue that the media was not guilty of violating his right to privacy. Morally speaking, his right to privacy was limited by the need of others (the public) to know about him as an individual. I believe that the moment you go into public office there is no privacy. In that moment, as a single one you represent the many.

I would also argue that the standards of privacy for community and political leaders, and for ordinary people, are different. If no public interest

is involved, ordinary folk should be left alone. Political and community leaders, however, are different. These people are elected role models, and their public performance determines the direction of the nation or the community. I believe their characters and personalities shape the decisions they take in public life, and therefore voters are entitled to know what kind of people they are. Added to that, public leaders should be honest about who they are – a leader who portrays himself as a God-fearing family man should be one.

However, what is interesting to note is the media was not ready for the barrage of public criticism it received for running this story. It was clearly taken aback and had little to say in response, apart from a brief editorial in *The Independent on Saturday* (2 May 1999).

This leads me to the second point, which is that I believe journalists need to reconsider their approach to their craft.

> Surveying the literature on the South African press and talking to those who work in it yield no clearly understood, explicitly stated, or widely accepted rationale for being a journalist (Jackson 225).

In other words, the culture of the press in South Africa lacks any concise articulation of its journalistic mission or what is expected of journalists. We still get periodic and eloquent defences of press freedom, but what is needed is perhaps something more fundamental: answers to the question of what journalism ought to be accomplishing in the first place, and according to which values. This is important, as ultimately all ethical decisions rest with the media professionals themselves, and not necessarily with what they feel 'society' expects them to do. Consequently, there is tension between two moral codes—that of the individual journalist, and the prevailing social mores. A more clear-cut sense of purpose for media professionals might help making decisions about stories such as that of Glyn Taylor's death.

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Self and Consciousness: Possible Implications for Mental Imagery Use in Sport Psychology

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Mental imagery has been reported to be one of the most frequently and widely used techniques in applied sport psychology (Biddle 1997; Hall 1998; Martin, Moritz & Hall 1999; Perry & Morris 1995). The technique has been used successfully in a variety of applications, including skills acquisition and maintenance, in the form of mental practice, performance enhancement, preparation for competition, arousal control, building self confidence and pain management (Hall, Rodgers & Barr 1990; Martin, Moritz & Hall 1999; Murphy 1994; Murphy & Jowdy 1992). The scientific study of mental imagery in sport is still in its relative infancy, having started in ernest about 20 years ago, and critics have pointed to methodological shortcomings as well as unsubstantial theoretical underpinnings for explaining the above positive research findings (Hall 1998; Martin *et al.* 1999; Moran 1993; Murphy 1994; Suinn 1993). In their summaries of the research findings, Perry and Morris (1995) and Murphy (1994), contend that although mental imagery does improve performance, the details of the processes and mechanisms involved in mental imagery and sport performance have not as yet been fully explicated.

Mental imagery as a topic of research interest in mainstream psychology is firmly entrenched in cognitive psychology, cognitive science and more recently, cognitive neuroscience. Damasio (1999a:9) positions mental imagery as the centre feature of human mental processing and consciousness by stating that: 'one might argue that images are the currency

of our minds'. Like all mental processes, imagery is in all respects a subjective phenomenon intricately bound up in the issues of the hard and easy problems of consciousness (Damasio 1994; 1999a; 1999b; Edelman & Tononi 2000; Marks 1990). Any study of the phenomenon has to rely on inferences drawn from self-reports, observations and psycho-physiological data. Mental images are fundamentally temporally ordered and thus not accessible to being 'frozen' for thorough analysis. Psycho-physiological measures such as EEG and brain mapping techniques provide important avenues to support psychomotor theories, but they do not fully address the subjective, conscious and emotional dimensions of imagery use. According to researchers in the field, no matter how sophisticated brain science methodology becomes, the subjective nature of inner experience will never be accessible to exact external measurement (Edelman & Tononi 2000).

The aim of this paper is to provide a perspective on the nature of mental imagery and its use in sport settings. In particular the paper will address some of the above issues by drawing on recent developments in cognitive neuroscience, in particular theories of consciousness, self and emotions that may expand the understanding of the nature and processes involved in mental imagery. The origins of the study of imagery in mainstream and sport psychology will create an historical context for the arguments that follow. Issues of definition and the nature and function of mental imagery will be dealt with to illustrate how the study of consciousness, self and emotions may shed light on the complexity of the phenomenon. Current theories that explain how mental imagery impacts on sport performance will be briefly discussed and current cognitive and neurobiological theories of mental imagery will be introduced to expand on these theories. Guidelines for re-conceptualising mental imagery for both research and intervention will be extracted, itemised and briefly discussed.

Historical Perspectives on Mental Imagery

Interest in mental imagery as a broad psychological phenomenon has a long history probably stemming from the ideas of the Greek philosophers. In *de Anima* Aristotle claimed that imagery was central to all thought processes of the soul (Aristotle 1986), also suggesting that imagery played an important function in mediating between bodily senses and the rational mind

(Boschker 2001). Plato proposed a wax tablet metaphor of memory in which he asserted that perceptions and thoughts are copied or imprinted as images in the mind (Morris & Hampson 1983). These authors claim that Plato's perspective laid the foundation for later stimulus-trace theories of memory. During the latter part of the 19th century, scientists such as Wundt and Titchener were instrumental in developing a systematic study of mental imagery using introspection as the method if investigation (Morris & Hampson 1983; Solso 1998). Interest in and inquiry into mental imagery disappeared during the dominance of behaviourism with its rejection of the concepts of mind and mental states initiated by Watson in 1913 (Morris & Hampson 1983). A resurgence of interest in the subject occurred in the 1960's with the advent of the so-called cognitive revolution along with the notion that, although mental processes could not be observed directly, it was possible to study them by other means (Tye 1991). The work of Cooper and Shephard was seminal in that it provided the first documented evidence of the ability of humans to rotate imaged objects. In the early 1970's, Pavio was instrumental in establishing the scientific credibility of studies in mental imagery and greatly improved the understanding of mental imagery to the extent that it has now become an important area of study in cognitive psychology (Kosslyn 1994; Morris & Hampson 1983; Solso 1998). Steven Kosslyn has been a noteworthy pioneer in developing a theory of mental imagery based on brain functions. His research into the cognitive neuroscience of mental imagery has formed a substantial basis for current views on the topic (Kosslyn 1991; 1994).

The area has not been without its major theoretical debates, the most important of which was that initiated by Pylyshyn in the early 1970's (Morris & Hampson 1983). Pylyshyn was critical of the pictorial assumptions of previous theories and suggested that mental imagery could comprise more abstract structures such as propositions. The debate between the pictoralists and propositionalists has extended for several decades, however current views tend to support a position that embraces both possibilities, depending on the nature of the circumstances (Damasio 1999a; 1999b; Kosslyn 1994).

A Brief Overview of Research into Mental Imagery Use in Sport

Weinberg and Gould (1999) contend that although athletes have been using mental imagery for some time, the systematic investigation of the effectiveness and potential use of mental imagery has only been practiced in the past two decades. Experimenters have shown extensive interest in the use of mental imagery in sport and motor skill performance since the 1930's, although these reports are mostly anecdotal and primarily descriptive in nature (Hall, Rodgers & Barr 1990; Feltz & Landers 1983; Wollman 1986). The conclusions from these early studies were that mental practice is 'clearly superior to no practice', but that it is not necessarily more effective than physical practice (Cox, Qui & Lui 1993). The assessment of imagery had its roots in the psychophysics of Fechner and Galton in the 1860's and 1880's respectively (Solso, 1998). Development in this area progressed through the work of Betts in the early 1900's, to the subjective assessment techniques of individual differences in visual imagery and movement imagery by Isaac, Marks and Russell, (1986). Recent applications of Paivio's theory to sport psychology have introduced multidimensional perspectives on imagery use in sport persons as well as the development of a self-report questionnaire (Hall, Mack, Paivio & Hausenblas 1998). Watts and Morris have developed a sport specific measure of individual differences in mental imagery ability that has potential value for refining and expanding the measurement of mental imagery in sports settings (Watt & Morris 2001; Watt, Morris, Lintunen, Elfving & Riches 2001). The major areas of focus in mental imagery in sport are experimental studies of the effectiveness of various types of imagery, individual differences in imagery use and ability, and the relationship between mental imagery and other aspects of sporting performance such as competitive anxiety (Hall 1998; Martin *et al.* 1999; Watts & Morris 2001). Recent studies and model development by Hall and his associates have extended the conceptual bases to include selected personal meanings and contextual variables associated with imagery use (Cumming & Hall 2001; Munroe, Giacobbi, Hall & Weinberg 2000).

The Definition, Nature and Function of Mental Imagery

Although definitions of mental imagery abound and are regarded as

'notoriously ambiguous' (Kosslyn 1994), there is consensus that imagery is a subjective conscious phenomenon, and that it is functionally equivalent to perceptual processing (Kosslyn 1994; Marks 1990). In addition there are functional and structural links to sensory, memory, emotional and self-representation systems that enables imagery to be an important transmitter of significant information about the person and his or her adaptive processes (Damasio 1999a; Horowitz 1989; Kosslyn 1994; Suler 1996). The definition provided by Richardson (1969) is the one most frequently used by current researchers:

Mental imagery refers to all those quasi-sensory or quasi-perceptual experiences of which we are self consciously aware and which exist for us in the absence of those stimulus conditions that are known to produce their genuine sensory or perceptual counterparts (pp2-3).

Boschker (2001) points out that this definition encompasses three significant characteristics of mental imagery, viz. that imagery is equivalent to actual sensory, motor or perceptual experiences; that mental imagery is a conscious experience that can be reported by the individual; and that the generation of an image takes place without a direct stimulus being present. Boschker (2001) argues that motor imagery is a distinct category of mental imagery that involves voluntary imaginal control and manipulation of objects, rather than simply attending to objects (Annett 1995), This form of mental imagery involves mental simulation of motor actions (Boschker 2001).

Damasio (1999a:319) represents the opinions of a new era of cognitive neuroscientists. He identifies an image as 'a mental pattern in any of the sensory modalities', underscoring the somato-sensory modality as an indispensable component. Mental patterns are conceptualised as important conveyers of the physical properties of the object or experience being imaged, the viewer's response and attitude to the object/experience and finally the experience of self-as-viewer or owner of the object/experience. In other words Damasio argues that an image is not a perceptual facsimile of the object, but that the essence of the image lies in the construction of a personalised mode of reaction to the object. He defines the concept of *object* broadly in that it could be a physical external entity as well as an internally experienced state, such as an emotion. These dimensions are important additions to and expansions of Richardson's definition, in that they

emphasise the embodiment of imagery as well as the subjectively constructed nature of the phenomenon.

Edelman and Tononi (2000) add a further dimension by proposing that a conscious state (and by implication, a mental image) has the following fundamental properties: Firstly it is an integrated state that is private, unique, unified and coherent; secondly, that by virtue of the state being conscious and immediately present, it has been selected in preference to a multitude of competing potential states. In the words of these authors this conscious state 'represents information that *makes a difference*' (Edelman & Tononi 2000: 29) in terms of potential and available thoughts, feelings and actions. In other words it has significant consequences for the individual.

These perspectives on mental imagery as unified, integrated and constructed states that encompass the perceptual dimensions of the object as well as a subjectively constructed state in response to the object go beyond the earlier definitions that tended to view mental imagery as a special form of sensory perception. This view of imagery dispenses with the need for concepts such as external reality or external vs. internal perspectives. The most important feature is that the internal construction contains all the essential information that is necessary for exploring the content and meaning of an image. Innumerable personalised perspectives and meanings can be accessed and explored by using instructions to shift attention to salient aspects of the image. Meaning is thus inherent in the image by virtue of the manner in which the image has been constructed. The mental image includes information on the imaged object and the self as experiencing state, relative to that object contained in a fully integrated experience. This perspective is substantially more holistic and integrates concepts such as perceptual, sensory-motor modalities and conceptual modalities such as self. This is a substantially more complex and dynamic notion, than that proffered by theorists during the era of cognitive psychology and cognitive science.

Contempory views emanating from cognitive neuroscience suggest that the function of imagery is inextricably linked to the processes of consciousness, self and emotions (Damasio, 1999a; Edelman and Tononi 2000).The general consensus amongst these researchers and theorists is that the function of imagery is intimately related to the evolution of brain, mind and consciousness. The foundation of this premise is that survival is at the base of most of the biological functions in organisms. Fundamental actions

to ensure organismic survival such as finding energy resources and protecting the integrity of the organism are claimed to be guided by mental images (Damasio, 1999a; 1999b). A conscious image is seen as providing the organism with the opportunity to optimize options, for feedback on choices already made, and for inventing new actions in the interests of survival (Damasio 1999a; 1999b; Edelman & Tononi 2000).

Marks (1990) offers a similar perspective and contends that although there is still uncertainty about the biological and evolutionary survival perspective on mental imagery, it is central to an understanding of intra- and interpersonal body-mind relationships. He suggests that the basic function of mental imagery is to simulate actions in order to enhance the exploration of possible outcomes in actual action—a sort of safety check to facilitate reflective adaptive information processing and problem solving.

Current Theories Explaining how Imagery Assists Sporting Performance

Given the above definitions and functions of mental imagery from a fairly broad perspective it would be appropriate to briefly examine theories that are currently used to explain how the use of mental imagery enhances sporting performance. Boschker (2001) identifies the following four major theories that have been proposed to explain the positive effects of motor imagery on subsequent performance:

Psycho-neuromuscular Theory

The psycho-neuromuscular theory is based on the observation that the same muscles that are activated during an overt execution of a movement are also activated during imagery of that movement. The magnitude of the activation during movement imagery is only a fraction of that during actual movement, and it thus causes little or no observable movement (Boschker 2001). The neuromuscular feedback from this minimal muscular activity is thought to be sufficient to support learning, thus explaining the performance improvements gained from mental imagery of motor movements (Annett 1995).

Symbolic Learning Theory

Symbolic learning theory holds that different features of a motor action are symbolically encoded and rehearsed, and that it is these cognitive aspects of the skills that benefit from mental rehearsal (Annett 1995). This symbolic coding allows for cognitive rehearsal of task components, planning of movement execution and mental simulation of task characteristics, potential problems and goals (Boschker 2001). This theory predicts that imagery will be more effective for predominantly cognitive actions than for purely motor actions, and it focuses on the use of imagery for learning motor tasks rather than for rehearsal of well-established movement patterns (Boschker 2001).

Attentional/arousal-set Hypothesis

This hypothesis states that there are individual differences in optimal states of arousal, and that individuals' optimal arousal level varies depending on the task being performed (Boschker 2001). Movement imagery may be useful in regulating arousal levels prior to competing, which provides an explanation for the effects of pre-competition focusing and psyching-up imagery (Boschker 2001).

Bio-informational Theory

This theory uses an information-processing model of imagery and assumes that an image is a functionally organised, finite set of propositions stored by the brain (Murphy & Jowdry 1992). Each image contains three classes of information, namely stimulus propositions (information about the stimulus context), response propositions (assertions about the imager's behavioural response to the stimulus) and meaning propositions (information about the significance of stimulus and response events) (Boschker 2001). It is assumed that these propositions form instructions for overt responding on the part of the imager, and thus that images form a template for behavioural responses to specific contexts (Murphy & Jowdry 1992).

The above theories have provided important foundations for research and application in mental imagery in sport, nevertheless the reliance on uni-dimensional models of human information processing to explain complex systems has limited explanatory power. In the above theories the nature of information carried by a mental image, it's fundamental function for

organismic survival, the nature of conscious experience and of self processes and emotions have not been factored in. Kremer and Scully (1994), suggest that alternative theories such as those of Paivio, Kosslyn, Lang and Ashen that attempt to integrate other aspects of human information processing, such as meaning systems and emotions with imagery, are worthwhile avenues to pursue in the future.

Directions Emerging from Cognitive Science and Cognitive Neuroscience

When discussing the issues around a definition of mental imagery in a previous section, it was argued that the theoretical and empirical directions emanating from the fields of cognitive psychology, cognitive science and cognitive neuroscience, address a variety of core issues in mental imagery (Aylwin 1990; Damasio 1999a; Hampson & Morris 1990; Kosslyn 1994). These include aspects such as the processes involved in the construction of images relative to high level visual processing, the structure and function of images, the functional equivalence between imagery and perception, the cortical location of processes involved in imagery generation and their relation to motor pathways, and the relation between imagery, somato-sensory processes, action and emotions. Cognitive processes that are fundamental to these issues are memory and consciousness, consciousness and self, emotions and bodily experience.

Consciousness and Memory

Current views on consciousness stemming from neurobiological theory and research have important implications for understanding the nature and function of mental imagery. A mental image is by its essential nature a conscious event, and the person assumes the role of an agent in that they are *aware of being aware* of the image. In other words one could say that: 'I am the one who is experiencing this image that I have generated' How the image arrives in consciousness and the role that memory pays in constructing the image are important questions that have implications for research and intervention into the phenomenon in sport psychology.

Current constructivist views of memory processing conceptualise memory as non-representational (Edelman & Tononi 2000). In 'recalling' an

image, the activity that occurs during the process is not the recall of a complete picture of a previously experienced event, but rather a form of 'constructive *recategorization*' (Edelman & Tononi 2000:95) that occurs as the person experiences the image. These authors suggest that it is the capacity of distributed neural activity or neural maps to *re-enact* their dispositional, ordered sequence of activity in response to incoming internal and external signals that results in a particular conscious mental output, in this case a mental image. The concept of working memory introduced by Badderly in the 1970's has been used to explain how mental content is held in memory for examination and exploration. The mental construction emanates from two main memory systems, a conscious, explicit, declarative memory system and an unconscious implicit, procedural memory system (Le Doux 1996). A mental image thus contains both explicit and implicit information that directs behavioural outcomes. The manifest content is thus only one dimension of an image with a large proportion of the latent content being less accessible to immediate conscious processing. This latent content is nonetheless very useful for understanding the somatic and psychological foundations that have played an essential role in the construction of the mental image. In addition, procedural memory would contain information on how information is to be used that is possibly developmentally faithful. This means that the manner in which the memory is acted on will be faithful to the level of conceptual and linguistic development present at the time of the encoding of the memory information.

Kosslyn's (2001) recent perspective highlights the significance of the inherently dynamic properties of a mental image that carries the potential for transformation and explication of important non-conscious organismic information. This stands in sharp contrast to a conceptualization of a mental image as a picture-like static and exact replication of an experienced event. He argues that the conscious experience of a visual image is the product of multiple processes that include higher cortical feedback processes. These latter processes are not highly organized and lead to poor resolution in the conscious representation of the image. What the person is conscious of are the properties of representations that are at the point of being encoded into another type of representation. This implies that a conscious visual image is in a nascent form, ready for transformation. Damasio (1999a:321) also clarifies the non-static nature of an image in describing the phenomenon as

being constructed out of a 'set of correspondences between physical characteristics of the object and modes of reaction of the organism'. These modes of reaction are what Damasio refers to as transient neural maps that are constructed by a creative brain system. The conclusion is that the transient nature of the neural maps precludes any actual static mental pictorial representation. Furthermore, it is important to remember that some of the content of an image could include procedural information that might be inappropriate for the current developmental task that could lead to what appears as irrational responses by the individual.

Consciousness and Self

Antonio Damasio (1994; 1999a; 1999b) has advanced theoretical principles that have been regarded by some as convincing neurobiological accounts of consciousness and self. A word of caution by Damasio is however worth noting, namely that the 'current description of neurobiological phenomena is quite incomplete' (Damasio 1999b:76), He is nevertheless confident that the underpinnings of the human mind and conscious experience are neurobiological. Damasio's point of departure is the biological nature of the human organism and the changing representations of core organismic systems in brain and mind. His comprehensive theoretical constructions based on extensive clinical and empirical investigation into brain-behaviour relationships, posit a multi-level system comprising three hierarchically organised consciousness and self-systems.

Damasio (1999) proposes a theory of self that is linked to consciousness through the activation of neural maps that enable the systematic emergence of the core features of conscious experience viz. feelings, images, and self. He proposes three self-systems, a *proto-self, core self* and *autobiographical self.*

The *proto-self*, a non-conscious, non-verbal, neural self-state represents the imaged moment-by-moment biological state of the organism. The somato-sensory system is the centre of this signalling system and includes the internal milieu and viscera, the vestibular and musculoskeletal system (proprioceptive and kinaesthetic sensations) and the fine touch system that is primarily responsive to external cues (Damasio 1999:149). The signalling system includes both neural as well as the transmission of information through biochemical secretions into the bloodstream.

The *core self* and *autobiographical self* are conceptualised as emerging out of conscious states of mind. The core self, relates to what Damasio denotes as core consciousness. This state is an imaged property of mind that results from the interaction of the proto-self with experienced external or internal objects. One aspect of this state is an awareness of knowing an object (external physical or internal experiential object such as an emotion) more clearly, and the other important dimension is that of knowing that you are the knower and experiencer of the object. Damasio (1999:175) describes the core-self as being 'continuously generated' and as a result has the appearance of being 'continuous in time'. These states are often experienced as fleeting moments of intense self-awareness that may not necessarily be articulated as a concept through the medium of language, but that carry significant information about the present state of the ongoing transactions between the organism and its internal and external environment. This state is akin to what Neisser (1992; 1998) refers to as the perceptual-self or the ecological-self.

The *autobiographical self* is an inherent property of what Damasio refers to as extended consciousness. This self-state is based on records of core-self experiences that have accumulated over time as implicit memories of past experiences and anticipated future states. These states can be transformed into explicit images in conscious awareness if and when required. Important characteristics of this autobiographical-self are firstly that it is conceptual and linguistically based, and secondly that the memories have dispositional qualities that form the essence of what is normally referred to as personality or identity. There is some similarity between this state and what Neisser (1992; 1998) refers to as the conceptual-self. It would appear that most of the research into mental imagery has focused on this conceptual, linguistic aspect of mental life, and that the 'imaged, nonverbal narrative of core consciousness' that occurs swiftly and almost silently has eluded definitive scientific investigation (Damasio 1999:187).

An important meaning that emerges from this recent perspective is that a mental image or a self-system may not necessarily have conceptual and linguistic origins, and may have emotional and bodily sensations as the core defining features of conscious representation. The second important aspect is that the autobiographical-self is constructed from proto- and core-self information and contains significant perceptual *and* conceptual

information on past and future perspectives of self. It is therefore important to pay attention to fleeting conscious experiences or aspects of the mental image that are reported by the person as apparently unimportant but present. Furthermore the subtleties of emotional tone and valence would need a refined appreciation to extract significant information on core and proto-self information that may have relevance to the sport person's response to competition, success and failure.

It is important to note that the neuro-biological underpinnings of the above constructs have been spelt out in detail in the relevant texts and readers are referred to them for a more thorough coverage of this topic (Damasio 1994; 1999; Edelman & Tononi 2000; Le Doux 1998).

Ecological Perspectives on Self-constructions

James Gibson proposed theories of direct perception that emphasise that perception is an 'ongoing ecological event' reciprocally constructed by organism and environment. Ulric Neisser (1992) draws on Gibson's affordance theory for his ecological perspective on self-representation, that may have potential heuristic value for sport psychology research and practice. He suggests that self-representation initially occurs in relation to the perceptual planes, surfaces and angles of the physical world. Those aspects of the physical world around one provide the person with meaning contexts that contain possibilities for action, such as the 'walk-on-ableness' (Neisser 1992:4), of a floor. This construction implies that a person would have a prototypical self-representation system that is automatically and unconsciously activated in relation to the physical properties of the context in which they are at the time. These properties would include the affordances offered by planes, surfaces, and angles of the physical environment for utility, support and opportunities for action (Eilan, Marcel & Bermudez 1995). Boschker (2001) argues for an ecological approach to understanding movement imagery in which perception is a function of the interaction of the environment and the actor and not fundamentally a cognitive representational phenomenon. Boschker draws on Tamboer's contention (cited in Boschker 2001) that movement imagery and action are primarily directed at a displacement of the body and body parts into environmental space. It could be said that motor imagery is a function of the interaction between present, past and future positions of the body or it's parts to achieve

an imaged goal—e.g. walking towards or away from an object. Whether this constitutes a distinctive domain of ecological imagery and embodied imagery is still to be settled.

Imagery interventions based on ecological-self principles could be used to facilitate efficient and economical attunements to the affordances and constraints of the sporting domain (Basson 2001). This would in turn activate well-rehearsed motor information relevant to expert performance. By highlighting these imagined salient features of the physical environment, as well as elaborating and expanding on them it is proposed that expert action would be better controlled and therefore enhanced (Basson 2001).

Conclusion

Recent developments in the field of cognitive science and cognitive neuroscience present sport psychology with perspectives on mental imagery that may have value for research and intervention. Previously held views on the nature of mental imagery based on the early developments in cognitive psychology and cognitive science appear to have resulted in a static pictorial view of mental imagery. Recent research has advanced a more dynamic, holistic and transient perspective on mental imagery that contains rich, salient organismic information. The complexity of the organisation of this information is seen in the theoretical perspectives on consciousness and self advanced by writers such as Damasio (1999a; 1999b), Edelman and Tononi (2000) and Le Doux (1994). Although direct application of these insights are still at an embryonic stage, research developments in the use of mental imagery in sport and other performance settings could well benefit from addressing the following issues that arise from these perspectives.

1. Mental images ought to be treated as unified, coherent and informative wholes that convey a single 'point of view' (Edelman & Tononi 2000). This very interdependent whole cannot be reduced to component parts without changing the essence of the meaning of the image to a new perspective.

2. The image that is generated needs to be conceived of as an integrated internal construction containing both implicit and explicit memory content, emotions, somato-sensory information such as visceral, vestibular and

musculoskeletal cues and possibilities for action as well as information about the core and autobiographical self. Therefore concepts such as internal and external perspectives in imagery, the distinction between imagery rehearsal and performance enhancement, the difference between motor imagery, visual and kinaesthetic imagery and other forms of imagery may not be as distinct as has been previously conceptualised. They may draw on different specialist processors whilst still maintaining the core feature of an integrated 'point of view'.

3. The implication of point 2 above is that theories of why mental imagery bring about a change in behaviour might need to be integrated and modified into a more holistic theoretical perspective. A theory of change will need to incorporate theoretical principles of consciousness, self and emotions as they relate to performance in sport settings.

4. The core meaning and point of view of the image needs to be retained while directing attention to various salient aspects of the image. Instructional cuing can be used to enhance systemic interaction to improve figure-ground resolution of specific aspects of a mental image necessary for the specific sporting activity, skill or task being imaged. This would mean that image scripting would need to be geared to the individual rather than be general and prescriptive.

5. To improve on the rapid access to imagery for the sport person it appears that some from of priming would be advisable and that the instruction ought to begin with a physical and emotional context that is very familiar to the athlete. This also applies to the evaluation of imagery use, where a priming instruction or condition such as a video clip of an actual sporting experience could be utilised prior to the assessment procedure.

6. The role of mood dependent memories on the generation of an image is a significant focus not to be ignored.

7. In formulating interventions that are multi-sensory or systemically informed such as the common practice of using a wide spectrum of sensory images to improve vividness and ease of recall of important images in

mental practice and intensity control and attentional focusing.

8. Attention to physical attributes of the physical environment to generate a greater sense of spatial locatedness needs to be further investigated.

9. The importance of the interpersonal context when generating an image as well as the information on interpersonal-self states need to be factored into research and intervention procedures in the area of mental imagery.

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Dimensions of Change Detection within the Phenomenon of Change Blindness

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Introduction

The phenomenon of change blindness (CB) has recently been investigated from a number of perspectives. Basically it entails the limited ability to perceive gross changes in one's visual environment. In a recent experiment, Simons and Levin (1998) showed that persons do not notice when a stranger asking them for directions is switched with another person when the switch is concealed briefly by two persons walking between them carrying a door. CB specifically pertains to limited ability to perceive disparity in scenes, changes between elements ('second-order information') and personal visual impressions (Rensink 2000:2). The rider is that the changes must occur during a flicker, saccade, blink, similar interruption or an eye movement (Simons & Levin 1997; Rensink 2000). One popular way to investigate change blindness is by means of the so-called flicker technique (see Simons 2000). This entails showing persons a series of slides of real-world scenes. A particular aspect of the scene is then changed. The original and the changed slide are shown consecutively with a brief blank slide inserted between them. The interposition of the grey slide creates a flickering display. It was hypothesised that this brief interruption in the visual sequence makes it

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difficult to perceive the changes in the scenes as it disturbs our ability to pinpoint specific changes in the scenes by interposing a series of transient movement changes in the flicker cycle. A number of interesting conclusions were made on grounds of this difficulty to perceive the change in elements of a scene. Firstly, that the brain does not build up or internalise a reasonably full and rich visual representation of the environment. Secondly, CB indicates that this representation is unstable and very sketchy and that one possibly relies on the external environment as a form of a memory extension.

Explanation of CB

In an overview of the literature, Simons (2000) provided five explanations for the occurrence of the CB phenomenon. The causes most often cited are overwriting, first impressions, no storage, no comparison and feature combination. Overwriting or masking pertains to the processes of overwriting the initial image by interposing either the blank slide or the subsequent image. The overwriting effect results in the initial representation being replaced and only the abstract representation remaining. Change can be detected only by attending to certain objects although the attended objects may be abstractly rather than visually represented. The second explanation states that the function of a visual representation is to aid in our search to find a meaningful whole or interpretation of a scene and as soon as this is reached no further processing takes place. Thus the impression of an initial scene is sufficient to gain an understanding of the scene. The changed slide does not necessitate further processing since it seems similar and change is therefore difficult to detect.

The memory extension explanation entails that nothing is stored in any case and the world acts as an extended memory. If nothing is stored then change detection cannot take place. This stronger explanation is supplemented by a weaker claim that some information is stored over successive displays enabling action to take place within a visually changing world. Rensink (2000), for instance, proposed a 'coherence theory' of change detection. Based on the assumption that an environment is visually too rich for veridical and detailed representations to be constructed, it is

postulated that *focused attention is needed to see change* (Rensink 2000:19). The coherence theory of attention states that focused attention is responsible for the appearance of temporal and spatial coherence of objects being attended to. A change in an object can only be perceived if it is being attended to at the moment of change.

A person's ability to represent incongruent information or hold disparate beliefs about a particular object or person shows that no comparison is usually made between mental representations until inconsistencies are pointed out. According to Simons (2000) the same might be possible with visual representations. Thus all information is stored but nothing is compared across changes in scenes. However, the hypothesis was that the information was consciously available to a person when prompted, cued or pointed out.

Finally, it may well be that features of both scenes are combined or integrated making it very difficult for persons to distinguish between the two scenes (Simons 2000). Information presented in the form of the original and modified slides are integrated across flickers and this integration is a function of visual short-term memory. One of the requirements of storage performance in this domain is attentive and vigilant processing of scenic elements. This process mediates the encoding of perceived objects. In a flicker experiment only parts of the scene are attended to and attention is not focused on the transient elements and persons have difficulty subtracting one image from another (Irwin 1991).

From the above it appears that attention may play a particular role in change detection. It also seems that persons are not totally blind to changes but that given certain conditions detection of change is possible. This study investigated the role of attention and response latency as mediating variables influencing change detection within the phenomenon of change blindness.

The Role of Attention

Rensink, O'Regan and James (1997) proposed that change in the flicker technique could be perceived if the item that changes falls within the scope of focused attention (see also Rensink 2000). In terms of the information processing taking place, the items within focal attention enters a relatively stable store which, if change takes place, enables one to perceive change by

means of comparison with the stored image or item. Unattended items, according to Rensink *et al.* (1997) are overwritten.

Attention is of course not a one-dimensional construct, and in order to determine whether attention does play a role in the perception of change, it is necessary to identify the relevant aspects of attention. In their overview of different classifications of attention, Schweizer, Zimmerman and Koch (2000:273) remarked that '... consistency can only be expected for results that are based on the same class, dimension, and sub-process of attention'. Therefore, it is necessary to clearly define the construct attention.

Three basic processes or systems are usually identified, corresponding roughly to stages of processing, namely orientation, detection and sustaining attention (Ochsner & Kosslyn 1999). Within these basic categories, finer divisions may be made or additional processes can be added. Moore & Egeth (1998) identified feature-based attention which is attention focused on a particular feature of an object (such as the red of a shirt). Schweizer (2001) characterised the processes preceding focal attention as preattentive (bottom-up processing) (see LaBerge 1999). These involve processes that encode 'basic properties' of sensory input and prepare sensory input for focal attention. This process allows for the parallel encoding of the basic elements of a scene such as colour (Treisman & Gormican 1988). Changes in the basic elements may be noticed but changes in associated elements are not easily observed. The attentive processes that follow preattentive attention allows for the serial selection of isolated features of an object (top-down processing) (Kandell, Schwartz & Jesell 2000). However, a finer distinction between sub-processes includes attentional orientation, selective, divided and sustained attention (Coull 1998). Attentional orientation is the propensity towards the salient detail of stimuli, selective attention is the focus on one aspect and not another in the perceptual field while divided attention is the ability to focus on more than one stimulus (cf. Schweizer *et al.* 2000). Sustained attention is the ability to maintain concentration over a period of time. A helpful distinction, which Schweizer *et al.* (2000) alluded to, is that of Sturm and Zimmermann (2000) who distinguished between a selective and an intensity dimension in attention. Selectivity refers to sub-processes of attention such as focal or

selective attention and intensity to processes such as alertness and vigilance.

A number of attentional and perceptual processes seem to be implicated when one considers the phenomenon of CB. When an image is screened a person needs to scan the image in order to encode the scene to some extent. In order to perceive a change attention needs to be sustained. However, the demand is relatively high in contrast to sustained attention with a low level of demand from a concentration task extended over a period of time. In a situation such as the latter habituation sets in and mistakes are easy to make (cf. Manly, Robertson, Galloway & Hawkins 1999). In the flicker technique the disruptive nature of the flicker increases the demand to such an extent that habituation is difficult. The flicker technique places high demands on sustained attention but also requires sustained focal attention—one can scarcely imagine divided attention playing a role since the disruptive nature of the flicker masks changes in the image. However, this could be precisely what happens: divided attention which has the function of focusing attention by changes or movement in stimuli could be disrupted by the masking effect of the flicker hindering the full coding of changes. This prevents the visual experience of change from reaching consciousness. If this is the case, eye movement studies could indicate whether the area of change in the image draws the eyes more frequently than other areas in the image. This could indicate that pre-conscious processing is taking place and that divided attention is operative to some extent.

However, the task in the flicker technique seems to require focal attention since it is only by looking at the precise point of change that it is noticed (cf. Rensink *et al.* 1997). It seems as if selective attention as a sub-process is operative and disrupted since one needs to discriminate between a transient caused by the flicker and a change in stimulus (the change on the image).

Taking sustained attention and selective attention to be the sub-processes involved in change detection, it was hypothesised that those persons with the ability to a) maintain accurate concentration over a period of time and b) discriminate between the details of an image will be able to perceive change and do so more expeditiously.

Response Time and Detection of Change

The detection of change in the experiments is dependent on the length of

time taken to initiate a response. Research on change blindness has concentrated on the behavioural aspect, namely reaction time (Güzuldere 2000). In these studies the researchers have included a measure of the response bias of subjects in order to correlate time to response and accuracy of response. A reaction test was included in this design to investigate whether individuals with faster reaction times on the choice reaction test would have shorter response latencies in the change blindness test. Response time was operationalised into two steps that reflected underlying information processing stages. Information processing is associated with a person's overall cognitive ability and the complexity of the information to be processed (e.g. single feature or conjunctional feature). The stimulus identification stage (Adam 2000) corresponds to the finger lift in the reaction test recorded as decision time (see discussion below). The first stage together with the motor programming stage corresponds to the key press in the reaction time test (recorded as reaction time) These processes interact in a dynamic manner. For this study it was translated into a composite reaction time score. It is hypothesised that image changes as reflected in the change blindness experiment are considered to be either single feature differences or conjunctional feature differences. Limited processing is required to detect changes (and hence faster reaction times) for single feature differences because of the parallel processing required for executing this task. In contrast, the detection of conjunctional differences requires sequential processing to differentiate between the objects and the distractors (Treisman 1986). The processing that underlies this task is complex and includes perceptual detection, cognitive decisions and visuomotor responses. It was hypothesised that other processes are involved in the ability to detect change quickly. In this study these were operationalised as a composite of perceptual, cognitive and visuomotor abilities.

Method

A sample size of 120 was aimed for in order to allow for a more complex design. However, the realised sample consisted of 94 first year psychology

students recruited from the University of Pretoria. Students who attended the psychology classes were introduced to the research and were asked to volunteer. They were required to fill out a short screening questionnaire and a consent form. The screening questionnaire included items on medical conditions especially epilepsy. Persons not complying with basic criteria were excluded from the sampling list. Although it was shown that the phenomenon of change blindness was reasonably resistant to transference, it was felt that transference should be minimised by scheduling testing times as close as possible. The tests were available on IBM-compatible computers in a selected computer laboratory. Each participant had access to a computer and on average a testing session comprised of 10 participants with a tester appointed to each participant. Groups were also asked not to discuss the experiments and tests with their friends.

Three tests were used, namely a reaction response test, an attention test and a flicker test. All three tests were programmed in house.

(a) The reaction test consisted of a series of stimuli shown on screen. Two keys were allocated as a rest and a response button. The testee kept a finger on the rest key until the correct response was shown. The response key was then pressed with the same finger as quickly as possible. The test followed the classical choice reaction test paradigm. Three circles were shown on screen, namely yellow, red and blue. The intensity was low so that the colours were dark or subdued. During the test these circles brightened in different combinations and a response had to be executed only for a yellow bright and red bright circle combination. The positions of the coloured circles were always the same. A total of 12 stimuli were shown. If a person lifted his/her finger for an incorrect stimulus then it was recorded as a decision error. If the person pressed the response key as well, then it was also recorded as a reaction error. Times for correct responses were recorded as follows: the time that elapsed from the moment of observation to a finger lift was recorded as decision time in milliseconds. The time in milliseconds since the stimulus was shown until the response key was pressed was recorded as reaction time.

(b) The attention test was developed to incorporate the requirements for the

sub-processes of selective and focal attention: (i) it should allow for low to medium demand on selective attention, i.e. tasks ought to hold attention but not be too complex thus involving higher cognitive processes and (ii) must not be too simple and induce a habituation effect. The stimuli and task were developed to comply with these requirements. Two examples of attention assessment tasks involve (i) pressing a key in response to stimuli until a stimulus not requiring a key-press is shown (Manly *et al.* 1999) and (ii) pressing two different keys, each corresponding to different type of stimuli (Schuhfried 1989). Both actually require similar tasks. Two types of stimuli require different responses. However, (i) above facilitates habituation due to the infrequency of no-response targets, while (ii) requires a reasonable level of vigilance or alertness due to a visual comparison task and reasonably frequent occurring alternative response targets.

The attention test consisted of showing a number of figures in squares on screen with one figure below them, which changed as soon as a key was pressed. The requirement was to compare the single figure with the five figures and indicate whether it was similar or different to the five figures. The five figures stayed the same throughout the test. Two keys on the keyboard were allocated to indicate whether a figure was similar or different. The sequence of the changing figures was preset and was repeated as long as the test ran. Since, the sequence was long and randomised it was very difficult to memorise. The test ran for 5 minutes and the testee determined his/her own pace and level of accuracy. A practise session was given and could be repeated until the testee felt comfortable with the test. Reactions were recorded as arrays of correct and incorrect responses in 30-second segments. From this data the total number of responses, and the number of correct and incorrect responses were calculated. The total number of responses indicated work speed, while the ratio incorrect over correct responses yielded an indication of concentration quality.

The hypothesis for the attention test was as follows: persons that are able to respond correctly over a period of time would be faster at observing changes in the flicker test.

(c) The flicker test consisted of the same slides used by Rensink *et al.*

(1997)[2]. Slides consisted of photographs of real-world scenes ranging from nature to urban images. An original and a changed scene was displayed for 240 ms with a grey blank scene disrupting this cycle for 80 ms. This followed the Rensink *et al.* (1997) sequence of A, A, A', A' where A stands for the unchanged image and A' for the changed one. The whole cycle was repeated until a person pressed a button to stop the display. A testee was then asked to report the observed change where after the tester typed in either c for correct or i for incorrect. The image was displayed on a computer monitor and the slide size was 27 degrees wide and 18 degrees high. The slides reflected both marginal interest changes (MI) and central interest changes (CI). In Rensink's investigation the distinction between central and marginal interests was drawn on the basis of independent classification by observers and consisted mainly of whether the change formed part of the central theme or the main gist of the picture or not. It was hypothesised that central interest changes would be noticed quicker than marginal interests. The types of change that subjects could encounter between the original and modified image included object colour, object omission/disappearance and object location changes. The time that elapsed between the observation of the scenes and the reported change was recorded in milliseconds as a latent response. The testee was exposed to 6 practice slides and could repeat the practice session if needed. The 6 practice slides were included again in the test. To counter a sequence effect in the flicker test the order of the images was randomised for each testee. The flicker test was the last in the sequence of three tests.

Results

(a) The first comparison between type of change and interest yielded no difference (see Figure 1). Rensink *et al.* (1997) found significant differences between marginal and central interest, which the current experiment could not confirm. Paired sample t-test yielded no significant differences between MI and CI for each change type. However, the order of reaction time in terms of number of cycles was reasonably similar to the Rensink experiment. They (1997:370) found that MI's took an average of 17.1 (10.9 s)

[2] The original images with helpful suggestions were kindly provided by Ronald Rensink.

alternations while the current experiment found and average of 14.37 (9.2 s) alternations. For CI's they found 7.3 (4.7 s) alternations while this experiment found 13.442 (8.6 s).

(b) To determine the effect of attention accuracy on the perception of changes, a comparison was made between three categories of attention accuracy (poor, average and good). To repeat the hypothesis stated above: one would expect persons that were able to respond correctly to the required stimuli in the attention task over a period of time to notice changes more quickly in the flicker test. The sample was divided into three equal groups based on the proportion of inaccurate responses over total responses.

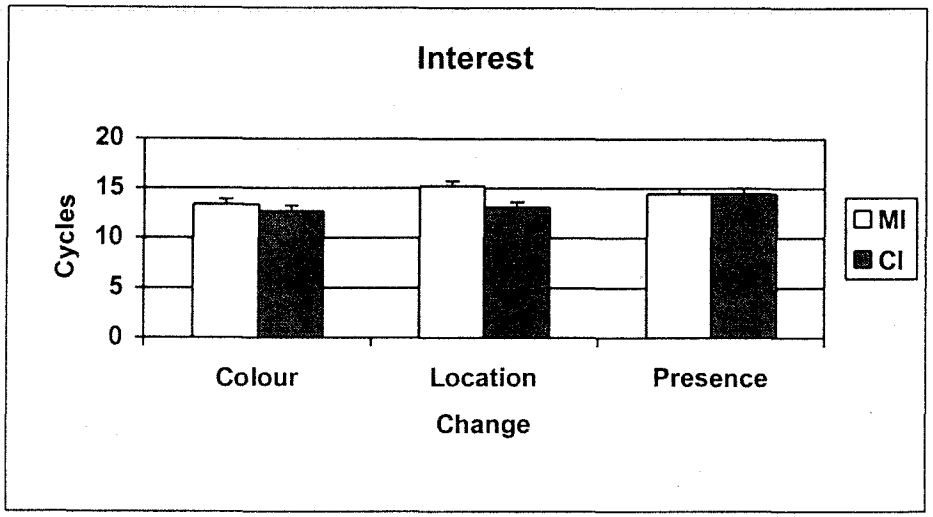


Figure 1: Interest

Figure 2 shows that a slight decreasing trend for reaction time was found for the poor concentration group. The presence/absence change was affected most in comparison to the other categories of concentration quality. A two-way within subjects ANOVA for change type and concentration yielded no significant main or interaction effects. A one-way ANOVA for presence yielded significant differences between the three groups, $F(2,89) = 4.13$, $p <$

0.05. Scheffe's post-hoc test indicated a significant difference between the poor and the average group ($p < 0.05$).

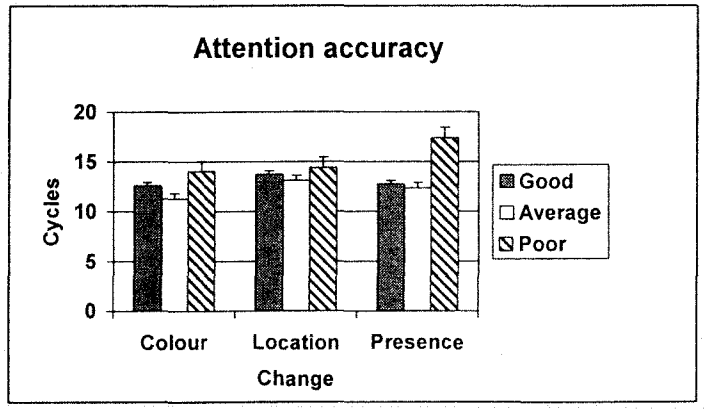


Figure 2: Attention Accuracy

(c) The reaction response test yielded reaction time scores, which provided an indication of speed of processing capacity. The sample's reaction time was also divided into quick, average and slow reaction speeds. The data was analysed with a similar two-way within subjects ANOVA for change type and reaction time. A main effect for reaction time was found, $F(1,90) = 4.625$, $p < 0.05$.

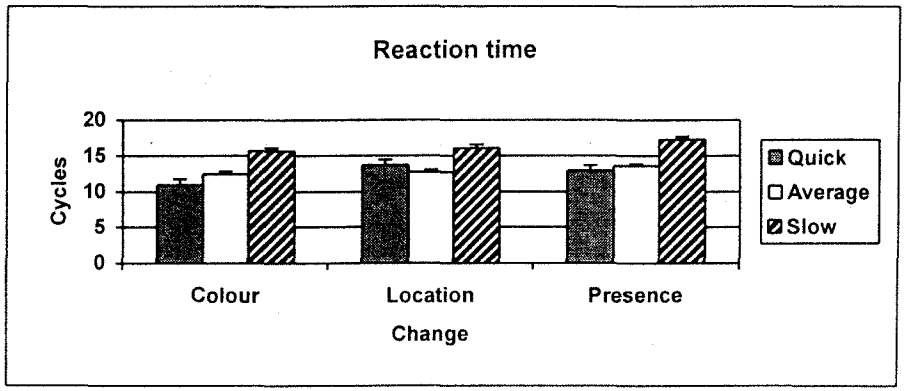


Figure 3: Reaction Time

again indicated the slow group as differing from the other levels especially the fast group in the colour and presence change types. A separate one-way ANOVA on the change types showed that significant differences were restricted to the colour change, $F(2,90) = 5.35$, $p < 0.01$. Scheffe's post hoc test indicated a significant difference between the quick and slow groups, $p < 0.01$.

Discussion

This study was very conservative in its approach to CB since it was planned as a basic replication of the Rensink *et al.* (1997) experiment. It went one step further by exploring the relationship between response latency and CB and attention and CB. A number of studies including Rensink *et al.* (1997), postulated attention as the prerequisite for changes in scenes to be detected across transients.

The present experiment indicated similar response latencies for change detection as Rensink *et al.* (1997) found. The main finding of the current experiment indicated no significant difference between marginal and central interests. This finding contradicted the results of Rensink *et al.* (1997). Given the consistent difference by interest found in other studies such as Rensink, O'Regan and Clark (2000) and O'Regan, Deubel, Clark and Rensink (2000), it was surprising not to observe this difference in the current experiment.

A number of aspects needed to be ruled out before one can speak of construct failure. With construct failure we meant that finding a difference between interest types could be an artefact of particular circumstances rather than the construct itself. Finding a difference or not could be caused by the test itself, the test conditions and the sample. Of course the construct validity could be low which means that the way interest is defined and classified is inconsistent. Attempts at refining the interest construct were made, for instance, by Hollingworth and Henderson (2000), who distinguished between the visual and semantic aspects of an interest-type change. For the current experiment one may rule out the technical and test condition aspects except if for some reason issues such as screen luminance or lab conditions

differed from the original experiment and influenced the results. Since the internal conditions with respect to the current experiment were kept standard, one would expect the distinction between interests to show up. We could identify two possible culprits, namely viewing the slides from a fixed distance and the nature of the sample. The speed with which changes on screen can be seen could relate to the viewing distance, which was not strictly controlled in the current experiment. An approximate arms-length viewing distance was maintained. On the other hand given the large sample size, one would expect artificial differences like these to average out and still yield an indication of a difference between the interest-types. The sample size in this case is a strong argument for construct validity and possible sample characteristics. We are only now beginning to suspect that factors over and above attention or basic information processing mechanisms are responsible for the speed of change detection. If semantic content of a change mediates its detection speed, aspects such as perceptual style and stimulus dependency/independency could just as well play a role in change detection speed.

The results of the experiment do not deny the phenomenon of change blindness and the corresponding mechanisms responsible for it (which researchers are trying to figure out), but it could point out that a more/less principle exists when investigating basic perceptual and cognitive mechanisms. We all breathe air, but some of us absorb oxygen better than others. Thus, change blindness is caused for instance by the disruption of representations between transients (which is true for most persons), but the speed of change detection is a function of any number of variables of which persons may have more or less of. In this particular sample consisting of volunteers, interest, stimulus dependency, scanning speed or even attentional capabilities may have been high (the highly attentive introvert with slow but accurate perceptions would probably not have volunteered), thus biasing the results—they could have just been good at detecting changes in any case! These hypotheses can be investigated in a second round of experiments and would be very informative in their outcome with regard to the CB-investigations.

Since one of the more prominent explanations for the phenomenon of change blindness was that it related to attention, the current experiment included the attention test, which focussed on aspects of sustained and

focal/selective attention. The sustained aspect was built into the test due to the requirement of remaining vigilant over a period of time (in this case five minutes). The sub-process involved was assumed to be an aspect of focal attention. Thus a person was required to compare a target with a number of static figures, decide whether it was similar and press a corresponding key. We were interested in a person's ability to execute the task correctly, which was indicated by a low percentage of incorrect answers. The results for the attention test showed no significant main effects for change type and attention accuracy or their interaction. However, doing an ANOVA for each change type separately yielded a significant difference between low attention accuracy and average accuracy for the presence/absence change. The low accuracy persons were markedly slower in detecting changes. Although the results indicated a trend towards inaccurate performers detecting changes slower than the other categories of attention quality, the results were inconclusive and it was difficult to relate attention and change detection in this experiment.

One may indeed ask whether attention is playing a necessary *and* sufficient role in detecting change or whether the role is merely necessary since other factors such as the meaning of the picture moderates change detection (see Pani 2000; Werner & Thies 2000). This was the question Hollingworth and Henderson (2000) probed. They made a distinction between visual and semantic informativeness of changes within a scene. Visual informativeness included aspects such as the size, position and complexity of the changed object, while semantic informativeness refers to whether the change made sense or not. A semantically incongruent object will be more informative than a changed object that fits within the scene. Their study found amongst others that change detection was quicker for semantically informative changes within a scene than for semantically uninformative changes while visual informativeness was kept constant. This finding of course pertains to the question of how the construct of interest is defined, but Hollingworth and Henderson (2000) also tested whether semantic incongruent objects in any case caused more and longer eye fixations in the region of change. Overt attention would explain why a particular change (in this case an incongruent one) was detected faster.

However, they found that by limiting the ability to fixate on targets, the semantic informative changes were still detected faster. Thus, according to their findings cognitive rather than attentional factors seem to be involved in the speed of change detection.

The current study tentatively indicated that attentional factors may not play such a major role in change detection—it is a necessary but not a sufficient condition for detection to take place. One scarcely can imagine *not* looking or attending to aspects of a scene and then seeing it. The fact that persons with low accuracy took longer to perceive changes in the presence/absence of objects fits in with this explanation. The attention test probably tapped the same ability required to detect the presence/absence of objects—the target figure in the attention test had an additional segment added or subtracted. The slower detection times of the low accuracy performers probably indicated that attention was a necessary condition to detect change. The fact that no response latency differentiation was found between average and better attention performers could point to attention not being a sufficient condition. A number of questions relating to attentional factors can be explored. For instance, will an attention test tapping colour or location changes yield similar results thus showing attention to be feature sensitive? If this is the case, then one can probably determine the extent to which attention does contribute to change detection. The ability to make finer distinctions opens up further investigative possibilities by separating attentional, cognitive and other resources contributing to change detection.

The reaction test showed that persons do differ in terms of reactive capabilities. Reactive capabilities in the present study alluded to perceptual, cognitive and visuomotor abilities. Although the test was a choice reaction time task, these abilities, taken together, played a prominent role in the execution of tasks. The hypothesis was that additional processes to attention might facilitate the speed of change detection since reactive capabilities differ amongst persons. To some extent this hypothesis may be accepted due to the overall difference in reactive capabilities. However, the specific relationship between reaction time on the reaction test and speed of change detection on the colour feature of the flicker test may support the conclusion outlined above. The reaction test was based on colour stimuli and as the case was with the attention test, the same feature was identified by the flicker test. To reiterate, are tests of attention and reaction feature sensitive? If so, is it

due to our ability to make finer visual detections and/or is some element of priming occurring where traces of neural activity exists and are transferred to the types of detection in the flicker test?

Conclusion and Recommendation

The study replicated the Rensink *et al.* (1997) experiment but also increased the sample size and investigated the role of attention accuracy and response capability in mediating change detection. One of the major findings of the experiment related to the possibility that both attention and reactive capability could be feature specific. In other words, the detection of colour, location and presence/absence changes might involve specific processes in the brain. When making attention responsible for mediating change detection, it is probably an overestimation of what is actually responsible for change blindness. It is an overestimation in the sense that very specific attentional and cognitive processes are involved in detecting very specific changes. Attending to colour is probably qualitatively different to attending to location. This has an implication of how we design tests for attention and reactive capabilities. We may gloss over very real differences on a micro or featural level by making for instance, focal attention responsible for detecting all kinds of changes. Current research supports this line of thought by finding evidence for distinct brain regions corresponding to specific sub-processes of visual attention (Heuttel, Güzeldere & McCarthy 2001).

We may speak of an overestimation of attention as responsible for change detection in a second sense as well. Attention and other processes may be responsible for change detection in a minimal sense. Without it you can never see change, but up to a certain point increased capability does not increase the ability to detect change. Other processes may then start mediating change detection such as the semantic content of changes or the gist of a scene.

Lastly, the presents study's finding with regard to interest opens up alternative avenues for further research. The distinction between interest types needs to be reconceptualised using larger samples and more specific criteria to make allowance for issues such as semantic versus visual

informativeness. Its inclusion in studies of change detection is necessary because of the psychological and higher level factors that underlie persons' interest, which in turn mediates detection of change within the CB phenomenon.

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Do Parasitic Worm Infections Impair Cognitive Development?

Matthew Jukes

Introduction

Over the course of the last century around fifty studies were published addressing the question of whether parasitic worm infections affect cognitive performance (Watkins & Pollitt 1997). Despite this sustained interest in the topic, it is still difficult to draw unequivocal conclusions. A recent review of treatment trials argued that 'there is insufficient evidence as to whether [deworming treatment] improves cognitive performance' (Dickson, Awasthi, Williamson, Demellweek & Garner 2000). The ambiguity of the evidence does not imply, of course, that parasitic worm infections do not affect cognitive function, or that treatment of children with infections cannot improve cognitive function. The ambiguity is more likely to result from the difficulty in producing clear results in a field where conducting well designed studies is expensive, time consuming and often unethical. This paper considers the key difficulties in interpreting results in this field and describes a recent study that attempted to avoid such problems. Finally, a selection of well designed studies are reviewed and conclusions are drawn as to the likely effect of parasitic worm infection on cognitive function.

Biology of Parasitic Worms

There are two broad classes of parasitic worms that have been studied in relation to their effect on cognitive development. The first consists of *geohelminths*—worms (helminths) whose eggs develop outside the human host, typically in moist soil. Three common species of geohelminths are considered here: roundworm (*Ascaris lumbricoides*), whipworm (*Trichuris trichuria*) and hookworm (of which there are two species—*Ancylostoma duodenale* and *Necator americanus*). The life cycle of all three types of worm all involve eggs which develop for a day to a number of weeks in moist soil. Roundworm and whipworm eggs are ingested as contaminants by human hosts and hatch in the small intestine. Whipworm then develop into larvae and migrate to the colon where they develop into adults of 3-5cm in length. Roundworm larvae burrow through the wall of the small intestine and migrate via the circulatory system to the lungs and then through the trachea and pharynx from where they are swallowed again and pass down to the small intestine where they develop into adults of around 30cm in length. Hookworm take a slightly different route to roughly the same end point. Hookworm eggs hatch in the soil into larvae which burrow through the skin around the feet of human hosts. Once inside the body hookworm migrate through the circulatory system to the lower intestine in the same manner as roundworm. Adults are 5-18mm in length. In the final phase of the life cycle of all three geohelminths, adults mate in the gut and the females produce from thousands to hundreds of thousands of eggs per day which are passed through faeces back into the soil. Geohelminths cause tissue damage and blood loss and can lead to protein energy malnutrition (PEM) with heavy loads. Iron deficiency is another common consequence of infection with geohelminths, particularly hookworm.

The second class of parasitic worms considered are the schistosomes (more commonly know as bilharzias or blood flukes). One species of shistosome (*Schistosoma haematobium*) resides in the blood vessels around the bladder and produces eggs which are passed through urine. Other species (*Schistosoma mansoni* and *Schistosoma japonicum*) reside in blood vessels around the intestines and produce eggs which passed through faeces. For all species, the eggs develop into larvae on contact with fresh water. The larva infects a species of snail in which it multiples before being released back into the water. It then burrows through the skin of a human who is in contact with the water and migrates through the blood stream to the vessels serving the bladder or intestines. Disease resulting from infection is caused primarily by the eggs that are released by the adult into tiny blood vessels. The blood vessels are damaged as eggs escape. The pathological response can lead to liver fibrosis or cirrhosis and anaemia.

Effect of Parasitic Worms on Cognitive Function

In addition to physical effects, severe and chronic infection with parasitic helminths during children's development could also have some consequences for their cognitive performance and ultimately their educational achievement. These effects on cognitive function may occur as a result of one or a combination of symptoms associated with infection. For example, one of the main consequences of infection with many species of helminth is iron deficiency anaemia[1] (IDA; Beasley *et al.* 1999; Farid 1993; Olsen Magnussen, Ouma, Andreassen & Friis 1998; Stoltzfus, Chwaya *et al.* 1997) and there is much evidence that IDA is associated with impaired cognitive performance and development (Grantham-McGregor & Ani 2000; Lozoff 1990). Furthermore, infection with hookworm and *S. haematobium* can result in poorer growth rates (Stoltzfus, Albonico, Tielsch, Chwaya & Savioli 1997; Warren *et al.* 1993) and this may also be a route by which infection leads to impaired performance because undernutrition affects cognitive development and educational achievement (Mendez & Adair 1999; Simeon & Grantham-McGregor 1990).

Whilst these and other pathways provide the potential for helminth infection to impair cognitive function, evidence remains equivocal as to whether this impairment actually takes place. The need for the research reported here arises from the inconsistent results found so far in this field. Broadly, there have been two different methodological approaches to address the issue of whether worm infections affect cognitive function: observational studies involving the analysis of correlations between worm infections and cognitive function; and intervention studies where the cognitive performance in infected children and a control group is observed for a period after deworming treatment is given. The latter methodology of treatment trials has generally been favoured because it has the potential to demonstrate cause and effect in the relationship between helminth infection and cognitive function. However, in the treatment trials conducted so far

[1] Abbreviations used in this paper are: BMI – body mass index, epg – eggs per gram; IDA –iron deficiency anaemia; HAZ – height-for-age z-score; Hb –haemoglobin; NCHS – National Center for Health Statistics; MUAC – mid-upper arm circumference; SES – socioeconomic status; SEES – socioeconomic and educational status.

only one study *(Nokes, Grantham McGregor, Sawyer, Cooper, Robinson et al.* 1992) has produced a clear main effect of anthelmintic treatment on cognitive function. Other studies have found improvements after anthelmintic treatment only for subgroups of the study population (Nokes *et al.* 1999; Simeon, Grantham McGregor, Callender, & Wong 1995; Simeon, Grantham McGregor & Wong 1995) or no improvement at all (Gardner, Grantham McGregor & Baddeley 1996; Sternberg, Powell, McGrane & Grantham McGregor 1997). These mixed results have led to some scepticism as to whether helminth infection affects cognitive function (Dickson *et al.* 2000). However, there are other explanations for the failure to find effects in the majority of treatment studies. First, it is quite possible that helminth infection impairs cognitive function in a way that cannot be remedied simply by removing the infection or that a different subset of cognitive functions may recover after treatment from those that are impaired by the initial infection. This may happen in a number of ways. For example, treatment may improve a child's attentiveness in the short term, which in turn allows the child to benefit more from teaching in the long term. Thus, we may be able to measure changes in attention shortly after treatment but not be able to detect improvements in other cognitive abilities or educational achievement for months or years after treatment. Alternatively, helminth infection may inflict long-term damage to cognitive functions in addition to affecting performance in cognitive tests concurrently, as a result of general lassitude and morbidity in the child. Treatment may remove the morbidity and improve performance but not remove the long-term impairment to cognitive function.

Second, cognitive impairments probably result from many years of living with a disease and so we would be surprised if this cumulative effect could be reversed with a few months of administering deworming tablets. No study has followed the recovery of cognitive function for more than six months after treatment. Perhaps a longer-term course of treatment is required to find improvements in cognitive function (Bundy & Peto 2000), or perhaps a psychological intervention is required, in addition to deworming, to remediate cognitive impairment (Drake, Jukes, Sternberg & Bundy 2000; Sternberg *et al.* 1997).

Third, the negative results of many studies may be due to the quality of instruments used to detect change in cognitive function. Studies have been

conducted so far in Africa, Asia, Central America and the Caribbean but have exclusively used tests developed in North America or Europe. Some or all of these tests may have been inappropriate and insensitive measures of cognitive function in local populations. Alternatively, cognitive tests may not have captured performance on the key cognitive domains that are affected by parasitic infection.

In order to overcome the first of these three problems (the possibility that different cognitive functions recover after treatment from those that were infected in the first place) treatment studies need to be complemented by cross-sectional observational studies. This methodology provides the only way to examine the relationship between cognitive function and parasitic worm infection without simultaneously altering that relationship. Thus, these studies can tell us which cognitive functions are affected by parasitic infection, not just those that recover after treatment. Such studies cannot establish a causal relationship between infection and cognitive ability, but if sufficient care is taken to control for a wide range of possible confounders they may allow us to infer the likely profile of cognitive abilities that are affected by helminth infection in a way that treatment trials cannot.

The most likely confounding factor to affect studies of helminth infection and cognition is poverty (Seifer 2001) and yet the majority of cross-sectional studies have failed to control for socioeconomic status (SES) (Watkins & Pollitt 1997). Only six studies have controlled for SES (Gardner *et al.* 1996; Levav, Mirsky, Schantz, Castro & Cruz 1995; Sakti *et al.* 1999; Simeon, Callender, Wong, Grantham McGregor & Ramdath 1994; Simeon, Grantham McGregor & Wong 1995; Sternberg *et al.* 1997) which may affect cognitive function either independently or as a further index of poverty. There is clearly a need for cross-sectional studies that make a comprehensive attempt to control for all candidate confounders in order to provide evidence to complement that from treatment trials. The first aim of our research efforts was to conduct such a well-controlled associational study to meet this need. This study is reported elsewhere (Partnership for Child Development 2002) and summarised here. Other shortcomings with previous studies, discussed above (the short term nature of previous treatment trials and the inappropriateness of tests), were also addressed in our research project and our findings will be discussed in forthcoming publications (Grigorenko, Sternberg, Ngorosho, Jukes & Bundy submitted; Sternberg *et al.* in press).

Methods and Subjects

Study Population

The study took place in 10 schools in the coastal area of Bagamoyo District and Kibaha District, Tanzania, about 70 km north of Dar es Salaam. Children were aged between 9 and 15 years and spoke Swahili at home and at school. Of 1476 children who were eligible for the study and who returned consent forms. 906 of these were randomly selected for parasitological screening.

After completing the larger study of which the current investigation was a part, all children received anthelmintic treatment according to their infection status. Children with haemoglobin levels (Hb) of <80 g/L were given iron treatment. A local doctor was attached to project throughout to monitor the health of children in participating schools. Any illnesses identified by the project nurse were treated or referred to the project doctor and district hospital.

Experimental Design

Between May and August 1997, a comparison was made between children with moderate-heavy hookworm (≥400epg) and/or S. haematobium (≥50eggs/10ml) infections and those without significant helminth infection, on their performance on tests of cognitive and motor function and educational achievement.

As part of a larger study, half of the eligible children were randomly selected for parasitological screening after stratifying within school and grade. Of those who were screened, all children with moderate-heavy infection were recruited. For every second moderately-heavily infected child recruited in a class, an uninfected child in the same school grade and of the same sex was selected to serve as a control.

Approval for this study was obtained from the Tanzania Ministry of Health and Ministry of Education and Culture at national, regional, district and ward level and also by the schools and teachers participating in the study. Ethical clearance was obtained from the Institute of Child Health, London, UK and the Tanzania Food and Nutrition Centre, Dar es Salaam, Tanzania. Children and parents had the study explained to them in Swahili

and signed informed consent was obtained from all children and their parents before measurements began.

Psychometric Tests

A battery of educational tests measuring reading, spelling and arithmetic skills (detailed in the Appendix) was given to all children by two testers. With the exception of oral arithmetic, which was administered individually, tests were given to groups of about 15 children in their classroom. The educational tests were completed before other psychometric tests were given. Half the children were also given tests measuring a range of cognitive and motor functions (see Appendix) by four testers. The test battery took 30 to 45 minutes per child to complete. Tests were presented in a fixed order to children and were organised so that tests placing the highest demands on children were administered towards the end of the battery when children were familiar with the testing situation.

Both educational achievement tests and tests of cognitive function were developed over a period of one year prior to the start of the study to ensure face validity and content validity of the tests (correlations amongst tests and between school achievement and tests follow the predicted pattern), to ensure that children were familiar and comfortable with all testing materials and to ensure a test-retest reliability of at least .7 for each test. A novel test of reading ability was developed as part of this study (Alcock *et al.* 2000). All other tests had been adapted and chosen because they measured a range of abilities, had been shown in previous studies to be sensitive to the effects of hunger, undernutrition, IDA, other chronic illnesses or helminth infection. Children were tested in Kiswahili by testers who were fluent in this language. All children received a snack and a drink before testing to ensure they were not hungry during the test since short-term hunger has been shown to affect cognitive function (Pollitt & Mathews 1998).

Explanatory Variables

Children's date of birth was recorded from the school register. Children's sex, class and school attended were also recorded. Children were also given a structured interview individually to find out about their home environment

and their educational opportunities—characteristics that might affect their cognitive function and educational achievement.

Biomedical Variables

The number of *S. haematobium* eggs found in 10ml of urine, and the number of hookworm eggs per gram of stool were used as proxy measures of the intensity of parasitic worm infections. Measures were also taken of nutritional indices (height, weight, mid upper arm circumference and skinfold thickness), haemoglobin levels, ferritin concentration (an indicator of iron depletion), C-reactive protein (an indicator of an acute infection which may also lead to elevated ferritin levels independent of any depletion of iron), and also malaria parasite density (see Partnership for Child Development 2002 for methods)

Data Analysis

The distributions of all cognitive and education test scores were examined for normality and transformed where necessary. Socioeconomic and education status (SEES) data was reduced by factor analysis with varimax rotation to five factors. There were two factors related to economic wealth -: one related to quality of *house* and larger possessions and another related to smaller *possessions*—and also three school-related factors including possession *books*, state of school *uniform* possession of other school *equipment.* Intensity of helminth infection was coded into categorical variables representing intensity above and below certain thresholds. *S. haematobium* infection was coded into three categories: uninfected or lightly infected, moderately infected and heavily infected, with thresholds at 50 eggs/10ml and 500 eggs/10ml. Hookworm infection was coded into a binary variable with infection above or below the threshold of 400 eggs per gram. The category of heavy infection with hookworm (> 4000 eggs / gram; Montresor, Crompton, Bundy, Hall & Savioli 1998) included only 9 children (only 5 of whom did cognitive tests), which was considered insufficient to include in analyses as a separate group.

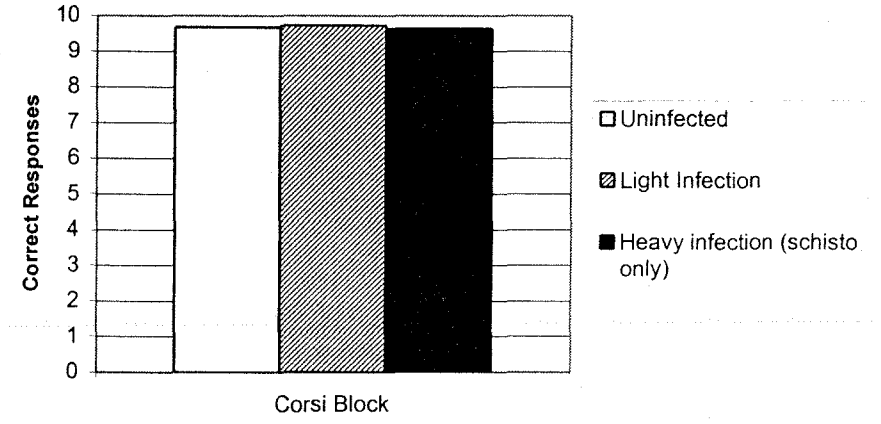
Multiple linear regressions were performed to analyse the effect of helminth infection on cognitive function and educational achievement

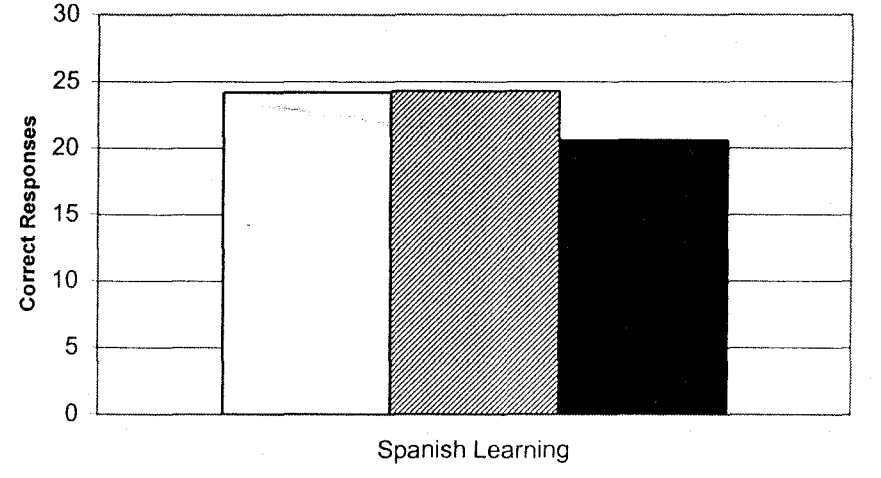
controlling for possible confounding variables. Multilevel modelling using the Mlwin program (Rasbash *et al.* 2000) was used to control for random effects at both child and school levels. Separate analyses were conducted for each cognitive and educational test score. Regression equations were constructed as follows. First, age and sex were entered into the regression equation. Second, three dummy variables were offered to control for the variation between the four testers who conducted the cognitive tests. The third step involved controlling for potentially confounding factors. Infection with Plasmodium spp and all five SEES variables were offered. In the fourth step all potentially mediating variables (the nutrition and other health variables HAZ, BMI, Hb, MUAC, C-reactive protein concentration, ferritin concentration) were offered. In this and all stepwise regression procedures used in the analysis, variables were admitted into the equation at the $p = .05$ level. After all potentially confounding and mediating variables were offered in the regression equation, the categorical helminth infection variables were entered. Finally, interaction terms between all helminth infection variables and each of age, body mass index, and height-for-age were offered to the regression. [Previous studies have shown that both age (Sakti *et al.* 1999)—and nutritional status (Simeon, Grantham McGregor, Callender *et al.* 1995; Simeon, Grantham McGregor & Wong 1995)—can moderate the effect of parasitic infection on cognitive function].

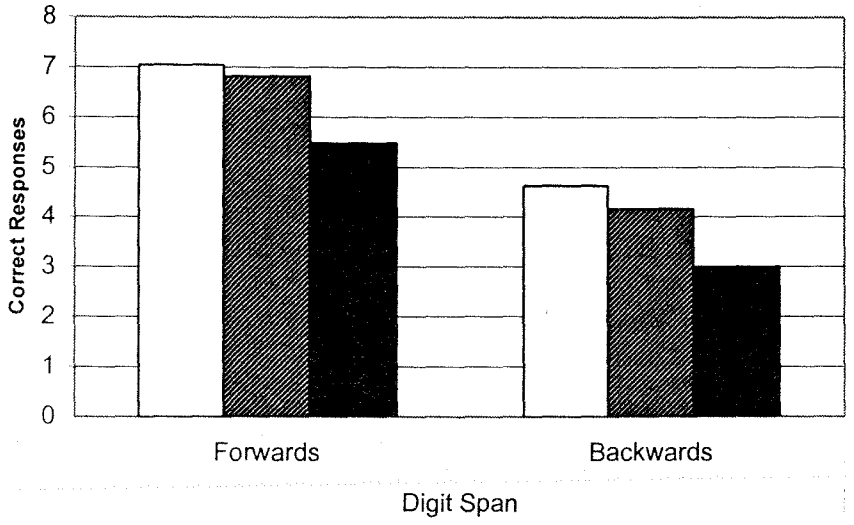
Results

904 children were screened for their parasitological status. 272 children qualified for the moderately-heavily infected group and 117 for the uninfected control group. All of these 389 children were scheduled to take education achievement tests and 223 were scheduled to take tests of cognitive function. Complete records were available for 338 and 203 of children who did the educational and cognitive test batteries respectively, representing an average loss of 13% resulting mostly from absenteeism on one or more of the days of testing.

Figure 1. Relationship between Memory-based Tasks and Helminth Infection







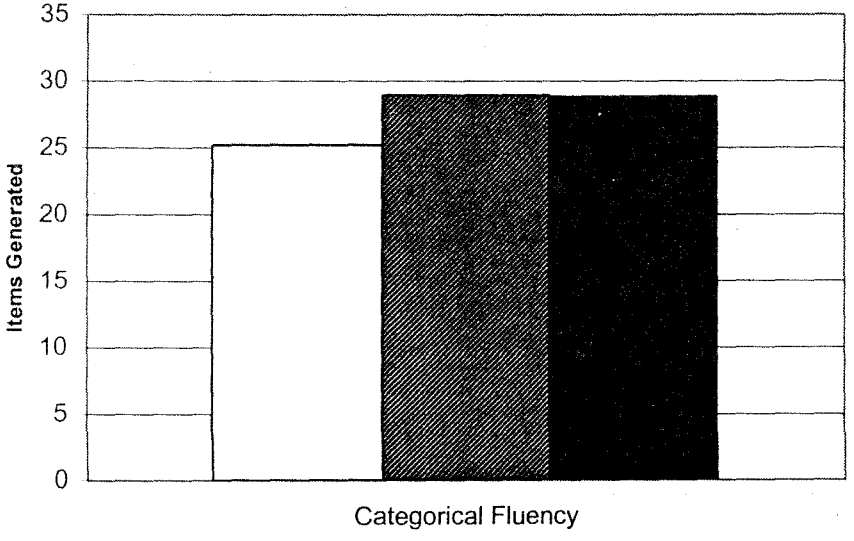
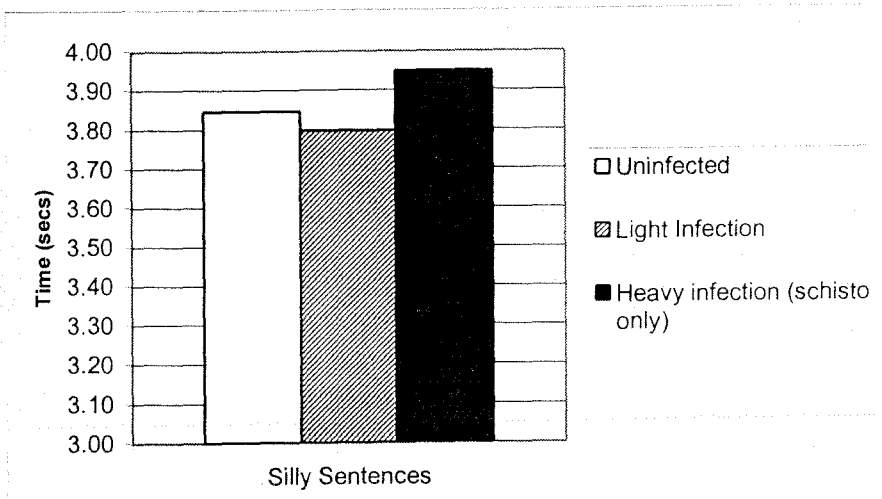
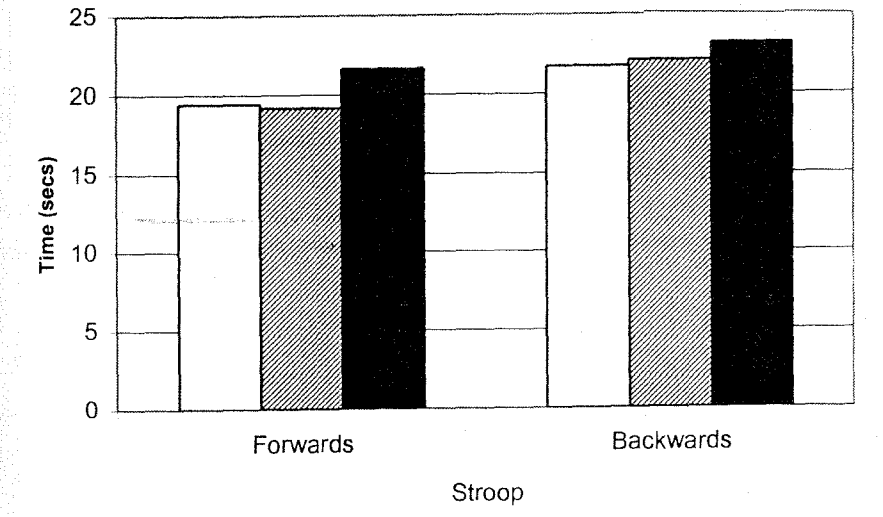
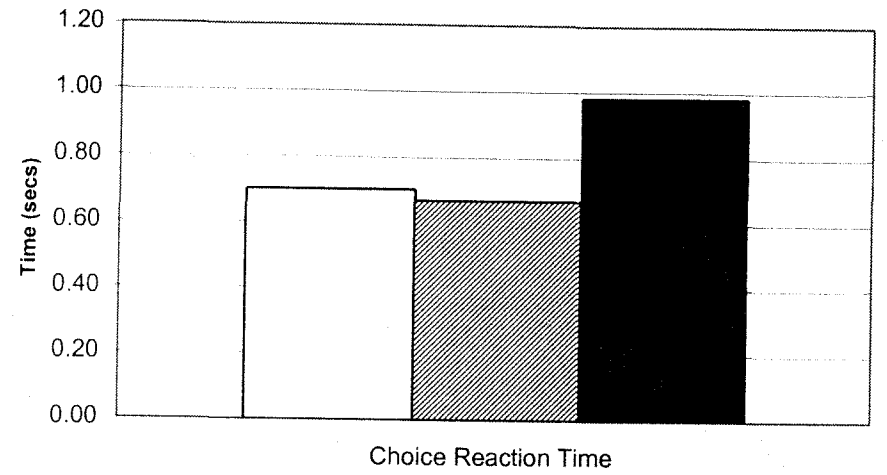
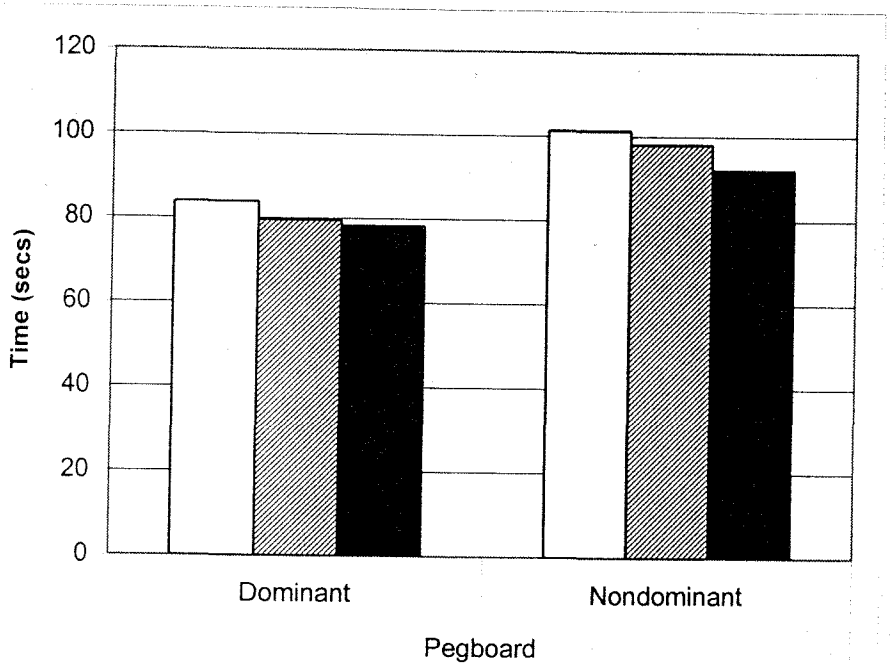


Figure 2. Relationship Between Timed Tasks and Helminth Infection









Associations with Parasitological Status

Figures 1 and 2 show the relationship between cognitive function and parasitic infection[2]. The most consistent pattern of results from regression analyses was observed for heavy infection with *S. haematobium*. This was associated with lower scores in four of the eleven tests of cognitive function[3]: Digit Span Forwards (p = .005, difference between heavily-infected and uninfected groups = 1.34 or 0.70 standard deviations[4]), Digit Span Backwards (p = .005, diff. = 2.16 or 1.16 SDs), Silly Sentences (p = .001, diff. = 0.298 secs or 1.04 SDs) and Choice Reaction Time (p = .001, diff. = 0.775 secs or 2.92 SDs). For Silly Sentences, the relationship resulted from interactions between heavy schistosome infection and height-for age (p = .001). This was because children who were both heavily infected with *S. haematobium* and stunted (HAZ < -2) had longer mean reaction times on the Silly Sentences test than other children (see Table 1).

Table 1. Breakdown of the interaction between height-for-age and heavy *S. haematobium* infection for the Silly Sentences test. Mean reaction time is shown in sec.

		Height-for-age z score	
		Below -2	Above -2
S. haematobium	<500 eggs/10ml	3.82	3.80
infection	>500 eggs/10ml	4.11	3.80

For two further cognitive tests—Stroop Compatible (p = .038) and Incompatible (p = .025)—the association between heavy schistosomiasis and poorer performance approached significance.

[2] Results are presented more fully in Partnership for Child Development (2002)

[3] Throughout cognitive test analyses a revised significance level (α = .010) was used following Bonferroni corrections for multiple tests with correlated outcome measures (Sankoh, Huque & Dubey 1997).

[4] Calculated from the estimated coefficient (b) in the final regression equation.

There were fewer and less consistent relationships between cognitive outcomes and moderate levels of infection. For *S. haematobium*, moderate infection was associated with higher cognitive test scores for the Verbal Fluency test ($p < .01$, diff. = 3.52 items or 0.46 SDs). Moderate hookworm infection was not significantly related to any of the cognitive tests. In addition, there were no significant associations with either worm infection and any of the three education tests.

Discussion

This study provides strong evidence that infection with *Schistosoma haematobium* can impair cognitive function. Associations were found between heavy schistosomiasis and impaired performance in 4 of the 11 cognitive tests independent of confounding and mediating factors.

Cross sectional studies such as this one are problematic because we cannot be certain that the relationship between schistome infection and cognitive function is a causal one, rather than an association mediated by a third (unmeasured) factor. However, as argued in the introduction, cross sectional studies, when designed and interpreted with care, address questions that treatment studies cannot and thus are worth pursuing. A number of aspects of the current study support the argument that there is a genuine causal relationship between schistosomiasis and cognitive impairment.

First, care was taken to measure and control for all variables that may be correlated with both cognitive performance and level of schistosome infection. Thus, the associations found were independent of confounding factors such as socioeconomic status, age, sex, malaria infection and other chronic infections, and variables potentially responsible for mediating the effect of parasitic infection on cognitive function such as nutritional indices and iron status.

Perhaps a more persuasive argument that there is a genuine causal relationship between cognitive function and helminth infection comes from the profile of cognitive abilities impaired by helminth infection. We found that having a heavy infection of schistosomiasis was associated with a drop in performance in the Digit Span Forwards and Backwards tests of 0.7 SDs and 1.16 SDs respectively and with increased reaction time in the Silly Sentences and Choice Reaction Time tasks of 1.04 and 2.92 SDs

respectively. No other tests were negatively affected by heavy schistosomiasis. Particularly striking in this pattern of results is that there are large differences from one test to another in the relationship with helminth infection. In particular, the effect on the Choice Reaction Time task approaches 3 SDs—an extraordinarily large effect for a psychometric test—whilst other tests show more moderate or nonsignificant effects. This is not the pattern we would expect if the effect were based simply on the fact that poor performance in cognitive tests and high parasitic loads tend to co-occur in the poorest children. On the contrary, socioeconomic status—the environmental factor having by far the largest influence on performance in psychometric tests—tends to have an equal effect on all domains of cognitive function (Seifer 2001).

This argument highlights an important, and often overlooked, consideration when interpreting studies of parasitic infection and cognitive function. When assessing the impact of parasitic infection on a battery of cognitive tests in a particular study, the nature of the cognitive tests affected—and not merely the number of cognitive tests affected—is the most useful guide as to whether there is a genuine causal effect. Consistency across studies in the type of cognitive tests affected, particularly when supported by theoretical considerations, is a powerful indicator that parasitic worms have an effect on cognitive function.

Table 2 summarises results from all studies whose design allows us to make strong conclusions about the effect of parasitic worm infection on cognitive function. For intervention studies, this includes those with an experimental design involving a placebo group. Cross sectional studies are included if associations between worm infections and cognitive function cannot be easily dismissed as resulting from confounding factors. In most cases this is because confounding factors have been measured and controlled for statistically. For each study, results are broken down by cognitive test. Across different studies cognitive tests attempting to measure the same function in similar but slightly different formats have been included in the same column (e.g. 'number search' and 'picture search' have been group together as 'visual search'). Cognitive tests have also been grouped according to the cognitive domain they are aiming to assess. However, this should be seen merely as a rough guide; cognitive domains are difficult to define and most tests assess performance in one or more domains. In each

column, a √ indicates that a significant effect was found for a particular test, and a X indicates that no significant effect was found. Blank cells indicate that the test was not included in the study.

Let us look first at the cognitive tests that were found to be sensitive to parasitic infection in the current study: Digit Span Forwards, Digit Span Backwards, Choice Reaction Time and Silly Sentences. In all the studies reported in Table 2, 4 out of 16 found an impact of worm infection on the Digit Span Forwards tests, 2 out of 8 found an effect for the Digit Span Backwards, 3 out of 3 for the Choice Reaction Time task and 2 out of 3 for Silly Sentences. This presents a mixed pattern of results. However, the current study found an effect only for children with the heaviest parasitic loads. What if we restrict our analysis of other studies to those in which the treatment group (for intervention studies) or the infected group (for cross sectional studies) consisted of children with heavy worm loads (Nokes, Grantham McGregor, Sawyer, Cooper, Robinson *et al.* 1992; Partnership for Child Development 2002) and to those studies where the relationship between infection intensity and cognitive performance was analysed (Kvalsvig, Cooppan & Connolly 1991; Levav *et al.* 1995; Nokes *et al.* 1999; Sakti *et al.* 1999)? (That is, excluding those studies where infected and uninfected children were compared irrespective of infection intensity). Here we find that 3 out of 5 studies found an effect for Digit Span Forwards, 2 out of 3 for Digit Span Backwards, 2 out of 2 for Choice Reaction Time and 1 out of 1 for Silly Sentences. This analysis indicates that the domains of verbal short term memory and speed of processing are two of the key domains affected by parasitic worm infection. It also suggests that effects on cognitive function are apparent only for children with the heaviest worm loads.

Whilst these results raise some interesting psychological questions, their most important implications are in the field of public health. Parasitic worm infections have a great impact on the health and education of school-age children but can be treated simply and cheaply. To keep one child free of worms for a year costs as little as $0.23 for intestinal worms (including hookworm), and $0.79 for urinary schistosomiasis when existing education structures are used to deliver the drugs (Partnership for Child Development 1999). Such school-based health services are part of a package of measures put forward in a recent international initiative on school health: Focussing

Resources on Effective School Health (FRESH; World Bank 2000) . This framework for school health programmes includes cost-effective measures that reach the poorest children, including health-promoting policies, improved water and sanitation, school-based health services (such as the administration of deworming treatment) and skills-based health education. In an ideal world, all children should have the right to develop in the absence of parasitic disease. In a world of priorities and limited resources, data such as those presented in the paper are essential to convince government and donors of the damage being done to children's education as a result of allowing them to grow up carrying parasitic infections. Children are a nation's greatest resource, and have the potential to make great contributions economically and in other ways to a nation's future. It is only by investment in school health programmes to ensure that children develop free of disease that this potential will be realised.

Appendix

Cognitive and Motor Function Tests

A brief description of the each of the tests used in the study, the function measured and the scoring procedure is given:

Digit Span Forwards and Backwards

Children repeat increasingly longer strings of numbers immediately after the examiner has read them out. In the forwards test the numbers are repeated in the same order as they are read out, and in the backwards test, in the reverse order. For both tests there are three trials at each level, starting with three digits in the forward condition and two digits in the backwards condition. The test is discontinued if a child fails all three trials at one level. The score is the total number of correct answers. This is a test of verbal working memory. The backwards test is also thought to test executive function.

Grooved Pegboard

The time taken for children to place 25 grooved pegs into a board is recorded. The first trial is completed with the dominant hand and the

second with the nondominant hand. This is a test of psychomotor function.

Corsi Block

The test is a visuo-spatial equivalent to the Digit Span Forwards test. There are nine blocks positioned on a board. The examiner points to the blocks in increasingly longer strings and the children have to replicate the pointing sequence. There are three trials at each level, starting with three blocks, and the test is discontinued if a child fails all three trials at one level. This is a test of visuo-spatial working memory.

Verbal Fluency

This has two trials of one minute in which children name as many animals and then as many foods as they can. One point is given for each answer (disregarding duplicates) and totalled. The test is designed to measure the scanning and retrieval of long-term memory. There is also a speed of processing component.

Stroop

The test was an adaptation of the Stroop test. It consists of four trials each consisting of one page with 48 boxes containing either a tick (3) or a cross (8). There are two trials with 'compatible' instructions, where children are asked to touch each box and say as quickly as possible whether it contains a tick or a cross. There are also two 'incompatible' trials where children do the reverse, saying, 'tick' if the box contains a cross and saying 'cross' if the box contains a tick. The time taken to complete each trial and the number of errors made were scored and from these the time taken to complete 48 boxes without error was calculated. (Where errors were made the time was divided by the proportion of correct answers.) The adjusted times were totalled and averaged separately for both trials on the compatible or the incompatible tests. The test is designed to measure executive function (Baddeley 1992).

Spanish Vocabulary Learning

Adapted from a French Vocabulary Learning test by Baddeley designed for Jamaican children (Baddeley, Gardner & Grantham McGregor 1995), this test consists of 16 familiar pictures whose names were to be learnt in Spanish. Spanish is not taught in school, is easy for testers to pronounce and is not spoken in East Africa so was considered equally unfamiliar to all children. Initially, children were told the names of four pictures and then asked to point to the correct pictures when the tester repeated the names. After two correct trials, four more pictures were named and they were then asked to point to the eight pictures in turn when they were named. This was repeated introducing four new pictures every time the child pointed correctly to all named pictures on two consecutive trials. A total of eight trials was given. The score was the total number of correct responses. It was designed to measure paired-associate learning.

Computerised Tests

There were two computerised tests requiring the following equipment: Apple Mac portable computer, Psyscope software, a button box and speakers. Computers were unfamiliar to all the children in the study so the equipment was hidden prior to use and care was taken to introduce it in a sensitive and appropriate manner. Children were familiar with radios and audio speakers and most were comfortable with the setup.

Auditory Choice Reaction Time

Children's reaction time was measured when choosing which of two pictures matched an auditory stimulus. Above the red button on the button box was placed a picture of a dog and above the green button, a picture of a chick. Children were asked to press the red (dog) button as quickly as possible after hearing the sound of a dog ('woof woof') and the green (chick) button after hearing the sound of a chick ('cheep cheep'). The auditory stimuli (dog or chick) were presented in random order. The practice trial contained 10 stimuli and the main test 60

stimuli. The computer recorded each reaction time and calculated the mean reaction time for all responses excluding incorrect responses and those with reaction times greater than three standard deviations above or below the mean.

Silly Sentences

The Silly Sentences test was computerised and based on the Silly Sentences task (Baddeley, Emslie & Nimmo-Smith 1992). Two lists of 40 questions requiring either a 'yes' or 'no' response, were presented to children over the speakers. Each child was randomly assigned one of the two lists. For example, children were required to answer the question as quickly as possible by pressing the appropriate button on the button box. There were two practice trials of 6 and 10 questions. In addition, to assist children, a tick symbol was placed above the green button for 'yes' and a cross symbol above the red button for 'no'. The test score was the mean reaction time for correct answers, excluding responses longer than three standard deviations above the mean response time. The test was designed to measure auditory speed of processing.

Educational Achievement Tests

1. Reading Tests

These tests were developed specifically for the study. Traditional reading tests proved unsuitable because Kiswahili is a regularly spelt language which means that children can correctly read words out loud without understanding their meaning. Three tests were developed and presented in increasing order of difficulty. The letter reading and word reading tasks were given to all children. Sentence reading was given to all children scoring ≥ 9 (hits – false alarms) or ≥ 21 (total score) on the word reading task. The scores (hits – false alarms) for the letter, word and sentence reading tests were added together to produce a composite reading score. Note that a hit is when a real letter/word/sentence is

correctly identified as real. A false alarm is when a false letter/word/sentence is incorrectly identified as real.

(a) Letter reading. Children had to discriminate letters and nonletters by putting a tick or a cross next to the test item. There were 12 letters and 12 nonletters presented in random order. Letters that resembled Arabic letters were excluded during piloting since many children in the study also attended Koranic school. A standard guessing correction was applied by subtracting the number of false alarms from the number of hits. The maximum possible score was therefore 12 and a score of chance was 0.

(b) Word reading. Children had to discriminate words from nonwords in the same way as for the letter reading task. There were 12 words and 12 nonwords. Words were taken from school reading books. A guessing correction was again used, hence the maximum possible score was 12 and a score of chance was 0. There were two parallel versions of this test and children were randomly assigned to receive either Version A or Version B.

(c) Sentence reading. The test was based on the Silly Sentences task (Baddeley *et al.* 1992) and was intended to measure speeded comprehension for better readers. Children had to discriminate silly from true sentences e.g. ('Do goats lay eggs?' or 'Is your hand attached to your arm?') The total number of sentences presented in the task was 125 and the time allotted was 5 minutes, which was designed to ensure no child would complete the task. Children were tested in groups of up to 10. Using a guessing correction based on hits minus false alarms, gave a maximum score of 63 and a chance score of 0.

2. Spelling

To test children's spelling children were read out a total of 50 words and asked to spell the word on the sheet of paper they were given. The maximum score was 50.

3. Arithmetic

There were 2 arithmetic tests—one written and one oral. The oral arithmetic test was easier and given individually to all children in Grade 2 and those children in Grade 3 who scored ≤ 6 on the written arithmetic test. The test covered basic numerical understanding including number recognition, counting and simple addition and subtraction of numbers one or two digits long. The score was the total number correct and the maximum score was 15. The written arithmetic was given in groups and tested more advanced numerical skills of numbers two to six digits long. The score was the total number correct and the maximum score was 30. Children not qualifying to do the oral arithmetic test were awarded the maximum score on this test of 15. Scores on the two tests were added together to get an overall score on arithmetic of 45.

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Table 2. Summary of the effect of parasitic worm infections on specific cognitive tests in selected studies.

3	2	1		
Kval.svig et al. (1991), study 1	PCD (2002)	Sakti et al. (1999)	Author	
Cross Sectional	Cross Sectional	Cross Sectional	Design	
South Africa	Tanzania	Indonesia	Country	
L1=34 L2=26 L3=36	I=272 U=117	I=311 U=121	Sample size	
Primary School	9-14	8-13	Age	
			Treatment length (months)	
Geohelminths	*S. haematobium*	Hookworm	Species	
Parasitic Load Index	Heavy	Intensity	Parasitic load in infected children	
	✓	✓	Forwards	Short term Memory
	✓	X	Digit Span Backwards	
	X	X	Corsi Block	
	X	✓	Fluency	Long term memory
		X	Language learning	
			Free Recall	
			Trail making	
	X	✓	Stroop Colour-Word	Executive
			Comprehension	Language
			Vocabulary	
		X	Verbal Analogies	Problem Solving
			Raven CPM	
			MFFT Easy	
	✓		Silly Sentences	Speed of Processing
		✓	Number Choice	
X		✓	Visual Search	

Distributed Cognition at Three Months: Caregiver-infant Dyads in kwaZulu-Natal

Stephen J. Cowley[1]

Two Views of Cognitive Science

Until recently most work in cognitive science adopted what has been challenged as an 'Input-Output' (I-O) model (Hurley 1998). Conflating brain and person, cognitive processes are presented as problems or tasks that are independent of affect, perception and action. Using a narrow concept of causation together with the belief that, somehow, mind is realised at a 'level' of the brain, I-O models have had thirty years of hegemony. In spite of their interdisciplinary claims, this kind of cognitive science deems the study of mind independent of much anthropology, linguistics and psychology. Specifically, the problem solving and task analyses of I-O models make talk, culture and everyday behaviour too concrete for analysis. Instead emphasis is placed on principles, rules and networks that generate mathematically specified output and patterns. For the internalist, the resulting descriptions *are* cognitive models. They illustrate, for example, how 'mind' processes sentences or calculates chess moves.

Cognitive internalism is in retreat (e.g. Hutchins 1995; Churchland 1995; Clark 1997; Thelen & Smith 1994; Hurley 1998; Rowlands 1999).

[1] While the theory emerged around the 'mind AND world' group, the empirical work is due to Sheshni Moodley and Keri Povall. Thanks are also due to the referees and, in particular, the one who taught me that, in South Africa, theorists must take an overt political position.

Above all, brains are not symbol-processors and human activity, like that of other living things, is a biomechanical process driven by neural and bodily events. Far from 'containing' minds, our bodies use experience to act in complex circumstances. Research programmes, then, turn to 'distributed cognition' (see Spurrett in this volume). Cognitive processes occur not just inside brains, but also *between* body and world. Abandoning I-O models makes redundant—not computation—but reliance on top-down analysis. By way of illustration, Hendricks-Jansen (1996) turns to 'vision' in the horseshoe crab. While its neural systems have long been computationally modelled their function remains mysterious until evolutionary history is considered. Indeed, for forty years, it was unnoticed that the crab's eyes provide a million times more information about (some) objects at high tides at midnight. Its computations, far from implementing 'vision', direct attention to crab-sized-objects-moving-at-crab-rates-at-one-metre-in-dark-waters (Barlow 1990). Like horseshoe crabs, humans too rely on historically derived biomechanical processes. Our cognitive powers, then, must be explained both neurally and, as argued by Nagel (1961), Sloman (1978) and Hendricks-Jansen (1996), with respect to their history.

What of Babies?

Cognitive internalists are not interested in babies. When asked, say, about language acquisition they appeal—not to observables but—to computational systems (see Pinker 1994; Cowley 2001a)[2]. Conversely, within a framework of distributed cognition, babies are of special interest. In place of 'competencies' or developmental stages, theorists examine how their worlds impinge on their brains and behaviour. Body-world activity is thus necessary, but not sufficient, to becoming minded. Examining its history throws light on how cognition is both derived and transformed by joint activity. Further, in a cultural environment, this process is irreducible to norms or developmental landmarks. Much development is shaped by factors that affect individual babies, brains, actions and perceptions. It is stressed

[2] Remarkably, this does not apply only to generativist theory. Even Halliday considers learning to talk as coming to make choices between items from a neural meaning base (Halliday & Matthiessen 1999).

that babies differ both in developmental time and across sociohistorical settings.

In this paper I illustrate the distributed approach with respect to individual and cultural differences in the fourth month. The observations are incompatible with seeing a child as a bounded system subject to specifiable inputs and outputs. Rather, what is focused is how infants can provoke responses at a person level. For, when we see a baby as, say, 'wanting to play' or 'being uncomfortable', response is deeply influenced by the baby's neural and bodily activity. Biomechanical systems control baby behaviour to invite judgements that shape interindividual co-ordination. What happens is intentional activity that arises as infants, drawing on sub-personal systems, set up, influence and alter the course of social events. Although the description may seem unusual, this view is consistent with what is known of early 'intersubjective' behaviour (Bateson 1975; Stern 1977; Trevarthen 1977; Kaye 1982). Indeed, it may be that distributed cognition takes debate beyond questions of origins (e.g. Burman 1994; Bråten 1998) to consideration of developmental effects. Below, therefore, once primary intersubjectivity has been introduced, I outline how, in kwaZulu Natal, events loop between persons. Stressing variability, I conclude with why cognitive differences matter in Africa.

Cognition in Africa

Cognitive internalism sustains the vague thought that adult humans are basically the same regardless of class, creed or cultural origin. While consistent with neo-liberal ideology, the view throws little light on the interactional events that dominate our social worlds. To come to terms with these, we must stress how persons vary and change. Applied to development, as Thelen and Smith (1994) argue, internalist approaches obfuscate *what* develops and *how* this occurs. Overplaying biological maturation and/or cultural learning, theorists take a cavalier view of community and individual differences while, inadvertently, treating what is Western as normal. From a distributed perspective, by contrast, it is posited that cognitive effects are a consequence of behavioural variability. Thus the coupling of body and world is seen as a profoundly historical phenomenon whose cognitive and social consequences affect communities, groups, and individuals. Joint action, therefore, provides insight into both how an infant's world becomes human

1979; 1998) and others sought to derive it from social learning (see Stern 1977; Kaye 1982). This dispute belongs to the past. Today all accept its importance to relationships and infants are known to have many innate perceptual and action biases (e.g. Mehler & Dupoux 1997; Karmiloff & Karmiloff-Smith 2001). Further, there is a new emphasis on capacities for imitation or mimesis (e.g. Piaget 1953; Donald 1991; Tomasello 1999; Nadel & Butterworth 1999). Outside social constructionism (e.g. Burman 1994), few see these developmental biomechanics as downplaying culture. Rather, Trevarthen's central claim is widely accepted (see Bråten 1998): individuals exploit special neural mechanisms to shape interaction while learning the skills and 'sense' of a culture (Trevarthen, 1998). Compatible as this is with selectionist brain change and Trevarthen *et al.*'s (1999) 'innate motive formation', the behaviour can engender big developmental effects (see Cowley in preparation b). Indeed, if joint action shapes brain-body systems, the process must have a large part in enculturating the infant's brain.

Trevarthen's theory of innate motive formation prefigures the distributed view. Like Bråten (1988), he saw cognitive mechanisms as functioning dyadically and, for this reason, as coming to exploit external structure. Although intersubjectivity was encultured action (Trevarthen 1988), little weight was given to its developmental function. Instead of examining its part in cognitive spread, theorists debated its origin. Since the '80s, however, more attention has been given to how infants become encultured. For cognitive internalists, this has been attributed to universal grammar (Pinker 1994; Jenkins 2000), symbolic reference (Deacon 1997), cultural learning (Tomasello 1999), and, of course, social construction (e.g. Shotter 1993; Burman 1994). Yet, if cognition is distributed between body and world, innate motive formation provides a more plausible explanation. In place of universal mechanisms, neural biases are likely to promote learning that is species-specific, social *and* individual. Further, real-time motive formation is needed if adults are to exploit cultural processes in adjusting to a child's (or bonobo's) changing needs. By so doing jointly organized action can spread between individuals as, in real-time, each adjusts to the other's doings.

Culture at Three Months?

The research reported below began with investigation of cultural style in the

caregivers of three month old children. Examples come from a small sample, 18 dyads, for each of whom a single interaction was recorded. Asking how infants were 'permeated' by culture, we set out to capture the baby's perspective. We thus sought cultural contrasts which, in principle, might be perceptually salient. This led to development of an observation system that describes lived intersubjectivity in three populations. Since baby behaviour was not expected to have cultural properties, we initially focused on the jointness of the activity. Further, since one of the team was familiar with Indian and Zulu styles, we began with dyads from these historically designated groups.

To avoid undue Western influence, our Zulu data was drawn from an informal settlement, Briardene, where an NGO was carrying out development work. After explanation and recruitment (in isiZulu), caregivers and infants of 14 weeks were invited to an educational centre[4]. Once there, the infants were placed and video-recorded in a suitable chair while, together with caregivers, they engaged in 5 minutes of dialogical activity. Given expectation of payment, all made the effort to meet our wishes. In two visits, we made videotapes of interactions with 6 dyads. The next data set came from a health-centre in Phoenix, an 'Indian' township in the Durban area. While living above the poverty level of squatters, the sample also represents an underprivileged and uneducated economic group. Since two infants cried or went to sleep, this data was replaced by the first 6 adequate five minute recordings. Later, a middle class sample of the same number of 'White' dyads were recruited and videos of their interactions added to the study. Given our interest in variability, we made these recordings in their homes. This method of data collection is well suited to capturing different ways in which infants enter the cultural process.

Method

Our first challenge was methodological. Rather than describe kinetic aspects of dialogical interaction in universal terms (by contrast see Fiori-Cowley & Murray 1996), we sought to capture behaviour that might be salient to infants. From the start we excluded 'global' criteria used in judging, say, if

[4] We were not able to make all recordings in the 15th week. Thus 14 weeks is the mean age: no infant is under 13 weeks or over 15 weeks.

preparation) each nudges the other to what, given needs and culture, counts as 'acceptable'. Just as with slide-rules and navigation charts (Hutchins 1995:61f), the world is both a source of memory and a means of extending cognitive powers. In another setting, I have highlighted parallels between these events and the encultured learning of the bonobo, Kanzi (Cowley & Spurrett in press). His cognitive powers extend beyond the body as his actions are constrained by human lexigrams or word-symbols together with movement and sound. Kanzi's understanding of English (Savage-Rumbaugh *et al.* 1998) thus derives from fitting his concerns to talk and computational/ lexigram constraints. Although impossible without cross-specific neural parallels, his encultured cognition also reflects cultural beliefs and values. As Cowley and Spurrett (2003) stress, his repertoire is 'North American'. Savage-Rumbaugh *et al.* (1998:74) put it that he learns, 'not through speaking, but by coming to understand what others say'. Kanzi serves his interests by fitting behaviour to social constraints and human expectations. If the parallel holds, human infants meet their needs, not through computers and lexigrams, but by using vocalization and body movement. In Cowley's terms (in press), 'utterance-activity' is the cognitive resource that meshes infant doings with those of caregivers. Thanks to neural selectionism (Edelman 1992; Deacon 1997), it provokes neural re-organization that allows actions to be managed in line with cultural constraints. Competitive neural processes allow perceptual attunement that triggers and/or inhibits affectively charged action (Cowley in preparation). While partly speculative[3], this view of brains clarifies how interindividual dynamics help infants to hear and see what caregivers expect.

Utterance-activity guides a child's movements and, given encultured expectations, allows caregivers to shape infant action. As in Tetris (see Kirsh & Maglio 1992; 1994; Blair & Cowley in this volume), the environment is simplified by two-way activity. For a caregiver, as infant behaviour becomes coherent, her actions get simplified to fit emerging understanding. Her utterance-activity shapes neural tasks so that the child

[3] For a detailed model, see Trevarthen et al. (1999). While my concern is merely to link this with a literature on how brains develop, Trevarthen is a neurophysiologist who is especially concerned with the details of neural functions.

acts, inadvertently, to elicit cultural patterns. As dialogue develops, these doings shape the child's neural organization. While re-representing the known, utterance-activity serves to regulate action. As brains loop, actions gain 'coherency' (see Cowley 2001b), or set up emergent patterns allowing caregivers to encourage and repress behaviour. Infants set off events such as, for example, 'play', 'showing respect' or 'wanting to get out of a chair'. The dyad acts as a self-organizing system (see Kaye 1982; Horowitz 2000) that uses joint affective, epistemic and perceptual resources. While neural constraints matter, they are mediated by utterance-activity under real-time control. Both parties contextualize (see Harris 1997; Cowley 2001b), or use past experience to exploit current events in ways that, potentially, impact on future action.

While compatible with descriptions of 'primary intersubjectivity', the above account takes a distributed perspective. Traditionally the term was used ambiguously to refer to joint activity, a developmental period, and hypothetical internal mechanisms. At the relevant age, it identifies both the 'innateness of behaviours' and postulated 'motives to find and use the motives of other persons' (Trevarthen 1998:16). Thus it uses both pre-speech and brain-based capacities for mirroring behaviour (see Bråten 1998). While concurring that it uses dedicated brain mechanisms (see Trevarthen 1979; Trevarthen *et al.* 1999) I stress its proximal and developmental functions. Thus, intersubjective behaviour is a cognitive *resource* that brings babies into contact with other body-brain systems. In spite of a 3 month old's immaturity, this gives infants amazing interpersonal dexterity. Just as caregivers assess and manage them, babies use caregivers to achieve real-time effects. Co-ordination and harmony thus co-occur with conflicts of interest (see Trivers 1972; Hrdy 2000) and the imbalance, I suggest, makes primary intersubjectivity crucial to developmental change. Joint activity is a cognitive mechanism.

When primary intersubjectivity was first discovered, those responsible sought, naturally enough, to explain how the baby's behaviour was possible. Given that its nature cannot be specified without video technology, its functions were described generally. In contrast to Piagetian models, it was linked to attachments and shown to have a universal basis (see Trevarthen 1979; 1988). Disagreement, at that time, focused on ultimate questions as some argued it was prefigured in brain processes (Trevarthen

and, equally, how feeling, acting and thinking take on a local flavour. Indeed, it may be of special importance to consider how and when children adopt and reject aspects of their sociohistorical heritage.

The project reported has an overall goal of designing culturally appropriate measures of dyadic interaction. This paper, however, deals, not with applications, but descriptive and theoretical issues. It stresses that, at three months, babies from kwaZulu Natal manifest linguistic, ethnic and socioeconomic diversity. While this may make readers uncomfortable, I believe it is more dangerous to ignore the social and cognitive implications of diversity. Indeed, viewing child development in terms of developmental milestones often flies in the face of empirical observation. In spite of intraspecific similarities, bodily, neural, cultural and physical influences promote variability within and between individuals. As persons, moreover, we often value group patterns more than universal ones. Effective parenting and preschool education, then, should not be designed independently of local values, beliefs and practices. Since feeling, perceiving and acting emerge in interindividual activity, the distributed view has implications for, among other things, language policy, education and health.

Our distributed view of child development is emerging in an African setting. While this paper deals with kwaZulu Natal, our descriptive tools are to be used widely in southern Africa. Thus, instead of positing universals or using ethnographic particularities, we work between these levels. Rather than code movements or what caregivers *say*, we use an analytical level that ties these to interindividual events. Since joint activity is a cognitive resource, poverty, malnutrition and disease not only affect caregivers' thinking and actions but this also impacts on how babies behave. Of course, this does not mean that baby activity does not also reflect infant health and socioeconomic status. Rather, these and other factors, themselves have a considerable part in shaping caregiver and cultural beliefs and practices. Thus, in certain circumstances, optimal practices may be ones that strike Western eyes as distinctly African.

A Distributed Approach to Primary Intersubjectivity

The third and fourth months of an infant's life manifest what, following Trevarthen (1977; 1979), is called 'primary intersubjectivity' (Bateson 1975; Stern 1977; Kaye 1982; Bråten 1998). Today it is beyond dispute that,

behaviourally, this phase is marked by closely meshed, affectively charged infant-caregiver activity. At one level, the label identifies the consequences of a qualitative change in interaction that allows caregivers and infants to enact an interactional 'dance'. Rhythmical bodily movements, mutual gaze and facial expression are accompanied by delicately modulated vocalization reminiscent of waltzing or falling in love (Stern 1977). For infant and caregiver alike, this is a social breakthrough. Accordingly we ask about its origins, its cultural shaping and, especially, its cognitive consequences.

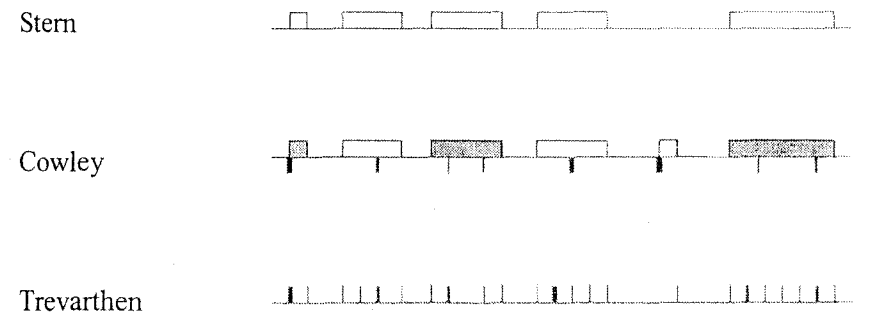
From a distributed point of view, it matters where and when primary intersubjectivity emerges. While having a specific neural basis (see Trevarthen at al. 1999; Cowley in preparation), I stress how it functions between people. Given its public face, I focus on variability that arises as shifting caregiver behaviour dovetails to suit the child's doings. While the child, like a Tetris player (see Spurrett in this volume; Blair & Cowley in this volume), seeks to fit the world to her needs, her partner has wants, beliefs and values. In short, a caregiver's actions are themselves intentional. Further, as these may serve goals that jar with the child's needs, conflicting interests shape events. Joint activity arises from the child's attuning, adult response and, of course, real-time reaction to the events. With van Gelder (1998), the co-ordination uses—not internal representations but—feedback control and the dynamics of the interindividual activity. The coupling of infant and caregiver is seen—not in terms of signals and messages but—as driving and driven by how a child's brain-body system responds to prompts and demands. Although occurring on Vygotsky's (1978) 'intermental' plane, there is no reason to posit that this cognitive activity is internalized. Since it is neurally based, the motorcentric activity itself is sufficient to produce cognitive effects.

Elsewhere I have described how, responding to Zulu forms of expression, a three-month infant comes to grasp that its mother *wants it to fall silent* (Cowley *et al.* in preparation). Rather than represent the wish, the child *does* what is wanted. What Kirsh and Maglio (1992) call 'perceptual activity' develops as the dyad learns to manage events in accordance with changing circumstances. Adjusting to the encultured other (see Cowley et. al. in preparation) allows the child to develop *de facto* expectations. Further, the adjustment serves the caregiver's interests by providing ways of prodding the infant to meet *her* wishes. Thanks to dual control (Cowley in

caregivers are empathetic, controlling, or intrusive. While all groups have more (and less) intrusive or empathetic caregivers, in different settings, the 'same' behaviour has a different social value. This is because, above all, judgements are affected by circumstances, language and culture. Accordingly, we sought to describe style in ways bringing out how infants live engagements with caregivers. Thus we broke with descriptions serving goals like examining relationships (Stern 1977), the self (Stern 1985), mechanisms (e.g. Trevarthen 1979; 1998), or the impact of depression (Murray *et al.* 1996; Murray & Cooper 1997). For different reasons, these approaches exclude culture-based variation by the following means:

- Data is analysed round macro features like engagements and time-outs (Stern 1977)
- Analysis examines microbehaviours in real-time (Trevarthen 1979; Kaye 1982).
- Analysis relies on qualitative description of attunement behaviour (Stern 1977)
- Using mezzo level scales, cultural differences are eliminated by appeal to word-based markers of quality (Fiori-Cowley & Murray 1996; Murray *et al.* 1996).

Although working at a similar 'level' to Fiori-Cowley and Murray's (1996) global rating scale (GRS), we focused—not on quality but—on community derived joint activity. Starting with transcription and an introduction to the GRS, the researcher was encouraged to use the scale in finding her way into frame by frame analysis by using repeated observation and detailed notes. Alert to what might be salient to babies from two communities, this led to two tier description. While intersubjective engagement was sorted into types, at a lower level, we captured 'culture typical' incidents. To visualise this, a reader can picture a five minute interaction against three kinds of coding (the 5 minutes run from left to right). While 'high level' analysis sorts Stern's engagements from time outs, its 'low level' counterpart shows Trevarthen style microbehavioural events. At our mezzo level, while engagement type is captured by shading, line densities show microbehaviour judged salient by an observer.



Since mezzo analysis concerns what occurs between caregivers and infants, it brings out intergroup parallels and contrasts. In so doing, we are *not* seeking normative description. First, this would misrepresent settings like those found at both Briardene and Phoenix where one dyad included a caregiver whose historical designation was 'Coloured'. Second, intersubjective behaviour is unlikely to be driven by norms. Rather, we think our analyses could, perhaps, be extended to capture modes of life in a complex 'culture space'. This is because asking what infants and caregivers do differs from investigating cultural or language competencies in that the events are shaped—not by norms but—but by how adult doings impact on infant needs. Necessarily, what happens reflects events that are largely independent of anything usually described in words.

Qualitative complexity

By the time we were familiar with the Zulu data, it was clear that we needed at least two structural distinctions. First, while some interactions involve minimal intersubjectivity as caregivers imitate infant expressions (and vice versa), most feature more complex ways of engaging. Thus, we separated *'moments'* from sustained engagement. Second, while struck by a tendency for caregivers to seek control over infants, we realised this could not be captured by simply opposing this to playful behaviour. Given that controlling behaviour (of various kinds) usually had a short duration, we sought clear criteria that could define other categories. We hoped it might be possible to separate *kinds* of engagement by temporal means.

As soon as we began to work on Phoenix data, however, we noted qualitative contrasts with Briardene. Above all, while we found less close engagement than in the informal settlement, we also found protoconversations akin to Fiori-Cowley's British data set. Given that temporally based distinctions could not capture this diversity, we abandoned the attempt to use such categories. Instead, we systematised recordings on qualitative grounds. Initially, we distinguished interactions dominated by caregivers from those featuring reciprocal action. Where reciprocal, infants mesh with caregiver activity in real-time. This allows for the following categories.

- *Moments* (interchange where, for a short period, one party matches a visible expression by the other).
- *Periods* (lop-sided interchange where the caretaker seeks to influence the infant who is otherwise engaged).
- *Episodes* (joint activity where the caregiver and infant, in real-time, set up a coherent behaviour pattern).

Applicable as they are to all interactions, the system enables us to contrast encounters and capture intersubjective variability. While compatible with Trevarthen's neural biases, the model implies that 'moments' give way to 'periods' and 'episodes'. Caregiver uptake (or lack of uptake) to directed child activity, can thus influence joint action. While some patterns have an innate basis, there are contrasts both within and across groups. In both Briardene and Phoenix, infant up-take often sets off events lacking the playful quality many see as paradigmatically intersubjective. To capture the variability in lop-sided behaviour, we made further distinctions. We stressed that many Briardene episodes feature properties not found in British settings. In kZN, at least, Western style ways of engaging are paced relatively slowly so that infants have 'space' allowing them to act as if leading a dance. In Briardene, above all, many 'episodes' appeared more like events where infants are played like musical instruments. The much vaunted turn-taking' of intersubjective behaviour is often replaced by hectic activity that elicits overlap and vocal chorusing. In place of the reciprocity typical of (some) Phoenix talk, caregivers and infants take complementary roles. Further, once observed in *episodes*, a similar pattern was found in *periods*. While

caregivers adjust to infants (often with the aim of redirecting her attention), caregivers also *direct* the child's action. Strikingly, at Briardene, some infants fell silent at the caregiver's bidding. To capture this, a subdivision was made based on whether the caregiver acted to direct or engage with the infant (seeking attention is 'engaging'). This gives the following:

- Moments (interchange where, for a short period, one party matches a visible expression by the other).
- Adjusting periods (lop-sided interchange where the caretaker seeks to influence the infant by adjusting what she does to fit (or alter) the infant's current activity).
- Controlling periods (lop-sided interchange where the caretaker aims to direct the infant (typically by getting it to stop what it is currently doing)).
- Attunement episodes (joint activity where the caregiver and infant together set up a reciprocal pattern. The caregiver responds to the infant's responding and, to the casual observer, this seems mutual. Often this leads to turn-taking or, in other terms, the caregiver giving the infant time to 'conduct the interaction').
- Regulating episodes (joint activity where the caregiver and infant together set up complementary patterning. The caregiver's actions chime with those of the infant creating an impression of behaving in unison. Often this is highly rhythmic and characterized by frequent vocal overlap or chorusing.)

While there are similarities between 'directive' controlling periods and regulating episodes, the categories are not in parallel. Above all, controlling periods (CP) are marked by caregiver success or failure (e.g. the infant may (or may not) fall silent). Regulating episodes (RE), by contrast, are defined as 'joint' action which, thanks to its mutuality, is already 'successful'. Thus while short CPs represent 'success', short REs represent (relative) failure. By contrast, when sustained, both attunement and regulating episodes count as 'successful'.

Analysing Local Culture Styles

While the above framework allows close examination of interactions, what follows is slightly adapted. This is for the following reasons. First, in

examining the complexity of primary intersubjectivity, we saw that, like many biological processes, joint activity shows unidirectional development. We now think some of our categories identify behaviour that, all being well, is marginal at 14 weeks. Specifically, 'moments' are typically now built into longer spells of engagement and, in what follows are therefore ignored[5]. Second, as more data was investigated, we realised that 'adjusting periods' are variable and may also be transitional phenomena. Generally, we find that what occurs at 14 weeks is, in a given set of dyads, associated with a predictable pattern of controlling periods, regulating episodes, and attunement episodes. Before exploring this, however, it is important to establish that all groups both value and achieve unmistakably intersubjective interaction.

For uptake to occur, a caregiver typically attunes her doings to those of the child. To capture this, we bring together periods and episodes. Treating moments as minimal engagement, Table 1 below shows behaviour when a caregiver, at least, *attempts* to engage with the infant:

Table 1: Caregiver Attempts at Attunement (i.e. Periods and Episodes Combined)

	Briardene % of total time	Phoenix % of total time	Durban City % of total time
Attunement attempts (periods and episodes)	65%	59%	91%
Minimal Engagement	35%	41%	9%

Attempts to set up intersubjective engagement dominate all samples. Not surprisingly, perhaps, these are most frequent in the middle class Durban City group. However, in interpreting the 91% of the time when a caregiver focuses on the infant, the reader should bear the following in mind. First, given their socioeconomic status, these caregivers are less likely to be

[5] One Briardene interaction is entirely without sustained engagement. Since this does involve several moments, it suggests strongly that the reason for the relationship's failure to develop normally may well lie with the caregiver rather than the child.

uncomfortable in front of a video camera. Second, they were recorded in their homes. Third, the style is, perhaps, influenced by educational level. Taken together, it is equally striking that, among the poorer groups too, more than half the time is spent in trying to engage the infant.

Infants are less powerfully affected by location. To show this, it is of value to consider the extent to which they pick up caregiver attempts. In our system, this is captured by the sustained joint activity we classify in terms of 'episodes'. The proportion of time that dyads spend on these is shown on Table 2.

Table 2: Episodes (viz. Both Attunement and Regulatory Episodes)

	Briardene % of total time	Phoenix % of total time	Durban City % of total time
Episodes	28%	20%	31%

While the Durban City group manifests slightly more episodic behaviour than the other groups, it is likely that the difference reflects on caregiver efforts and the home setting. In interpreting these figures, I stress that, in poor communities too, infants and caregivers undertake joint activity. In view of universal claims about the intersubjective 'dance' this is unsurprising. Rather, the data confirm that, in a narrow sense, primary intersubjectivity is found across all groups. At this age, it is normal.

More detailed analysis is needed to document intergroup variability. This can be achieved by considering the play/ control patterns that distinguish the two kinds of episode. Relevant figures are shown in Table 3.

Table 3: Attunement and Regulatory Episodes

	Briardene % of total time	Phoenix % of total time	Durban City % of total time
Attunement Episodes	8%	11%	31%
Regulating Episodes	20%	9%	0%

Extending analysis into Durban City showed our method to have some inbuilt Afrocentrism. While Briardene and Phoenix represent opposite trends

in the distribution of episode-types, *no* regulating episodes occur in Durban City at all. This suggests that, in a larger sample, any given community may possess a typical profile of intersubjective behaviour. Given that this is *partly* shaped by encultured caregivers, this is not surprising. Of course, what occurs cannot be explained by culture alone. Even if 14 week infants lack goals, they have a large part in intersubjective events. Infants, it seems, are channelled down paths that, to an extent, reflect what their communities value. At the risk of overstatement, in Durban City, practical value is given to turn-taking and play; in Briardene, emphasis falls on forms of behaviour that represent the forerunners of obedience and music.

To understand these trends, it may be useful to revise the system to describe what caregivers expect to achieve with infants of this age. Specifically, they get the baby to (i) want something, (ii) act in line with caregiver wishes or (iii) take part in interactive play. The combinations that arise may well have an impact on how a baby plays and responds to a caregiver. Facts like those sketched above suggest that, while using biological parameters, primary intersubjectivity is shaped by caregiver activity[6]. For reasons of space, rather than pursue intergroup variation, I turn to how cultural factors shape infant actions. Later, I use prosodic aspects of vocalizations to show how caregiver actions affect an infant's repertoire. First, however, I show how intersubjective activity enables caregivers to put a cultural stamp on infant activity.

Typical Features of Different Groups

When development is seen as a joint process drawing on infant propensities for social interaction, we cannot be surprised that, by 14 weeks, infants show enculturation. For the same reason, pairs of individuals should be expected to act differently. With this in mind, I have argued that, in the kwaZulu Natal sample, the first 'signs of culture' arise in Briardene (Cowley *et al.* in preparation). Specifically, while all infants use body-based iconic patterns, those from Briardene often understand when they 'should' calm down. While one Durban City caregiver uses her voice to silence her child, this

[6] For the sake of completeness, the reader will find the overall percentage of time spent on each of the categories listed above in appendix 1.

lacks the ritual properties of the Briardene pattern[7]. In spite of risks of stereotyping, I see greater danger in downplaying or ignoring diversity. Further, the significance of regulating and attunement episodes seems to be, in part, that while the former are more African (they occur in Briardene and Phoenix), the latter characterise interactional patterns found in, at least, African, European and North American settings.

While not yet quantified, Durban City caregivers seem to touch infants more than in Phoenix or, especially, Briardene. Equally, they do so in intimate ways (e.g. by kissing and blowing) and, often, while orienting to areas of the upper-trunk that, publicly, other caregivers leave alone. Strikingly where infants show minor distress, caregivers exploit adjustment periods with a special profile. Attending to an infant's pouts, grimaces and/or wails caregivers are spurred to touch the child, pick her up and *act* to dampen (assumed) discomfort. In Briardene, by contrast, intervention is often 'from a distance'. Rather than comfort infants, we witness full-bodied, highly vocal action that, in 2 dyads, successfully calms the babies down. In Briardene, distress is dealt with by controlling periods that show common cultural features. In Phoenix and Durban City, distress often sets off adjustment periods. Briardene infants, then, are ahead in learning what the layman calls 'obedience'. Already, they respond to what the caregiver does—not just as movement—but as directed action (see Cowley in preparation b). Indexing a want, their behaviour shows group-specific enculturation.

In Phoenix, caregiver talk shows more concern with assumed 'internal' causes of distress. Several times, caregivers project negative states on to infants who, to our eyes, are content (e.g. 'you want to go home?'). Such projection may evoke distress and, when the infant is picked up, a happy outcome. In our terms, this projecting behaviour is also an 'adjusting period'. These observations bring out both differences between groups and how relevant behaviour may affect infants. If intersubjective activity has

[7] In two of the six Briardene infants, similar behaviour occurs on several occasions. Further, what the mother does involves both more spontaneous and more ritualised commanding (see, Cowley et al., in prep.). In the Durban City example, there is no comparable display and the infant seems to depend heavily on the mother's 'tone of voice'.

developmental effects, these may provoke long term consequences. Indeed, a distinction between *attunement* and *regulating episodes* might be reinterpreted as arising from such a process. In turn, this raises basic questions about the literature. Specifically, theorists often follow Stern (1977) in emphasizing the playfulness of primary intersubjectivity, its reciprocity, and its likeness to waltzing or being in love. While fitting attunement episodes, these metaphors misdescribe the (slightly) less common regulating episodes. Globally, then, our findings are *not* compatible with seeing joint behaviour as predominantly reciprocal. Judged both by the time spent on shaping what infants do and general impressions of the events, caregivers and infants seem to be more concerned—not with reciprocity—but with interpersonal control.

As Povall (2001) argues, issues of control always influence intersubjective behaviour. Even playful and reciprocal interactions exploit the interactional space a caregiver provides. Especially in Briardene and Phoenix, intersubjective activity features much behaviour overtly concerned with what infants do and feel. This arises both when infants show obedience and in the playful regulating episodes. At such times, caregivers encourage infants to act jointly in ways that—to European or American eyes—seem overpowering or intrusive. Yet, given infant enjoyment, any such view must be rejected. During fast paced interaction, moreover, children move in harmony and speak in chorus. In contrast to the turn-taking of attunement episodes, this can be seen as 'protosong'. Finally, even in Durban City, much the same time is dedicated to controlling periods as attunement episodes (29,5% vs 31%). While a cognitive internalist sees these as contingent aspects of 'style', rejecting the approach suggests that the intergroup contrasts may have major developmental consequences.

Before considering these effects, we return to theory. On a distributed view, intersubjective behaviour contributes to developmental change by transforming the infant's cognitive powers. While Trevarthen would see this in terms of how relationships are orchestrated, here it is stressed that the caregiver's actions become predictable and thus simplify the cognitive environment. At the same time, there is a contrary pattern. Given the caregiver's culture, infant activity becomes more informative and evokes new kinds of adult action. Thus, by dovetailing with caregiver doings, a Briardene child can make, say, a demand for 'silence' into a dual resource.

Once shutting up becomes a useful way of 'going on', *not* falling silent also takes on new informational importance. Building on Thibault's (2000) model of semiogenesis, Cowley *et al.* (in preparation a) argue that, far from being reducible to conditioned response, learning when to be quiet exemplifies indexical activity. At least three pieces of evidence support this claim. First, similar behaviour often *fails* to silence the child. Second, while showing consistency, the caregiver's eliciting behaviour lacks specifiable structure. Third, not only does the child index a caregiver want but how this is done changes in tandem with caregiver response. Strange as it may sound, given its jointness and dyadic specificity, child activity drives behavioural change. Enacting *de facto* interpretation, the baby develops motorcentric behaviour showing what a caregiver calls 'understanding'. Infants thus develop capacities to represent comprehensible social activity. Over time, they change the adult's behaviour in ways that allow them to create, meet, transform or undermine caregiver goals.

Adults exploit social norms and, as a result, require infants to develop progressively more complex and culturally relevant ways of contextualizing. The infant's repertoire can thus develop without its having any need of knowing norms or internalizing cultural patterns. This happens because, as for Tetris players, the infant's action is pragmatic, epistemic *and* perceptual. This is found in, for example, different ways in which infants and communities evaluate (and respond to) distress. Similar reasoning applies to abstract cultural categories. We can imagine, for example, that Phoenix projections nurture sensitivity to socially defined emotional schemata. From a distributed view, we see—in principle—how norm-based constructs influence behaviour. However, to show how intersubjective activity shapes (what we see as) abstract categories, we turn to vocalizations. Remarkably, their acoustic properties show 14 week infants pick up on physical patterns that index *cultural* aspects of speech.

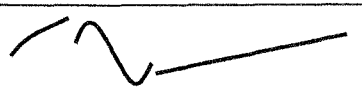
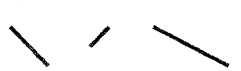
Distributing Cognition by Voice

In the literature, no-one reports cultural differences in infant 'speech' at 3 months. Thus in a recent, comprehensive review of early vocalization, Oller (2000) suggests that, at this stage, infants are merely learning to produce syllables. Even in work on primary intersubjectivity, the most daring proposal is that, at this age, inter-utterance matching occurs on several vocal

parameters (Papousek & Papousek 1989). Certainly, on the basis of this literature, we find no reason to expect significant differences in infant vocalizations across groups or dyads. Nor, of course, is there any suggestion that this may have a part in development.

Microtemporal aspects of adult talk can be investigated acoustically to clarify how the real-time flow of utterance-activity contributes to their sense (Cowley 1993; 1998; 2001). Rather than 'interpret' what we hear, we often respond to a speaking voice or, perhaps, ascribe sense to *how* vocalizations sound (against a background of 'the said'). Elsewhere I have argued this is best seen as the 'first-order contextualizing' that underpins 'interactional ascriptions' (see Cowley 2001b). In the terms of distributed cognition, much sense-making depends on how utterance-activity plays out between people. It thus exploits both close co-ordination and real-time vocal intermeshing. With this in mind, we examined how caregivers attune to infants. Thus, moments of utterance-activity from Briardene and Durban City were selected for auditory and acoustic analysis. These were chosen as involving 'affective duetting' that was defined as closely co-ordinated vocalizations with musical properties. Care was taken to feature vocalizations arising during both turn-taking and choral interaction. All examples are from attunement and regulating episodes.

The initial question was whether co-ordination between voices showed caregivers to exploit interpersonal musical relations. Accordingly, WinSal V software was used to carry out analysis of fundamental frequency (F0) and durational aspects of the duets. Following Cowley (1993), initial and peak measures of (F0) were taken at vowel onset and pitch maxima. Applied to baby vocalizations, many problems faced in dealing with adult talk disappear. This is because, at 14 weeks, babies use vowel-like vocalizations which, often, end in a quasi-consonant (see Oller 2000). Measures are thus easily made. While finding that mothers indeed exploit musical parameters in responding to infant voices (see Povall 2001), infant vocalizations also show striking patterns. Remarkably, during affective duetting, infants from the two communities vocalize (and, presumably, perceive) differently. Below, affect attunement is shown by representative utterances from duets by four infants. These are coded iconically to bring out both pitch movement (line shape) and overall duration (shown by line length).

IsiZulu niche		English -niche	
Tembo		Ezra	
Tembilile		Amy	

Durban City infants both talk in turns (some of the time) and produce short utterances dominated by falling tones. In Briardene, infants chorus and set up melodic patterns. Perhaps for this reason, their utterances are often longer (see Povall 2001). While the findings remain tentative, 14 week infants pick up on vocal patterns characteristic of caregivers, communities and what becomes the infant's first language. While those in the English environment orient to stress-based and intonational aspects of speech, those with isiZulu speaking caregivers are more taken by melodic patterns and long-lasting gestalts. Of course, for a cognitive internalist, this is merely an anthropological curiosity.

On a distributed view, the vocalizations are evidence that, at 14 weeks, infants are actively orienting to *cultural* patterns. Importantly, these features of Briardene and Durban City speech are both managed in real-time and realised as vocal events. They emerge in the affective duetting that arises as in caregiver managed joint activity. On the distributed view, as stressed by Preston and de Waal (2002), it seems that like many vertebrates, infants use 'perception-action mechanisms'. Given the underdeveloped state of the baby's brain, little else can explain the variability. Drawing on Laland *et al.*'s (2000) work, natural selection may have exploited a feedback mechanism that favours biases that respond to specific aspects of vocalization. Informally, it pays to be vocally cute or, to mesh vocalizing with a caregiver's sound-patterns. Of course, adults may also benefit from sensitivity to affective duetting. Apart from anything else, this is an economical way to control curious language-less offspring. Perhaps this explains why, across communities, caregivers show close orientation to infant vocal and visible activity (in adjustment periods). As noted, they later exploit in-built features of what children do to channel activity to their expectations. The resulting episodes and periods, I claim, simplify the

infant's cognitive environment. Caregivers gain short-term emotional benefits (whatever that means) as well as rewards that come from infant obedience. While reducing effort, there must be occasions when selective advantages accrue to infants who know when to be silent. Co-evolutionary processes, then, allow brain-body systems to couple human voices to serve each individual's ends.

Observations confirm that, at 14 weeks, much sociocognitive development is a dynamic process between persons. Caregivers act as representatives of an encultured world. The niche, including caregivers and voices, is an external memory used to extend and transform infant powers. Rather as biology and cultural constraints drive Kanzi's communication, vocal patterns drive changes in infant skills. Just as Kanzi relies on *his* interests, infant vocalizations serve agent-based goals. Real-time vocal activity, then, simplifies the familiar. Later, the process comes to allow affective regulation and, of course, subsequent developments in neural organization[8]. Further, rather than exploit off-line understanding, this uses the same real-time 'coherency' that Cowley (e.g. 1998, 2001b) documents in adult talk. Indeed real-time responding may even be necessary for the emergence of episodic interaction. Of course, an infant also needs caregivers whose doings index social norms and local ways of acting. Vocalizations, then, serve events allowing infants and caretakers to meet, create, transform and undermine expectations. By design, the systems couple as they exploit affective, epistemic and perceptual resources.

Our evidence bears on how relationships are orchestrated. While employing co-operation and play, conflicts of interest also exploit patterns of control. This, it seems, is how intersubjectivity drives developmental change. As soon as an infant can 'go on', what it does is open to interpretation whose consequences can, in turn, spur it to ever more complex ways of acting. Vocalizations must thus be seen as part of 'what develops' beyond the skull. They are intentional, culture-based patterns that arise as an infant's biased behaviour is fitted to caregiver activity. What develops, then, is a cultural process that relies on simplifying effects that change a caregiver's speech. Over time, the interplay feeds back on how the infant acts and, of course, re-

[8] This is because, to vocalize jointly, the brain must specialise in listening to and producing a particular typology of vocal patterns.

organizes the brain. Co-development comes, eventually, to fit social categories: just as observers grasp intersubjective events, the relevant behavior represents the social world. For the infant, of course, representing acts have little to do with the putative mechanisms of folk psychology. Rather, they use in-built tendencies, co-contructed patterns, and, above all, motives and emotions. While knowing little about these, in other vertebrates, they allow assessment and management strategies (see Owings & Morton 1998). We find no reason to think infants differ. In short, while much occurs within the skull, at 3 months, cognitive development also happens beyond the skin: utterance-activity is the basis for complex interpersonal sense-making.

Theoretical and Applied Consequences

The variability of primary intersubjectivity is incompatible with I-O models because it shows much learning to be under dual infant-caregiver control. While reliant on brains, it also uses affect and biased perception/action mechanisms. As mammals, human infants depend, not just on competency, but also emotional/motivational systems. *Contra* Piaget, by 14 weeks, many social outcomes exploit encultured co-ordination. We find Zulu children learning obedience, Pheonix parents ascribing mental states, and Whites rewarding distress with intimate touching. Variability emerges from perception-action routines and affects future events. Since development uses utterance-activity, studying what babies and caregivers do contributes to the distributed view. In infants, cognition is activity that exploits biological, physical, cultural, social and person-level parameters. Development is driven, in part, by joint action. What changes is a culturally located ability to contextualize events by using, on the one hand, the brain and, on the other, previous experience of what are taken as similar events.

Human social intelligence draws on the real-time dynamics of utterance-activity. In kwaZulu Natal, interaction at 14 weeks has affective and cultural content based on caregiver experience. While Briardene infants often act obediently and use protosong, their Pheonix counterparts engage in proto-conversation and receive more empathetic attention. Durban City infants, by contrast, grow up in surroundings where, in public, local values emphasise gentle words and soothing. This content, I argue, affects their predispositions and socio-cognitive development. Far from being irrelevant

to language (e.g. Pinker 1994), early utterance-activity shapes how we respond to others, why we act as we do and, of course, who we are. Even at 14 weeks, socio-cognitive development is permeated by culture.

The importance of culture may be greatest where there is poverty, disease and malnutrition. In comparing development or establishing how parents 'should' behave, therefore, there is reason to treat universal models with scepticism. The need to account for variability is illustrated by observations about distress. While found everywhere, its values vary between individuals and communities. In Briardene, as noted, distress is typically dealt with in controlling periods but, elsewhere, adjusting periods are preferred. While Pheonix and Durban City parents often distract or comfort infants, those from Briardene generally prefer to control the baby's doings. Since interaction between judgements, values and activity all affect development, joint behaviour can reflect local *optima*. Where resources are scarce, for example, there may be reason to make less use of touch or soothing. Further, as behaviour, values and beliefs affect infants *before* they are learned, we urge caution in promoting Western-style child rearing. This, I think, is relevant to those who believe that there is much of value in indigenous knowledge as well as African values and languages.

Without theories of *how* development occurs, African children are ignored, or seen in deficit terms. Yet, to build human potential while fighting poverty and disease, cross-group investigations are needed. Indeed, without culture-sensitive measures how can resources be spread between, say, de-worming, anemia prevention, zinc supplements and schools? While in need of expansion, the data show that dynamic social patterns affect how we feel, think and act. Finally, as persons, brains and communities are shaped by local cognitive processes, the proposed view has political implications[9]. When practices are scrutinised, many social problems will be found to be more 'delicate' than those due to racism, sexism, homophobia etc. While often based in prejudice and poverty, problems also derive from, for

[9] Of course, *any* theory has political implications. If the distributed view differs from those of the neo-liberal establishment, it does so by appealing neither to a legalistic 'human rights' view nor pseudo-scientific discourse analysis. Finally, unlike critical theory, a distributed approach brings science into contact with local people's day to day concerns.

example, ignorance, disease, modernization, malnutrition and/or practices compatible with neo-liberal ideology. Given distributed cognition, initiatives to improve community life must rely on careful use of material resources, research and, above all, local views of how the world ought to be.

Appendix 1

Table 4: All categories (intergroup comparison)

	Briardene % of total time	Phoenix % of total time	Durban City % of total time
Attunement Episode	8%	11%	31%
Regulating Episode	20%	9%	0%
Controlling Period	25%	3%	29,5%
Adjusting Period	12%	36%	30,5%
Minimal Engagement	35%	41%	9%

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South African Attitudes to Australia and Australians

G.M. Mersham and
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The Olympics, The Media, and our Images of Others

Cognitive science has long known that people construct pictures in their heads about the world beyond their direct experience, using messages from the mass media and other sources as their raw material. They process this information using criteria 'loaded with preference, suffused with affection or dislike, attached to fears, lusts, strong wishes, pride, hope' (Lippmann 1922:78). The result is that our images of Others are highly generalised, subjective, and relational. People tend to define an out-group by comparison to the circumstances and values of their relevant in-group. This intergroup dynamic tends to be much more influential in the formation of our images of other countries and peoples than any particular demographic or personality attribute at the individual level.

Since Lippmann's time, it has been well documented that the mass media play a dominant role in creating and circulating our images of other peoples and places. However, the media are never transparent in their presentation of distant places. The media construct their 'cognitive pictures' in much the same way Lippmann's describes above—only they are available for all to see (Van Ginneken 1998; Dahlgren 1982). Further, the visual media are assumed to be especially important in the creation of perceptions of cultural nearness and distance. As Sadkovich (1998:60) argues:

> If television is a dream, it also decides what is real .... As the tube creates and idealises some groups and ideas by focusing on them, it makes others disappear by ignoring them. Because it is the key source of news for most Americans it has seriously distorted our view of reality.

In sum, most audiences rely heavily on the limited repertoire of information supplied by the selection processes of culturally and ideologically biased national media to build up a 'common knowledge' of overseas people and places (Neuman *et al.* 1992).

Groups seeking to present themselves on a global stage, such as Sydney's bid to host the Olympic Games, must not only work through the filters of international media, but confront all the varieties of audience 'common knowledge' around the world. As such, the Sydney Olympics offers a small window of opportunity to further investigate the ideas of Lippmann, Sadkovich, Neuman, Van Ginneken, and others.

This study explores international public perceptions about Australia; changes to such perceptions (if any) over time; and whether the 2000 Olympic Games have any impact on such perceptions. To focus on the inter-group character of respondents' images of Australia we deployed a modified version of Walter Lippmann's notion of stereotypes (Jandt 1995:54) to describe negative or positive judgements made about others on the basis of their membership of another group—in this case the other group is 'Australians'.

The Three-Year Study: Looking in from the Outside

Our comparative study examines the extent to which current overseas perceptions of Australia/ns will shift in line with global media promotion of Australia/ns in the Sydney 2000 Olympics. It mobilises a number of critical themes in international communication and media studies such as mediated representations of 'reality', mediated cultural stereotyping, and their impact on perception and attitude formation.

The research question is to what extent will media coverage of the Sydney Olympics shift perceptions of Australian society overseas. Our study addresses this question by developing an empirical, cross-cultural profile of foreign perceptions of Australia/ns from 1999 to 2001 in various countries to see if responses differ, and/or if similar patterns of change can be observed across cultures at different points in time (pre- and post- Olympics). In parallel, the study monitors media coverage of the 2000 Olympics (and Australia) in each of the countries being studied. In this way, if any attitude or image shift is detected from 1999 to 2001, explanations can be sought from the recorded media coverage.

This study is an extension of a 1992 project which monitored (amongst other things) the way Barcelona, Catalonia and Spain tried to promote themselves using the Barcelona Olympics as a platform and how these messages were

received around the world (Moragas, Rivenburgh & Larson 1995). There were three findings in particular from that study, and prior study of the Seoul Olympics (Chalip 1989), relevant to our interest in mediated perceptual change:

1) While surprisingly little specific *knowledge* about the host culture and setting is recalled after the finish of an Olympic Games, there is a generalized, but increased perception of 'modernity' and positive *impression* associated with cities that successfully host an Olympic Games;

2) Repeated media presentation of key visual icons in the host city or Olympic 'moments' (e.g., a dramatic lighting of the Olympic flame) do find their way into audience recall of the host city after the Games are complete, and;

3) There is an extreme disparity in the attention different international media (press and broadcast) give to the host city/country setting and culture—ranging from abundant to virtually non-existent—in turn affecting audience exposure to new information.

From qualitative data collected before the Sydney Olympic, we hope to learn more about the factors that contribute to mediated perceptual change. This, in turn, may provide a vehicle for the future testing of the media's effectiveness in international public relations campaigns. More broadly, the study will be able to comment on the effectiveness of 'spectacular event' strategies in international affairs, such as hosting U.N. summits or the Olympic Games, in order to shift peoples' perceptions in the global arena (Deutsch & Merritt 1965; Giffard & Rivenburgh 2000). Finally, the project will contribute to what currently is scarce empirical literature on cross-cultural perceptions of Australia/ns overseas.

While a full analysis of the relationship between media representations and attitudes held towards foreigners will only be possible once the three-year project is complete, some interesting findings are evident at this stage of the project.

Pre-Sydney Games Survey

Existing images of Australians were collected in the United States, South Africa, Malaysia and Hong Kong during 1999[1]. Significantly, even this first stage of

[1] It is intended to examine at least one country from each continent, but the results from the United Kingdom, Spain and Mexico studies are not yet to hand when writing this article.

exploring foreign notions of 'Australianess' generated some interesting attitudinal patterns, and produced some early indicators of the media's influence in generating stereotypes about distant peoples and places. It is these early findings that this paper presents.

Questionnaires were distributed to 867 undergraduate communication students[2] across six universities in November 1999[3] in the United States, South Africa, Malaysia and Hong Kong. Random focus group discussions and personal interviews were included.

The South African sample was drawn from two universities—Rand Afrikaans University (RAU) and the University of Zululand (UZ). UZ students were all black South Africans and have overwhelmingly rural peri-urban backgrounds. RAU has a mixed student profile, mostly drawn from the highly urbanised Witwatersrand area. RAU students are 45 percent white-Afrikaner, 38 percent white-Anglo and 17 percent black. The South African sample was also skewed in favour of female students (74 percent); the mean age of the South African sample was 20 (mode = 19). The home language of 44 percent of the overall South African sample was English, 39 percent spoke a black-African language at home (90 per cent of these were Zulu), and 17 percent spoke Afrikaans. All South African respondents were multi-lingual. Thirty nine percent of the sample had travelled outside South Africa (23 percent outside Africa; 5

[2] Focussing upon undergraduate communication students had the advantage of creating some sample 'homogeneity' across the different countries. On the other hand, this necessarily skewed our sample in favour of those privileged enough to have access to higher education, and a sample that was young and hence more limited in terms of life-experience. We would none-the-less expect our sample to have imbibed the same set of stereotypes as their parents and the wider media-consuming public.

[3] The survey sample sizes varied to some degree across countries (USA = 573; Malaysia = 100; Hong Kong = 50; South Africa = 144). The focus group/interview sub-sample size was more consistent for each country (approx. 20 students). It's important to note that the smaller focus group results, as well as a test of a randomly sampled sub-set of 50 surveys, in the USA were a near exact reflection of the larger survey size in terms of the range and frequency of image content. This should alleviate concerns about sample disparities across countries significantly affecting the observations presented here.

percent had visited Australia). 48 percent of the South African sample cited television as the media form they most commonly used (43 percent cited radio).

Australia as Place

Students across the four countries commonly associated Australia with 'Crocodile Dundee' and the rugged outback with the following descriptors: 'beautiful, hot, dry, scenery, plants, lots of animals, far away'. 'Crocodile Dundee' and the 'Bush' featured especially prominently in the consciousness of Americans.

South African respondents expressed consistent images of sheep farms, surfing, beaches and the desert with some referring to the hole in the Ozone layer over Australia and to 'the big red rock in the middle' (Ayers Rock/Uluru). Anglo and Afrikaner South Africans were inclined to see Australia's geography as 'the same as South Africa', while most black South Africans had no image whatsoever of Australia's geography or what it looked like. Most black respondents could construct an image of Australians as a people, but not of Australia the place (although virtually all mentioned that they had learned at school that Australia was 'an island'. Some said it was a 'big island').

In an overall assessment of the scaled responses (positive—negative) on a variety of characteristics, South African students were positive overall with regards to the levels of economic development, quality of education and political stability.

The Australian Personality

There was a widespread view amongst all South Africans that Australians were a happy and friendly people. The most common positive attribute was Australians were seen to be a very friendly people. One said: 'I have an image of Australians as a happy people who get on well with each other'. Others said: 'They know how to enjoy life' and 'they're a laid back lot'. (However, at least two Anglo South African respondents tied the idea of being 'laid back' to the notion that Australians had a 'poor work ethic'.)

Beyond this, South Africans lived in different worlds. The most representative comment from an Anglo South African was 'they are sort of like us, but just not as cultured as us'. South African-Anglos commonly used the following terms to describe Australians: 'brash, loud and not very refined', 'boisterous', 'not very cultured' and 'Aussie women are loud and rough'. One

Anglo said: 'they're an average sort of people. You never hear of Aussies doing anything. I mean they're not famous for anything ... so they must be sort of average'. The Australian accent was constantly referred to by English speakers as 'funny' and/or 'irritating'.

Overall, Afrikaners were less negative about Australians, identifying them as friendly, easy-going, sporty and good rugby players. The generally positive feeling many Afrikaners felt towards Australians appeared to be derived in no small measure from the fact that Australians (like Afrikaners) were identified as keen rugby players. One Anglo South African actually likened Afrikaners with Australians. She said: 'They're a lot like Afrikaners ... Australians have conservative attitudes'. However, interestingly, many of the white South Africans who had actually met an Australian (in Australia, South Africa or Zimbabwe) made comments such as 'their stereotype of us, is that we are all racists', 'they don't really like us', and 'they are not very friendly to South Africans'.

All the black South Africans who had met an Australian described them as 'friendly people' or 'good people'. In fact, during this study only two black respondents (both RAU students) expressed real negativity towards Australians. One said: 'Australians are racists' and the other said, 'Australians are racist conservatives'.

Australia as a Destination

Anglo South Africans were the most keen of all South Africans to visit Australia, often to see friends or family who had migrated. (Amongst Anglos, it was common to know someone living in Australia, and many of Anglo students had parents who had travelled to Australia to 'check it out' as a possible migration destination). Five percent of the South African respondents (all Anglos) had travelled to Australia. The group least keen to visit Australia was Afrikaners, who often commented that if they were going to travel overseas they would want to go somewhere 'different' and not 'like South Africa'. Those who did not want to travel to Australia generally felt very strongly about not wanting to visit, commonly because it was perceived as a bland place. One respondent said: 'Why would I want to go there? What can you do there?'

However, when it came to migration a high proportion of South Africans wanted to move to Australia. Sixty-seven percent of black respondents said they would like to migrate to Australia; 61 percent of Anglos said the same; as did 58 percent of Afrikaners. During focus groups and interview sessions the South African respondents who expressed a desire to migrate, linked their desire to

migrate to a perception of Australia as 'peaceful', 'safe', 'has less crime', 'well-governed' and having a 'good economy' (which was continually contrasted with the situation in South Africa). The sort of responses from black South African students that were most representative of this sample were: 'People are leaving South Africa to go to Australia so it must be good'; 'lots of South Africans are migrating there'; 'many people are moving there'; 'from what I hear it sounds like a peaceful place, with little crime'; and 'it sounds like a nice place because there are no wars there'.

Some Anglo South Africans commented on Australia as being 'too far away' and 'too isolated'. One said, 'It is a small isolated country in the middle of nowhere', another as 'an isolated place where nothing happens'. This appeared to derive from a general Anglo tendency to see Europe and North America as the centre of the world, and to see proximity to this centre as important. (South Africa was seen to be closer to this centre than Australia).

Australian Sports

The majority of black South Africans also had little knowledge about what sports Australian played, in part because black South Africans are mostly soccer fans, a sport in which Australians have little profile. White South Africans cited cricket, rugby and surfing as typically Australian. Overall, South Africans ranked themselves better at sport. There was widespread knowledge of Sydney as 2000 Olympic host (probably because Cape Town put in a failed bid to host the 2004 Games, which gave media prominence to the successful Sydney bid).

Culture and History

South Africans perceived Australia as having little in the form of unique cultural or artistic traditions. There were no associations with the arts, music, cuisine, cultural traditions, or architectural styles However, students at the University of Zululand (i.e. rural South Africans) were more upbeat about Australia as an exciting culturally vibrant place. Images of Australia were extremely ill-defined in the minds of Zululand students, and of black South African students in general. During the interviews many said 'I have no picture of Australia in my head'.

Surprisingly, few South Africans mentioned Australia's penal colony past. However, among Anglo South Africans, Australia's penal origins surface obliquely in the form of comments about Australian being 'like us' but 'less classy'. During focus groups it became clear that Australia's penal past was

'common knowledge' amongst white South Africans. Only a minority of urban blacks was aware of this past.

Economy and Politics

Among Anglo South Africans, Australia is seen as a strict dichotomy in terms of development: with modern cities on the coastal fringe, and vast, uncivilised expanses just beyond those city limits. The majority of the landmass is seen to be an undeveloped and sparsely populated 'outback'. While all new it followed a democratic system, no one in South Africa knew the name of Australia's Prime Minister or the party he belonged to. There was no knowledge of Australia's right-wing opposition group Pauline Hanson's One Nation, the politics of migration, the political struggles of Aborigines, or the significance of Green issues in Australian politics

Most South African respondents saw Australia as more economically developed. Black South Africans believed South Africa was politically freer than Australia, while white South Africans ranked both Australia and their own country in the same neutral band for freedom. Black South Africans were especially positive and viewed Australia as a highly developed country with many employment opportunities. Frequently they used terms like 'a prosperous country', 'a rich country' and 'well developed'. An almost universal feature of the South African responses was that Australia was a peaceful place with a low crime rate, in contrast with the breakdown of law and order in South Africa. Australians were described as lucky to live in such a peaceful place.

Race and Culture

South Africans perceived Australia as predominantly white and culturally homogenous. One respondent said: 'It is a very English kind of place'. Many used the term 'British' to describe Australia. During the interviews and focus groups most South Africans were bemused when told Australians described themselves a multicultural nation. One said: 'Let them come here and see what being multicultural is all about'. Although South Africans scored themselves as more racist and less tolerant than Australians, they did not regard Australians positively on racism and tolerance for minority groups (see also Mersham 2000; 2001; Lange 1997).

All white South African respondents knew about Aborigines, it being a 'common' perception that (as one Anglo respondent said) 'the Aussies, unlike us,

killed off their natives'. Not all black South Africans knew of the existence of Aborigines and even those who did were unclear what to name them. One black respondent said, 'I know there are black people, but I don't know what you call them ... apparently they are fading away now'. During the focus groups the majority of black South Africans were greatly surprised to hear that there had ever been conflict between whites and blacks in Australia.

The following sorts of comments were in fact common amongst South African respondents: 'I've never heard of problems there'; 'one never hears anything about Australia. It all seems so quiet'; 'They are easy going and laid back with no problems. I've never heard or seen anything to counter that perception'; 'It [Australia] doesn't appear on TV'; and 'The Australians must be tolerant towards abos now because if they weren't we would have seen it on TV'.

Mediated Australia

Evidence from the pre-Olympics (1999) study appeared to demonstrate at least some correlation between the dominant media imagery and discourses about Australia/Australians.

There was virtually no indication of impressions of Australia derived from hard news sources or topics. Television and movie images of nature, tourism and 'Crocodile Dundee'-type characters roaming the bush have filled the mental void left by the absence of societal-images of Australia. Several respondents mentioned the fact that 'we never hear about Australia in the news'. Many prefaced their answers to interview or focus group questions by saying, 'I don't really know, but my image is...'.

South Africans and Australians constantly compete in cricket and Rugby Union matches. Regular television coverage of these matches are considered important media events. These matches receive live ball-by-ball coverage on both television and radio services. In addition, these sports events are important items on both television news and the Press. Consequently, for non-black (white, Indian and coloured) South Africans, Australian cricketers and rugby players are media celebrities, and 'Australia' has acquired something an on-going media-'presence' through these sporting fixtures. For these sports fans, Australia and Australians have become 'familiar'—and it is a familiarity that has bred something of a trans-Indian Ocean 'kinship'—a sense of 'they are like us, but over there'.

This sense of kinship with Australians has not developed for black South Africans who are overwhelmingly soccer fans. Because soccer is not a sport Australia excels in, there are no regular SA-Australian soccer matches that means

no regularised media imagery of Australian sports teams and players ever reaches black South African television viewers. Hence, for black South Africans, Australia remains an exotic and foreign place; whereas for non-blacks it is 'ordinary' and almost 'home-like'.

Discussion of migration to Australia has become commonplace in South Africa both by those wanting to emigrate and those who try to dissuade others from joining what they disparagingly refer to as 'the chicken-run'. Not surprisingly, the topic of migration in general, plus stories of migrants in Australia feature in the South African media. This has generated something of a binary opposition that the South African media exacerbates—namely, the economic problems, lawlessness and violence of South Africa are juxtaposed to an image of a prosperous, peaceful and law-abiding Australia. Hence even those who do not want to migrate made comments like 'People are leaving South Africa to go to Australia so it must be good'. Many Anglo South Africans said migration to Australia was an on-going topic of conversation in their households, or that they remained in contact with friends or family who had already migrated. A number said one or both of their parents had travelled to Australia to 'check it out' as a place to move to.

Australia has a narrow media presence in South Africa and the picture presented is strongly skewed in favour of sport. Anglo South Africans are often reasonably knowledgeable about Australian social and political issues, a knowledge derived not so much from media-coverage, but rather what they have heard from friends and relatives in Australia.

In addition to the media presence, black South African students commonly cited personal contact with Australians (as aid workers or tourists) as having influenced their (positive) view of Australians. A number of black respondents said, 'I met an Australian once and ...'. In a number of cases 'second hand contact' was reported, such as 'my niece went to an Australian University and she said Australians were very nice people'.

The 2000 Olympics: Media Opportunity or Media Stereotyping?

Many Australians saw the Games as a great public relations extravaganza that could promote Sydney as a cosmopolitan global city. The tourist industry certainly saw the Games as a golden opportunity to sell Australia as a multifaceted destination catering for a range of tastes including those wanting Green tourism, outback ranch visits, glitzy beach resorts, Aboriginal cultural sites, or sophisticated urban culture. During the lead-up to the Games, Australian

websites clustered around the Olympics were already promoting the idea of Sydney as a huge cosmopolitan and multicultural city, deemed to be as exciting as any in the world.

It might be expected that the success of the 2000 Games and the Opening and Closing ceremonies countered the 'Crocodile Dundee' and 'laconic Aussie' stereotypes cited by students from the USA, Malaysia, Hong Kong and South Africa. However, the extent to which the Games will ultimately influence the way Australia is seen overseas is yet to be tested. It might be that visiting media crews, through their reports on Australian idiosyncrasies, simply reaffirmed the old stereotypes already existing in their respective countries. If that proves to be the case, it would represent a failure for the publicity machine that promoted Sydney and Australia over the period of the Games.

As the Games commenced, visitors to Sydney would on the one hand have witnessed Australia's self-perception as a 'clever country' of creative citizens in an open, tolerant, free, egalitarian society, yet on the other hand would have encountered a group of people often sensitive to criticism, and culturally cringing when exposed to the outsider's gaze. Such paradoxes and ironies remain a part of the on-going invention of an 'Australian' identity (Mersham 2000). It is possible that during the Sydney 2000 Olympics, some foreign media may have relayed such paradoxes in their non-Olympic sidebars. The next stage of this project is currently in the process of exploring what portrayals were, in fact, beamed overseas and already it is clear from some of the reporting, that hosting a successful Olympics does not necessarily guarantee positive media portrayals[4]. As this project proceeds into 2001, it will seek to answer the questions—did the 2000 Olympics impact on how others view Sydney, Australia and Australians? If so, what was the nature of the impact? And to what extent can any perceptual-shifts that are identified be attributed to media-representations?

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[4] For example, the history of white-Australia's repression of Aborigines was a feature of South African media coverage over the period of the 2000 Games.

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When 'Trek', 'Gulf' and 'Guilt' Goes

Johannes A. Smit

I

The topic of this conference[1], 'Towards a Transcultural Future: Literature and Society in a "Post"-Colonial World' diagnosed the future objective of a present and existing articulation of literature and society. This interpretation derives from the assumption that, a's critics problematising the literature-society interface, we should discursively contribute to the realising or facilitate an entry into a transcultural era or epoch. This does not only mean that there is an implicit assumption of the significance of literature, i.e. with regard to its capacity to prefigure such a reality, but that critics themselves have a significant role to play in this event. Significant with regard to the notion of the transcendence objectified in such a 'future', is too, that it would transcend the 'racism' inherent in theoretical versions of 'multiculturalism'. Another assumption could be that such a discourse is already present in literature—i.e. in how particular literary works articulate 'society' in 'transcultural' terms. Of these, there may be a whole range of literatures, including minority literatures, contact zone literatures, hybrid literatures, autobiography or literatures articulating 'experience', literary representations of struggles of the colonised or literatures addressing the problematic that even though the colonial era may have passed, it is not past—the mail of this era has only been reaching its destination during the last two decades. The complexities this topic therefore raises are numerous, multi-faceted and territorially and contingently determined. For this reason, I have limited my paper to three limit-experiences as they have found expression in a sample of South African critical, popular political literature.

[1] This article was presented as a paper at the 23rd ASNEL Annual conference in Aachen/ Liège, May 31 - June 4 2000.

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As my title indicates, the limit experiences are condensed in three conceptual metaphors[2]—'trek', 'gulf' and 'guilt'. At three particular junctures in South African history, each of these metaphors constituted a form for which a certain disparate contents were to be organised . 'Trek' refers to the myth of Afrikaner unity which apartheid ideologues created under influence of nineteenth century racial discourse but especially German National Socialism. In the early 1950s, 'gulf' came to indicate the distances which this myth created—distances which were articulated in territorial, political, economic and social terms. With the world reconfiguring potential local South African but also global events of the 1990s unleashed, 'guilt' stands for the often suspended metaphor in 'post'-discourses as they struggle to exit from a colonial past determination. The assumption in the case of each of these metaphors is that 'post' discourse requires their dissolution. For this reason, their tenor indicates their abolition—which includes the negation of the negations their own iconic limits signified: 'When ... Goes'.

My argument is then that the dawn of a transcultural future depends on the realising of the protasis captured in my title. As such, it does not deal with an entry into a new epoch or reality but the problematics of an exit or

[2] In principle, the conceptual metaphors deal with the idea of 'movement', i.e. movement is change. If something moves away from the self, it signals a value of 'bad' versus 'good', which in turn, signals a value of goodness. Examples are: A leader *comes* to power; a person *comes* to his or her senses; you *come* into money; you *come* to understand something. Over and against this, we have: something *goes* bad or stale; you *go* off your mind; you *go* to pieces; you *go* crazy. Contextually, this, however changes, because as more specific cultural metaphors, they may aquire alternative values, e.g. to 'trek' within the context of Afrikaner history, refers to a movement away from the 'bad' towards independence and a different centre of identity and selfhood. Similarly, the term 'gulf', in the context of the ideology of apartheid served as a metaphor of separation, capturing a system developed for purposes of the retention of self identity and selfhood. With 'guilt' the question is a bit more difficult and complex because it is what we may term a 'metonymic metaphor'. Here the concept 'guilt' serves as an abbreviation or concentrated set of psychological, ideological and systemic experiences or feelings that obtain meaning within the South African post-apartheid economic sphere.

Ausgang. Since this is the focus, the paper attempts to bring to the outside a sample of those internal forms and their dynamics which acquired iconic status in the colony of which apartheid was only one symptom amongst others.

II

The three authors that provide the sample are Arthur Keppel-Jones, Jan Toekoms and Lester Venter who respectively wrote *When Smuts Goes* (1947), *When Malan Goes* (1953) and *When Mandela Goes* (1997). Each of these texts were to be interventionist in the present. This question of the present juncture or cross-roads, asked for *how* to represent the present's past determination but also its reality effects on a possible if not probable future social formation dynamics.

Keppel-Jones' book was a futurist popular political dystopic history blending a narrative spanning from 1952 to 2010 and recounted from an even later fictional point of reference, 2015. This revelatory history derived from then prevalent assumptions underlying political beliefs in white superiority, the nationalist drive towards the establishing of a republic, if not fascist hopes[3] of how to construct the political future of South Africa as determined by racial segregation.

Assuming that General Jan Smuts' towering international stature and national influence would prevail, Keppel-Jones mistakenly presupposed that South Africa's National Party would only come to power at the elections of 1952. This is why his narrative only started after the 1952 elections.

When Jan Toekoms wrote his book in 1953, therefore, the apartheid regime was just elected for its second term, showing its true colours much sooner than Keppel-Jones predicted. This fact, however, also allowed him to not write a dystopic fiction, but to deal with 'real facts'. The genre is therefore different. It is a descriptive progressive programme dealing with the thematisations the racist regime problematised. Since his hermeneutics of progress was still that of white hegemony and not that of 'revolution' as Kant would have it, it could not but falter. By remaining within a racially-inspired socio-political segregationist frame, it still compromised his proposals for a 'democratic republic'.

Venter's book is characterised by a socio-political symptomatology

[3] This issue is not treated in this article but see Sachs (1961; 1965).

arising from more than three hundred and fifty years of alien rule in South Africa. If the first two eras ended with the 'tentative exploration' by the Portuguese and Dutch, and the end of colonial and apartheid hegemony respectively, the third starts with the end of the domination of settler descendants and 'opened as South Africans, for the first time in their history, prepared to be governed ... by themselves' (Venter 1997:15).

At this present juncture, Venter's analyses of the new democratic South Africa focuses on two sets of problematics which have to be faced squarely by *all* South Africans: that of a rising *anger* among the 'un-people' in the face of the *realities* of global paradoxes intersecting within the boundaries of one country; and that of the present '*silent dynamics of change*' inevitably steering South Africa towards the abyss of 'revolution'. Factors generating 'anger', are:

> widespread poverty, getting worse in relation to the forward leaps being made by the rich; population growth outstripping economic growth, and the slumming of the cities as unstemmable waves of migrants arrive there; the rise in crime and the development of an illicit sub-economy feeding off its formal partner; the promise of dramatic political instability and the wielding of chaos power; and the deterioration of the environment and its resources (Venter 1997:49).

The second set derives from the complex realities and the *changes* these factors actuate in South African society as we live. As these realities are catapulting South Africa towards a social revolution the magnitude we do not consciously comprehend as yet, the dilemma is that no-one is dealing with them constructively:

> ... these realities are not a prominent part of the public debate in South Africa. They get limited coverage in the media, and they are certainly not the main stuff of parliamentary debates. That's why, in this book, they are called the silent dynamics (Venter 1997:16).

Since they 'sweep us along', 'processes of change', Venter argued, are not 'readily perceptible to us'. For this reason, Venter wanted South Africans to

get some handle on the changes taking place in the present, and to

> evade the change trap .... [by addressing] each of the primary elements that make up our lives in South African society, identify within them their main characteristics, seek to understand those and the change they are undergoing, and then project those processes into the future (Venter 1977:18; see also p.19).

Similar to Keppel-Jones, then, Venter's (1977:21) main assumption is that, because of their uncomfortable complexity but also the unwillingness of South Africans to address them, it is these realities which will determine South Africa's next twenty years or so. 'Before long, they will dictate virtually the entire political agenda of the society and government itself' (Venter 1997:22).

Keppel-Jones, Toekoms and Venter, each at a particular historical cross-roads, asked the populace's attention for some 'objective' or 'intellectual' attention to 'realities'. They mainly problematised the racially-inspired reactionary myth which, through its 'emotion', demonised alternative political possibilities. Since correctly assumed, however, that their calls would not be heeded, Toekoms developed a 'progressive programme' in which 'each section [of the population] accept[s] limitations of its aspirations ... [in order] to give justice to all'. Keppel-Jones and Venter articulated their views through the medium of dystopic narrative, especially as it points to the 'un-people''s coming revolution.

III

The question now arises as to the ontology of the present, what we are in the present and especially, the nature of that from which an exit is sought. My focus on the three conceptual metaphors, 'trek', 'gulf' and 'guilt' may provide one avenue for such an analysis.

'Trek'

The 'trek' metaphor indicates the dynamics through which a minority's sub-narrative became a masternarrative within a racial conceptual schema. Gerard Moerdyk's contribution in the Official programme of the *Opening of*

the Voortrekker Monument (13 - 16 December 1949)[4] may provide a window on this reality.

In a comparison with Phoenicians, Portuguese and even Jan van Riebeeck, who did not succeed in 'subduing' Africa, it is said that 'The Voortrekker, with his wife and family, however, became the founder of a white nation in southern Afrika' (a.t.). In these comparisons, the blending of Phoenicians, Portuguese and Jan van Riebeeck with the 'voortrekker with his wife and family' shows the latter to have succeeded where the former failed, and in the blending of to 'subdue' Africa with the founding of a white nation, this act of founding acquired a racial charge. This racialism is further foregrounded in the comparison with Cortez who subdued Mexico, immediately following.

> It is this maintenance of the white race which was such a great act, especially when it is compared with, for example, the conquest of Mexico by Cortez, which is a remarkable achievement, but which resulted in the intermingling of the white race with the natives (Moerdyk 1949:44; a.t.).

The phrase, the 'maintenance of the white race which was such a great act', is not only positively charged, it also calls up images of past, present and future in which it is assumed that this is what happened in the past and what it also calls the white Afrikaner to continue practising. Comparatively, if the voortrekker's as well as Cortez's act of conquest of a native population could be similar, then the main difference, is that the voortrekker succeeded in the maintenance of his white race, and that of Cortez, which, while negatively charged, resulted in the 'intermingling of the white race with the natives'.

A second perspective comes from the description of the character of the voortrekkers as it was ideologically perceived to be and as it was represented within the image schemas in the Voortrekker monument. Moerdyk (1949:44) says:

[4] Keppel Jones' notion that it also came about due to a rigid and conscious creation of its conditions of possibility through calculated legislation is dealt with elsewhere.

> The design derives from the desire to have the monument interpret the character of the Voortrekkers and do homage to the act of destiny that they fulfilled, through which the rise and continued existence of the Afrikaans people became possible (a.t.).

The interlacing of 'character', 'act of destiny that they fulfilled', and 'rise and continued existence of the Afrikaans people', not only charged this statement with divine sanction and obedience but also with the coercive pull to exhibit the same 'character'. As this schema is related to both 'rise' and 'continued existence', it also carried their opposites, namely that if the current generation is being coerced to continue in the same 'character' then the possibility exists that they would not do so, that they would be atypical of the voortrekkers, and ultimately, disobedient to God. In chronosophical perspective, this also meant that the current generation would not enfabulate themselves within the same divinely sanctioned predetermined history.

The interpretation of some of the symbolism in the artworks at the monument provides a third perspective. Referring to the triangular ledge at the top of the monument, Moerdyk (1949:47) interprets it as to mean 'fruitfulness' or 'fertility' (*vrugbaarheid*), and links it with the statement to Abraham—which is in fact the standard creation, Noahic, Abrahamic and Israelite covenant statement or promise—'Be fruitful and multiply'. The blending is evident in: 'from which the idea follows, to make and keep South Africa a white man's land' (*'n witmansland*) (Moerdyk 1949:47). The linking of the concepts, to 'make' and 'keep' South Africa 'a white man's land' posed the challenge that it is not a white man's land as such, but still to be made so, as well as that it would require concerted effort, and, that once achieved, to keep it so. At basic level, this racial conceptual schema obviously has nothing to do with the command to Abraham, nor to the idea of fruitfulness or fertility, or that the triangular ledge in itself carries sexual and racial meaning. Within the racialistic sub-narrative the conceptual images all, however, function within the white—black racist binary and were as such, now elevated into a masternarrative.

A fourth perspective lends further depth to the 'trek' metaphor. With reference to the death of Piet Retief, Moerdyk (1949:52,54) interprets: 'Piet Retief stands bounded but straight and proud. There, he represents white South Africa and civilization' (... *blanke Suid Afrika en die beskawing*); and

to 'Bloodriver', that it is a symbol of 'a battle between order and barbarism' (*'n slag tussen orde en die barbarisme*). Not only the image in the artwork but also the interpretation are part of the subordinate narrative in which the image schema of 'white South Africa' blending with 'civilization', was created. The suspended backgrounded information is that of 'black South Africa' which stands for civilization's opposite, namely 'barbarism'. This binary was foregrounded in the opposition of 'order' and 'barbarism' in the second reference.

In this narrative, the blended elements which constitute the myth are: the voortrekker, his wife and family—white nation—subduing of Africa—voortrekker character—act of destiny—fertility and the white man's land—white South Africa—civilisation—order. The discourses which were interlaced to constitute the receptor myth—its form—for the enfabulating act of the unity of an Afrikaner people were those drawn from the South African historical contingencies of the 'trek', and the already developed discourses of racial supremacy, (western) civilisation, and covenant theology. On all four counts, contingency, historicity and particularity within Afrikaner experience have been transcended for the ideal of one unifying and inclusionary masternarrative. As such, it had its own coercive force. If the Afrikaner did not in essence find itself already part of the trek narrative, white racial purity, (western) civilisation and divine promises, then this complex remained a task still to be accomplished. For this, the apartheid apparatuses and related image schemas were to be fabricated—not only to create this white nation but also to instil and perpetuate a cognitive environment which would ensure mastery or *baasskap*.

In Keppel-Jones' narrative, the explicit references to the masternarrative spun around the 'trek' metaphor are not that numerous. Even so, the metaphor itself is pervasive, since his main point of attack is the elevation—to the order of masternarrative—of white racist republican ideals deriving from the 'trek' narrative. It manifests especially in his cynical reference to where 'their national ox-wagon took the wrong road though another road was available', as well as the chapters on 'The Ox-wagon Republic' and 'The Second Great Trek' (Keppel-Jones 1947:229; 62-84; 85-102).

In diagnosing the centrality of the 'trek' metaphor in the emerging white republican masternarrative, Keppel-Jones (1947:88) aptly stated that it

was characterised by 'trek as response to unwelcome governance'[5]. This aptly captures the ontology of Afrikaner mythology as illustrated from Moerdyk's myth-making exercise. As conceptual metaphor, 'trek' therefore functioned as a certain transcendence—constituting an 'outside' or limit-experience from within South African contingencies—separated off not only from the realities on the African continent but also international community. For Kepppel-Jones, the intoxicating delirium of the transcendent experience of 'race fear' and 'race-hatred' as it condensed in 'trek', would dystopically transform into that of black revolt, pulling South Africa into the abyss of revolution.

'Gulf'

In his hermeneutics of the present, Calpin (1941) assumed that there is an ungappable 'gulf' not only between Afrikaans and English speaking South Africans but also between white and black. Compared to other countries, he lamented, there is no integrated South African people. This clue inspired Jan Burger (1960) to title his book, *The Gulf Between*. Since it was only the whites who enjoyed constitutional equality, the 'gulf' addressed hermeneutically in this book—after twelve years of Afrikaner hegemony—therefore, was that between English- and Afrikaans-speaking whites. This calls for two observations.

Since this 'gulf' mainly had its accidence in the Anglo-Boer war—historically, it was the rationale for 'trek' which here came to a head—it was the 'bitterness' of this event and how it was cultivated by Afrikaner myth-makers, which would continue to determine South African politicised

[5] Patterson's (1957:294) explication is similar. She said: 'The first reaction of many Nationalist Afrikaners to [international criticism] is one of avoidance, tempered with counter-aggressiveness for home consumption. The Afrikaners cannot as in the old days *trek away physically from hateful circumstances*, but their political leaders can make such "snook-cocking" gestures as walking out of [the] UNO. In general, they can close their minds and pretend that the offending situation does not exist, or at least have any significance' (e.a.).

culture, white cognition and attitudes for another century[6]. This reality's complement is that the white popular political literature of the time mainly attempted to bridge this gulf first, and only in a secondary sense, to address the divides between white and black, or white and Indian or white and Coloured.

Within the confines of the legislated racist framework, this literature—if it hoped to have some liberalising or 'progressive' influence—nevertheless remained the often (un)willing victim of racialistic thinking cathecting[7] any constructive proposals to the contrary. The 'progressive programme' Toekoms (1953) therefore proposed, only constituted a pushing of racist thinking to its greatest possible liberalisation. Race as limit experience therefore continued to prejudice the conceptual metaphor of 'gulf' as well as the progressive strategies which were aimed at eradicating the other kinds of 'cleavage', 'division', 'dongas', 'barriers', 'unbridled prejudice' and 'discontent'. By default, this kind of complicity is inherent to any discourse claiming to evolve progressively—it must of necessity not only start out from but also remain captive to the main determining assumption(s) of its conceptual metaphors struggling to map different routes of 'progress'.

Toekoms' (1953:6) objective, then, was to 'close the breach between the two White races' first. Even though qualified, his strategy to persuade the South African English to let the Afrikaners have their republic, makes this evident:

> This proposal should not be understood to imply that only Afrikaner ideals are to be respected in the republic of tomorrow. On the contrary, the Progressive Programme aims at the building up of South Africanism on a basis of inter-racial co-operation. Patriotism must not be a synonym for Afrikanerism. Group loyalty must be something apart from and lesser than patriotism. Once a republic has been established the Afrikaners will have reached their foremost political goal and can then be expected to appreciate the legitimate aspirations of other groups (Toekoms 1953:6f).

[6] Toekoms (1953:2) captured this perspective when he said: 'The Boer War was the culmination of a century of clashes between wilful, independence-loving Trekboers and English officials. Britain, with her imperial mission and non-conformist conscience has had a strangely meddlesome and wayward career in South Africa'.

[7] I.e. in the senses of *Besetzung*—to be 'occupied' as by troops, 'charged' as by electrical current as well as to be compromised as in 'interest'—but also that of the group *daimon*.

Further qualifications came from his generalisation of this view, his notion of a 'democratic' republic and call for a 'rigid constitution'. The first is present in,

> [o]ur population does not comprise a nation, but a plural society. The people who inhabit our country are not homogeneous. They belong to different ethnic groups, they speak different languages, they observe different customs and they cherish different traditions. [South Africa's] history has so far been stormy, precisely because the South African peoples have given their allegiance primarily to their own groups and have ignored the interests of the country as a whole .... [it is] a state distracted and crippled by racial animosities and no real progress is possible until these difficulties have been overcome. The real problems are not racial at all .... none of [the real problems] can be solved or even attended to while racial hatreds divide the land (Toekoms 1953:1).

Toekoms' notion of *democracy* was tailored to counter proponents of republicanism who derived their 'streams of thought ... from the sewers of fascism'. Further, since South Africa is a plural and not homogeneous population, he advocated a *rigid written constitution*. Such a constitution, he argued, would prevent 'any section of the population' which would rise to power to succumb to the 'temptation to perpetuate its advantage by tampering' with it as well as allay fears that such a 'party will use the temporary favour of the electorate to perpetrate injustice' (Toekoms 1953:7f,132).

The 'gulf' between white and black, however, constituted the main focus of his book. This gulf, he argued, is the result of 1) the perpetuation of master—servant relations which 'deny the humanity of the Blacks'; 2) the

rising of a 'serious discontent' due to both this inhumanity and the white exploitation of surplus labour; 3) white fears of miscegenation; 4) the 1926 industrial legislation which does not allow the indigenous population to 'lay bricks, drive locomotives, or hold blasting certificates'—i.e. job reservation for whites at especially artisan levels; 5) the pass laws; 6) conditions in the 'locations' and the fact that the government of the day did not accept urbanised African people as an irreversible fact on the South African landscape; 7) the closely related view that Indians can be repatriated back to India; 8) the absence of political participation in local and central government; 9) police brutality arising from the miseducation of police or that they come from the lowest social strata in white society (Toekoms 1953:15,17,22ff,35,55,57,69,87ff,109ff).

On these present causes of the 'gulf', Toekoms (1953:53-66,17,20,44ff,50, 48,114ff,69ff,99ff,109ff) advocated a radical economic equality; human attitudes and interaction based on the acceptance of the humanity of people and a common citizenship; the countering of crime and discontent through a progressive redress on various levels of the economic and political domains in society—not least through skills development; the displacing of the pass laws; the development of especially an urban middle class which would permanently do away with 'locations'; the acceptance of Indians as an integrated part of the South African population; the gradual introduction of all population groups into the political system; and the upgrading of the quality of people in the police service—thereby pre-empting cross-racial police brutality.

Hermeneutically, Toekoms remained a victim of the racialist atmosphere of his time—he retained social apartheid. The 'gulf' then persisted. Even so, he perceived that South Africa will at some stage move over into a majority democratic system including all its people. He also aired views which transcended the prejudices in which his progressive programme of necessity remained stuck: that parliament should not be divided racially and, given the ill will in the country, 'only a prolonged period of fair play on the part of the Whites will dissipate it' (Toekoms 1953:42).

Starting from the racial thematisations of his present, Toekoms' progressive programme then sought to interventionistically chart a political development which would culminate in total economic equality at the turn of the century. In his give-and-take approach, he also attempted to convince the

public of a realism which would open up the continentally and internationally unhinged limit-experience of race seclusion. Even though dealing with the same ontology, his strategy was an inversion of the 'dystopic'.

'Guilt'

If the limit experiences in the present above were those of a movement away from 'unwelcome governance' and the racist delirium of institutionalised control, the limit experience in 'guilt' is the 'confusion' arising from the realisation that life is worsening while it was expected to have been better after South Africa's independence.

Venter's (1997:73,97,99-108,136) principle hypothesis of the 'un-people's' rise to power under the leadership of a populist socialist party—tapping into popular discontent—was that this event will be prefigured by three 'catalysts' (Venter 1997:65,91): Mandela's departure; the leadership task for Mbeki; and the dissolution of the ANC. He argued that Mandela, was an 'icon', and represented 'an aura, an era, and a set of national priorities that made South Africa's transition possible'. With his 'leadership by symbolism' he argued that Mandela—with his 'old fashion values' of 'honour and loyalty'—

> ... brought to South Africa, in its most precarious moment, the prospect of a society beyond division and beyond retribution. He made reconciliation the theme of his presidency. He became the medium through which South Africans glimpsed a future that worked. It was the future in which the qualities of citizens transcended their race, and in which life had a new dignity (Venter 1997:67-70,68).

'When Mandela goes' Venter argued, the 'transition' characterised by an 'active' 'racial reconciliation' he engineered would end. On the one hand, the reconciliation 'not undertaken will remain undone' (Venter 1997:69). On the other, Mandela's successor would emphasise the 'marrying' of 'transformation' with 'transition' and 'reconciliation'. Apart from the societal and economic paradoxes—present in the silent dynamics of 'population growth, urbanisation, joblessness, crime and the knowledge gap'

(which will manifest during this phase of 'transformation') Venter (1997:108; chapters 4 & 5) raised the spectre of 'guilt'.

Pointing to the fact that things will 'get better' on some fronts—e.g. due to the dismantling of apartheid's legal form and the fostering of reconciliatory attitudes, while the symptoms of the 'silent dynamics of change' will show that things would be 'getting worse'—this paradox, he argued, would 'make us feel *guilty*' (Venter 1997:168; e.a.). The confusion mixed within this 'guilt' he then unpacked with regard to the interlinking of 'thought', 'attitude' and 'behaviour' and proposed a diagnosis of 'the reciprocal effects between a country's social order and the mind-set of its people' 'reveal[ing] trends and collective attitudes' (Venter 1997:167,169). More than the other two authors, Venter, then attempted the existential engagement of the limit-experience of our present.

This he did by relating 'guilt' to the dynamics of three forces or causes: significant delivery and progress on social transformation away from the disparities of South Africa's apartheid past; the rising 'anger', 'discontent' and 'growing impatience of swelling multitudes of the un-people'; and the 'unforgiving emergent global economy' (cf. Venter 1997:180). Inverted, 'guilt' arises because of the failure of 'significant delivery and progress on social transformation'; the inability to constructively deal with the people's 'anger' and 'discontent'; and ultimately, the guilt before the court of the 'unforgiving' 'global economy'. Especially the latter view was also aired by Wallerstein. Referring to the exploitationary history of colonialism and its current 'ideological justifications', he ironically pointed to the 'guilt' of the post-colonial states deriving from the challenges faced by the 'national liberation movements' within the world system:

> ... liberals and European social-democrats alike ... plac[e] the burden of *guilt* on the Third World for its inability to match the West's economic living standards unless they are ready to assimilate assiduously Western culture (Wallerstein 1995:49; e.a.).

In the world system, this is the Third World's or the South's 'guilt'. This conceptual image of 'guilt' is one which drives the South to play the 'catch-up' game with the North, to ignore the complex realities of 'underdevelopment' and to turn a blind eye to the atrocious realities of the first world's 'developmental' incentives at the expense of black life (especially as it concerns education[8]). 'Development', then, creates 'intellectually and politically ... false expectations' (Wallerstein 1995:2)—another delirium. For this reason, it is precisely this 'guilt' which captures the 'post'-colony's 'conditions' of impossibility. It is as displaced conceptual image, that this 'guilt' characterises the North's attitude, its behaviour (practices) and its inhuman cognitive conceptualisations of the South. And, it is this 'guilt' which, like apartheid, surely has its own delirium, limit-experiences and conceptual metaphors. This perspective on 'guilt' shows that it is not something that can be dealt with merely in local socio-legal, nor in national context. Rather, it appears as if it already forms part of an international intellectual process dealing with realities—not least in literature.

IV

So, when 'trek', 'gulf' and 'guilt' 'goes', what, does 'come' then? For Keppel-Jones, the 'revolution' is inevitable. Given apartheid's fascist cycle, South Africa has missed out on opportunities within the world system. Only a second dissociative cycle—this time involving the majority of South Africans—will have the populace collectively realise that it is not 'the way to go'. Since Toekoms had the same premonition, he attempted to interventionistically develop a 'progressive programme' which would not only pre-empt 'the revolution' but also show the way in which all South Africans could be on the same economic level of existence by the end of the century—preventing the coming 'class-war'. This road was not followed and that is why Venter still saw the second revolution looming large on the horizon, with us all, already within the spiral towards its eruption. Since he did not foresee us constructively dealing with the revolution's occult essence, its 'silent dynamics' or 'guilt', for him, as for Keppel-Jones, the probable apocalypse of our common dystopia, is our common pact with destiny.

[8] Venter (1997:238) refers to the fact that South Africa has to catch up with itself in the field of education. 'For not only does South Africa significantly lag behind world norms in education, the gross disparities within South African education are the origin of the biggest division of its people'—the colonial legacy of 'underdevelopment'.

This analysis shows that there would come a time that 'trek' as well as 'gulf' will go—if not in social relations, then at least as they were institutionalised. The resolution of 'guilt', however, is still a future probability. Moreover, the 'guilt' of the 'First' and that of the 'Third' worlds may mean that this 'revolution' may not only be that of South Africa or that of the radical overthrow of the 'Third' world's internationally collaborating governments, but an event which may impact in 'First' world territory too—either directly or by default. A dystopic narrative for this probability, I believe, 'can be fairly easily predicted' as Keppel-Jones said. So, the question still remains: What is the scenario for 'when "guilt" goes' or, for that matter, does not go in the immediate present? I only make two comments—one on the 'agon' and the other on 'care'.

If, in history, 'revolution' represented the engaging of the limit-experience of radical change for many, for others, it stood for chaos and destruction—not only of property and lives but also of values and morals. As our authors implied in their concept of the 'cross-roads', the problematic here is not that of the binary but that of the social if not personal 'agon'. Like 'guilt', it represents the struggle or contest between conformity or common culture and the embracing of 'transcendence', 'Nothingness', the 'unthought', the 'outside' or 'counter-culture'. For one thinker, it was the continuous battle between Apollo and Dionysus; for another, that between the norming, forming and ordering powers of 'reason' and 'unreason'. As such, the 'First' world in itself—where individuals have internalised power/knowledge—would in principle only know the 'agon' as an internal and personal struggle. The threat of 'Third' world violence would be conjured up in the media as institutional lever working on the personal unconscious to socially repress any of its possible outward manifestations. In the 'Third' world, this is not the case. The sources of discontent as well as the growing anger are not hidden but present in all its violence and institutional but also person-on-person cruelty. Collectively, we live the agon historically, socially and personally as next to an abyss. Only 'hope' on the mostly not forthcoming 'delivery' deriving from national but also international 'guilt', still keeps us from igniting the powderkeg.

Our other possibility is that of 'care'—how to, as academics, or literary scholars engaging the problematics of literature and society, facilitate the ethics of not only a care of the self but also the care of society,

and that, globally. This possibility has potential in a certain transcendence, an *Ausgang* which has to address that which we are—both nationally and internationally. Whether we have to go through our revolution or not, it seems to me that this possibility has to be engaged responsively.

In a private conversation with Wole Soyinka on his vist to South Africa two years ago, He said that 'the greatest discovery' of the twentieth century was that of Human Rights. Charles Taylor points to the fact that if the 'civic humanism or analogous movements' in Western history is not accounted for, 'Western history and societies become incomprehensible'. Maybe, the same is inevitable not only in South Africa but in the world system—a responsive civic, but also a responsible, and uncompromising universal humanism.

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Yesterday is Another Country ... Image Schemas in Conceptual Blending to Optimize Human Scale Thinking

Rembrandt Klopper

The Neurophysiological Basis of the Theory of Mental Spaces

Fauconnier and Turner (2002:102) posit a neurobiological basis for their theory of mental spaces:

> In terms of processing elements in mental spaces correlate to activated neural assemblies and linking between elements corresponds to some kind of neurobiological binding, such as co-activation ... mental spaces operate in working memory but are built up partly by activating structures available from long-term memory.

According to Crick and Koch (2002), 'The overwhelming question in neurobiology today is the relation between the mind and the brain'. While philosophers have been studying the properties of mind since antiquity, the relationship between mind and brain has only been the subject of serious scientific inquiry for the past century and a half. Its beginnings can be traced to the work of Broca in 1861 and Wernicke in 1874 who independently started puzzling together how speech impulses are transported from the inner ear to Wernicke's area for processing of word meanings, and thereafter to Broca's area for syntactic processing (Gray 1994). Damasio (2002) argues that the great divide between theories of brain and theories of mind is being narrowed by current research about what happens in the visual cortex when brains observe graphical images. Damasio shows that neuronal arrays in the visual cortex emulate the pattern of an image that a test subject observes. This is an indication that the brain instantiates visual images in the mind by activating neuronal arrays in the same configurations as the images observed in one's

environment. Fauconnier and Turner's quotation on the previous page reveals that they foresee a time when the divide between brain and mind will have been mediated as Damasio (2002) anticipates.

Analogical Thinking and Conceptual Integration

Fauconnier and Turner's theory forms part of a family of theories that propose explanations for cognition, analogical reasoning, symbolic language capacity, and metaphor construction as forms of conceptual integration. Such theories, in one way or another, state that one extracts apparently unrelated, but comparable concepts from one's broad domains of knowledge by associating them with one another in two smaller sets of knowledge. These smaller sets are termed source and target spaces, or in Fauconnier and Turner's theory, input spaces. Such theories imply that the resultant insights are obtained when well-understood concepts from a source space (input space 1) are interrelated with concepts from a target space (input space 2). This process of interrelation serves as basis for new insights by foregrounding similarities between the sets of knowledge, while keeping differences in the background.

By foregrounding similarities and keeping differences in the background, target space concepts are analogically interpreted in relation to source space concepts. Such source space concepts can therefore be seen as a sort of a template for foregrounding major aspects of poorly understood target space concepts. By superimposing source space concepts onto target space concepts, one forms new insights about the target entity by suppressing dissimilar concepts as shown in Figure 1.

Conceptual Blending

While Fauconnier and Turner acknowledge common ground with the before mentioned theories of analogical thinking, their theory differs in significant ways by presenting a detailed set of proposals to account for how precisely cognitive processes result in conceptual blending. In essence, their theory posits at least four mental spaces of concepts extracted from one's vast domains of knowledge.

These four spaces are a *generic space*, at least *two input spaces* and a *blended space*. Fauconnier and Turner propose that during thinking particular *vital relations* and *structuring principles* are projected from a generic space

onto at least two input spaces, from where particular vital relations are compressed and selectively projected onto the blended space in the form of new insights.

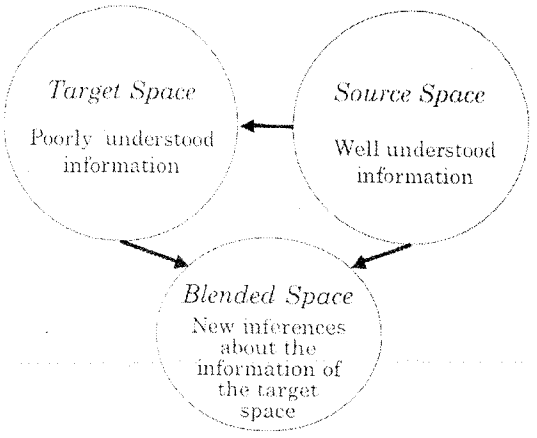


Figure 1: Foregrounding target space insights by superimposing source space knowledge and arriving at new insights during analogical reasoning

The theory also posits that the contents of input spaces are only partially comparable because input spaces share some analogical (similar) content, while they at the same contain disanalogical (dissimilar) content. Fig. 2 below presents a schematic representation of the topography of mental spaces.

It is necessary to understand, in principle, how blending is said to work, before it can be applied to specific examples. The schematic representation in Figure 2 indicates that the generic space contains all of the vital relations and structuring principles that determine how two events are constituted. Hypothetically, relations 1, 2, 4 and n are projected from the generic space to input space 1 to represent Event 1.

At the same time relations 2, 3, 5 and n are projected to input space 2 to represent event 2. The symbol *n* represents an unspecified numeral, implying that events could entail different numbers of vital relations and structuring principles. Events 1 and 2 in the schematic representation are comparable because vital relations 2 and n are projected to both of them. The blended space consists of vital relations and structuring principles 1, 2, 4, 5 and n, of which 1 and 4 are selectively projected from Event 1, of which 5 is selectively projected from Event 2, and of which 2 and n are jointly projected from Events 1 and 2.

Inferring Vital Relations and Structuring principles

Fauconnier and Turner's theory is not an abstract formulation of cognition. It has been formulated to account for everyday events in the three-dimensional world that we live in—events that we routinely observe, participate in and talk about.

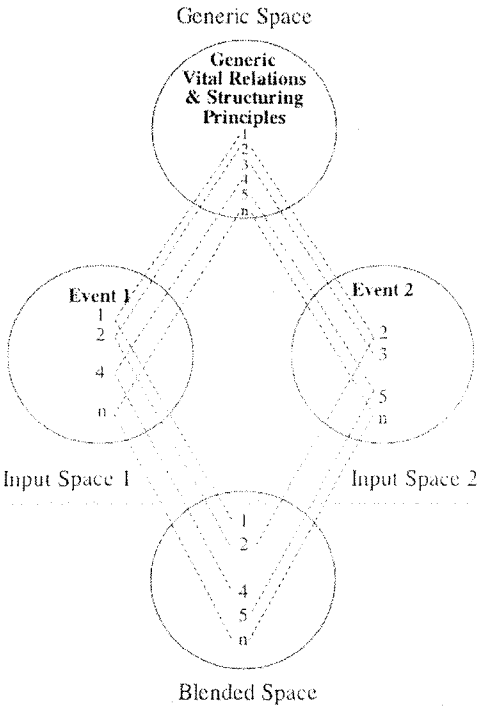


Figure 2: Schematic representation of Fauconnier and Turner's model, showing the mental spaces that are evoked during conceptual blending

According to Fauconnier and Turner, the generic space contains general concepts, termed *vital relations,* and *structuring principles* that are selectively projected as scenario-specific events to different input spaces. We are able to extract such relations and principals to a generic space by making inferences about similarities (analogies) and differences (disanalogies) between the events that we experience and observe. By way of illustration, let us consider the vital relations and structuring principles used to conceptualise two separate events,

(1) *A woman is stirring potatoes in a pot with a wooden spoon*, and (2) *A boy is hitting a ball through the air with a baseball bat.*

If we considered elements of meaning that were shared by these two events, we would be able to say the prominent figures of each event are respectively a woman and a boy. They have in common that they are both humans, but differ regarding age and gender. They also have in common that they both use instruments (a wooden spoon and a bat) to set objects (potatoes

and a ball) in motion. Considering elements of meaning not shared by the woman and the boy we could point out their different *roles* during the two events: the woman is a cook and the boy is a baseball player.

However, if we asked what a cook and a baseball player have in common in the above two events, we could make the generalisation that they were both actively controlling the events. We could also infer that they both used instruments, that in both events their actions affected objects that were passively involved in the interactions, and that these objects were set into motion by the actions of the active parties.

Repeated experience in formulating expressions to account for how we observe events, and repeated experience in interpreting the expressions of others, enables us to subconsciously make the general inferences that active parties during different events use instruments to affect passive objects. Therefore, we infer *generic vital relations* to account for how sentences (1) and (2) convey meaning. Similarly, repeated experience in formulating expressions, enable us to infer a common sentence pattern for (1) and (2):

[Sentence [Noun phrase AGENT] [Predicate Phrase VERB [Noun phrase PATIENT] [Prepositional Phrase 1 PREPOSITION [Noun Phrase PLACE] [Prepositional Phrase 2 PREPOSITION [Noun Phrase INSTRUMENT]]]

According to Fauconnier and Turner's theory, the generic space, as in Figure 2 above, contains all the vital relations and structuring principals that would enable one to infer the similarities (analogies) and differences (disanalogies) between the events of input spaces 1 and 2 that are blended to infer new insights in the blended space. Different input spaces contain comparable but different information because particular generic concepts are *selectively projected* to each of them.

To use another example, one input space could portray a scenario of two opponents boxing in a ring, and another input space a scenario of two opponents arguing with one another. The scenarios are clearly comparable because they portray two humans engaging in some form of confrontation, in the one instance trading blows, and in the other instance exchanging assertions and perhaps insults. The common generic elements provide a basis for comparison, enabling one to say of the arguing parties: *They are really slugging it out*. We are able to make the comparison because the generic concept AGENT is selectively projected as boxers to the one scenario, while at the same time being selectively projected as arguing parties to the other scenario.

Vital Relations

According to Fauconnier and Turner there are certain interrelated constituents of meaning that serve as vital relations because they repeatedly occur in scenarios, because they link scenarios together and because they can be compressed into other vital relations during conceptual blending. They are:

- Change
- Identity
- Time
- Space
- Cause-Effect
- Part-Whole
- Representation
- Role
- Analogy
- Disanalogy
- Property
- Similarity
- Category
- Intentionality, and
- Uniqueness

Compression of Vital Relations to Achieve Human Scale Thinking

Humans are sentient at very specific and narrow points along the electromagnetic spectrum. Some other life forms are aware at visual, auditory and tactile ranges of which we remain unaware. Insects see entities in nature differently than we do at the ultraviolet end of the visual spectrum. Dogs have the ability to hear, smell and see at auditory, olfactory and visual ranges that are far more acute than those of their masters. Raptors like eagles and hawks have special magnifying sections on their corneas that enable them to spot the movement of their prey from as high as a kilometre away, and are also

sensitive in the ultraviolet range in order to spot fresh urine on the ground, alerting them to the whereabouts of potential prey on the ground. Snakes use their tongues to sense the precise body images of their prey at the infrared range, while we only diffusely feel infrared radiation as heat on our skins. Whales, dolphins and bats form mental images of their prey by means of echolocation/sonar, to which we are oblivious without instruments. Elephants hear over large distances in the extra low frequency range and are aware of the whereabouts and moods of other herds of elephants at distant locations via sensors in the pads of their feet that are sensitive to extra low frequency vibrations transmitted underground.

In my view, different species are sentient at different points on the electromagnetic spectrum because their sensations are optimised for survival within the specific niches that they occupy in relation to one another. In the case of humans, our ability to think symbolically—to let things signify more than themselves, by letting one thing stand for another—this ability has led to the evolution of human language. It is human language that endows us with the ability to analyse present events, to reconsider past events, to envisage future scenarios, and to communicate our thoughts about these to one another. Different species abstract species-specific mental models of their environments that approximate ultimate reality, in order to optimise their chances of survival in the specific ecological niches that they occupy. Similarly, humans have evolved a symbolic language capacity for survival's sake. I consider species-specific mental models to be epiphenomenal survival-optimised approximations of ultimate reality, constrained by the neural limitations of animal brains.

Fauconnier and Turner (2002:322) explain how conceptual blending forms part of the process of achieving human-scale cognition:

> Human beings are evolved and culturally supported to deal with reality at human scale—that is, through direct action and perception inside familiar frames, typically involving few participants and direct intentionality. The familiar falls into natural and comfortable ranges. Certain ranges of temporal distance, spatial proximity, intentional relation, and direct cause-effect relation are human-friendly. Other things being equal, it is good for a blend to belong to these ranges.

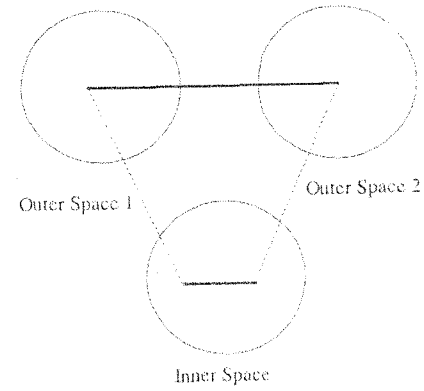


Figure 3: Compressing outer space vital relations into a new inner space relation in the blended space

Fauconnier and Turner's theory of conceptual blending presents a credible account of how humans selectively access specific aspects of our environment trough our senses, how we conceptualise those sensations through compressions during blending, and how we organise and communicate them by means of language. This however begs the question, what is the nature of these compressions?

Fauconnier and Turner (2002:92) propose that a crucial element of blending is the compression of a particular vital relation from the input spaces (outer space relations) into a more compact version of the relation in the blended space, or the compression of outer space vital relations into different vital relation in the blended space as schematically represented in Figure 3. Fauconnier and Turner (2002: 309-352) in detail discuss compression hierarchies for the vital relations Analogy/Disanalogy and Cause-Effect, which fall outside of the scope of this article. In the next section I will however briefly look at time compression and stretching, and compression by recategorisation in everyday language.

Compressions in Everyday Language

Humans reconceptualise the basic constituents of meaning all the time. Speaking about the battle for Omaha Beach in the National Geographic programme, *D-Day: Men and Machines,* one of the World War II veterans said: *On that day I learnt a trick. After that day, I never killed a man anymore. I killed uniforms.* The person speaking reclassified the wearer of the uniform to being a nonhuman entity, the uniform that he was wearing. In similar vein, when quizzed during a press conference in 2003 about the conditions under which persons are held at Guantanamo Bay (a part of the island of Cuba under USA control), the Secretary of State, Donald Rumsfeld, responded that the stipulations of the Geneva Convention did not apply to the prisoners: ... *because they are illegal combatants, not prisoners of war.* When a prominent

official in the Republican Administration of the United States of America, spoke on CNN in 2001 shortly after the September 11 attacks on the USA, he said: *We will drain the swamp where they are hiding and eradicate them!* He essentially reclassified human opponents as nonhuman ones, implying that their attacks on the USA were inhuman. In Fauconnier and Turner's terminology, this amounts to a compression of two separate outer space lexical categories (*human being* and *nonhuman life form*) into a new category (*inhuman human*).

In the last example, compression by recategorisation is achieved by projecting the category *nonhuman life form* into the blend from an outer space that contains concepts about nonhuman life forms like alligators and mosquitoes that are dangerous to humans and by projecting from the *human being* input space behaviours that grossly deviate from norms of human behaviour. By associating concepts of deviant human behaviour with swamp animals like alligators and mosquitoes, a special category of *inhumans* is established in the blend to justify envisaged search-and-destroy operations against targets.

Humans also commonly stretch out or compress time duration into longer or shorter time spans when they report having experienced exceptional events. The ex mayor of New York City, Robert Giuliani, during an interview on CNN regarding the September 11 tragedy, revealed how he experienced the stretching of time on September 11, 2001 at the World Trade Center: *I paused and looked up. I saw — it wasn't debris ... I saw a man jump from the hundred and second floor. It must have been only a second or two, but it felt like a minute or two.* By contrast, consider the following example of time compression:

Fast Forward
Single cells multiply
Divide, spawn and cling
Together, string upon string
Slime washed ashore
Slithers
Mutates
Metamorphosises
Arises
And sniffs at stars
With a lens

The verse itself builds an evolution input space of organisms that over a period of eons evolved from the single cell stage through the multi cellular and vertebrate stages to a land-existence stage during which humankind eventually becomes an upright walking, intelligent life form that uses astronomy to explore the cosmos. The title of the verse prompts the reader to conceptualise a cinematographic input space during which a film is viewed in fast forward mode. The event in the blended space—one's interpretation of the meaning of the verse—compresses time by projecting it from the cinematographic input space onto the blended space, while vital relations that relate to the progression of successive evolutionary phases are projected from the evolution input space.

In the following sections, I briefly explain some of the vital relations that in my view require further clarification than what is provided in Fauconnier and Turner (2002). I will in particular explain the theory of role relationships, which is quite complex, and of which Fauconnier and Turner, assume knowledge only available to persons with an intimate knowledge of cognitive grammar and case grammar.

A point worth making early on during the discussion of compressions is that we will be teasing apart, for individual consideration, vital relations that during cognition actually operate in unison with one another.

Change

Fauconnier and Turner (2002:93) describe change as a very general vital relation. An entity changes form, or location over time in three-dimensional space. We use transitive sentence constructions to portray how an active entity (an agent) initiates an action, supplies the energy for the action, and controls the phases of the action to cause a passive entity (a patient) to undergo changes in form (*the deli assistant sliced up the salami*), changes in place (*the farmer strew the wheat grains over the ploughed field*), changes in composition (*John used beer, rye flour, salt, yeast and sunflower seeds to bake a bread*), or changes in mind state (*the shadows frightened the child*).

Identity and Uniqueness

Identity has to do with how humans perceive a changing entity as being the same entity over time in spite of changes in form and location, how we attribute individual identities to different entities, and how we perceive self-identity over time from our childhood to the present. Humans are particularly

good at recognising (re-cognising) faces of fellow humans, and ascribing particular identities to them, even those individuals that they have not encountered for decades. Ross 1981 reported that a centre on the right inferior frontal cortex (Figure 4) showed significant activation during the assessment of facial emotion. Interestingly, the right inferior frontal cortex seems to be a mirror image of Broca's area (the frontal language area) in the left hemisphere that is involved in propositional (factual) aspects of language use.

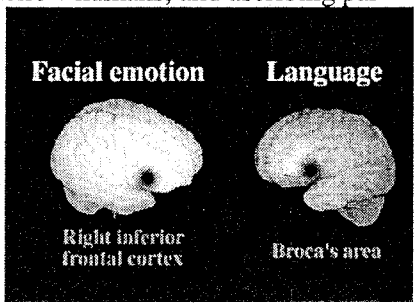


Figure 4: Mirror image relationship between Broca's area, used for language interpretation, and the right inferior frontal cortex, used for interpreting emotive facial expressions

Similar studies have reported that the right inferior frontal cortex is also associated with the discrimination of prosody and the assessment of emotion based on prosodic cues of voice. This could mean the right inferior frontal cortex is involved in the ability of humans to recognise faces because of its role in interpreting facial expressions, tone of voice and other emotional aspects of nonverbal communication.

Recognition is based on the process of identity formation, which in turn is encoded in one's long-term memory by means of several different types of memory code:

- Structural codes that relate to the shape and size of physical entities;
- Verbal semantic codes used to recognise and verbalise descriptions of entities;
- Visual-semantic codes used to recognise physical attributes of entities;
- Name codes used to uniquely identify persons and places;
- Emotive codes for registering one's emotional awareness of entities that are involved in experiences.

These different memory codes apparently can only be accessed in a particular sequence. Names are more difficult to recall than recognising

someone's facial features because name codes are accessed almost last in the code sequence. People's names are stored in a separate brain centre to their biographical details, and can only be accessed once the centre for biographical details has been activated.

Damasio (1994) proposed the somatic marker hypothesis to account for the encoding of emotions as part of event memories that include memories of the identity of individuals with whom we have interacted. According to the somatic marker hypothesis, emotional pathways form part of remembering people's names and faces. This would entail that one also activates emotional pathways as part of the activated circuitry of the brain regions that contain the different memory codes. It also implies that emotions are intimately involved in the process of long-term memory formation of people's personal identities. If you run into someone that you have met before, you will re-experience the emotion of adoration/love/lust/trust/distrust/ loathing that you felt towards her/him when the memories were formed. Emotions therefore help form and maintain the identities that we have for others on the social networks that we share with them, including their ranks on those networks that determine whether we treat them as superiors, equals or inferiors. In spite of humans' impressive ability to establish other persons' identities, person identification is not always equally successful. We could recognise a person's identity in three varying degrees:

- We could vaguely recognise the subject, without recalling any personal details about her/him.
- We could identify the subject as being a particular person, without recalling her/his name, wondering: *He's the father of my son's friend, but what's his name?*
- We could identify the subject by name, saying: *Hi, Jane. Fancy running into you here!* This level of personal identification is invariably accompanied by emotional awareness of the subject, and will frame one's attitude towards the subject.

How crucial the emotive aspect of identity formation is, can be seen from studies of the rare clinical condition, the Capgras syndrome. In this delusional mind state a person, while recognising the faces of loved ones, believes they have been replaced by impostors in the form of actors, robots, aliens in familiar shape, etc. (Tamam et al 2003 & Dietl et al 2003). This is

thought to be caused by damage to the connecting neural pathways between the areas of the visual cortex that deal with face recognition and areas that process emotional response, as well as damage to the pathways between the face recognition area in the visual cortex, and the facial emotion centre in the right inferior frontal cortex, shown in Figure 4 above.

We identify people, places and things as being unique when we perceive them to have properties that distinguish them from similar entities. In such cases, we either use names to identify them (*John Anderson, New York* or *The Eiffel Tower*), or we use definite markers like definite articles (*The Sahara desert*) and possessive pronouns (*your father*). The Capgras syndrome, discussed above, shows that one's emotional awareness of a person plays a significant role in assigning a unique identity to others.

Self-identity remains one of the most complex vital relations in people's lives. In cases of severe amnesia, whether due to neural trauma or neural degeneration, subjects suffer a complete loss of self-identity. At a specific point in time they come to the realisation that they exist, but looking into a mirror are unable to reconstruct their self-identity by recollecting their life history. They do not know who they are, where they are, where they live, how they got to where the are, what they do for a living, or who their loved ones or mortal enemies are.

Time

Fauconnier and Turner (2002:96) states that time is related to memory, change, continuity, similarity, nonsimilarity and causation. From an egocentric point of view, we distinguish a simple three-point scale, *now, yesterday* and *tomorrow* to account for present conscious awareness, past memories and future anticipations. From an anthropocentric point of view, we have to distinguish a greater range of time scales that integrate individual behaviour with those of fellow humans. Initially, in the hunter-gatherer nomadic phase of existence, humans would have used as temporal references diurnal concepts such as *sunrise, morning, midday, noon, afternoon, sunset, evening* and *midnight,* and time-of-life concepts such as *birth, childhood, youth, adulthood, old age* and *death.* Our ancestors no doubt also would have used impressionistic temporal concepts like *a heartbeat, the blink of an eye, a moment, a few moments, two ticks, a bit, a while, a long time, forever* and *eternally.* Modern humans have come to organise temporal concepts into

conventional, measured timeframes like *nanoseconds, seconds, minutes, hours, days, weeks, months, seasons, years, decades, centuries millennia* and *eons.*

Humans however are better at conceptualising three-dimensional spatial relationships than temporal ones. Consequently, we tend to metaphorically superimpose space on time to understand time better. Spatial concepts are for instance commonly used to also represent time as in:

Space	**Time**
Bounded spaces	***Short time spans***
On the table/ on the roof	On time/ on the spur of the moment
By the door	By the afternoon
Around the house	Around midday
At the door	At the moment/ night
Unbounded spaces	***Long time spans***
In the wilderness/the country/ the city	In the morning/ the week/ a year/ a lifetime
Long distance	Long time/ year long/ lifelong
Through the house	Through the night
High building	High time

Figure 5: Typical examples of rethinking time as space

Space

Humans live in a three-dimensional world and therefore conceptualise space in three dimensions, height, width and depth, shown in Figure 6:



Figure 6: Three-dimensional space

Using these three dimensions, we humans find our way about our environment. We think about points of departure, land-based paths and routes, trajectories through the air, obstacles and destinations, we think about containers with insides and outsides, with positions in front of, beside, on top of, underneath and behind objects, and we think of directions over, into, through and around objects. By combining these three spatial dimensions with time as the fourth dimension, we can say: *I will meet you in Cape Town at the airport next Wednesday.*

Cause and Effect

How important cause and effect are for humans, can be seen from the fact that a language like English contains thousands of transitive verbs used in

sentences to express who does something to whom, who does something to what, what affects whom, who allows whom to do something, who forces whom to do something, etc. Beside sentences containing transitive verbs that express causality, cause and effect are also expressed in sentences containing conjunctions like *because (of), in order to, due to* and *as a consequence of.*

Representation, Category, Property, Analogy, Disanalogy and Similarity

Theories of representation give accounts for how humans internally represent their environments. Some models propose theories of mind that provide mental models for analogical representations, propositional representations, distributed representations and structural representations. Other models propose neurologically based conceptual representations that relate to semantic webs, schemas and scripts. Fauconnier and Turner's theory of conceptual blending invokes both types representations. According to Mustonen 2003, while mental representations have been studied for several millennia as part of theories of mind, neurologically based conceptual representations have only recently become possible through neuroscience, particularly through a variety of neuro-imaging technologies.

Categorisation of entities, based on their physical and behavioural properties, forms the basis of representation. We can distinguish three levels of categorisation, namely a superordinate level that contains generic concepts like *animal* and *plant*, a basic level that contains concepts like bird and *fish*, and a superordinate level that contains detailed, concepts such as *canary*, *ostrich*, shark and *salmon* as in the schematic taxonomy in Figure 7.

There are a number of important aspects of the above three levels of categorisation that we should note:

- Any lexeme (like *animal*) is understood in terms of a bundle of conflated properties like *have bodies consisting of organs, are conscious of their environment*, etc.
- A generic lexeme like *animal* hyponimically includes thousands of other lexemes on the taxonomy. *Animal* for instance refers to all types of warm blooded animals, all types of birds, all types of fish, all types amphibians, all types of reptiles, all types of insects, all types of arachnids. How vast these networks of meanings are in our mental

lexicon, can be deduced from the fact that there are about 2000 species of mammals, and 200 types of bats (an atypical type of mammal).

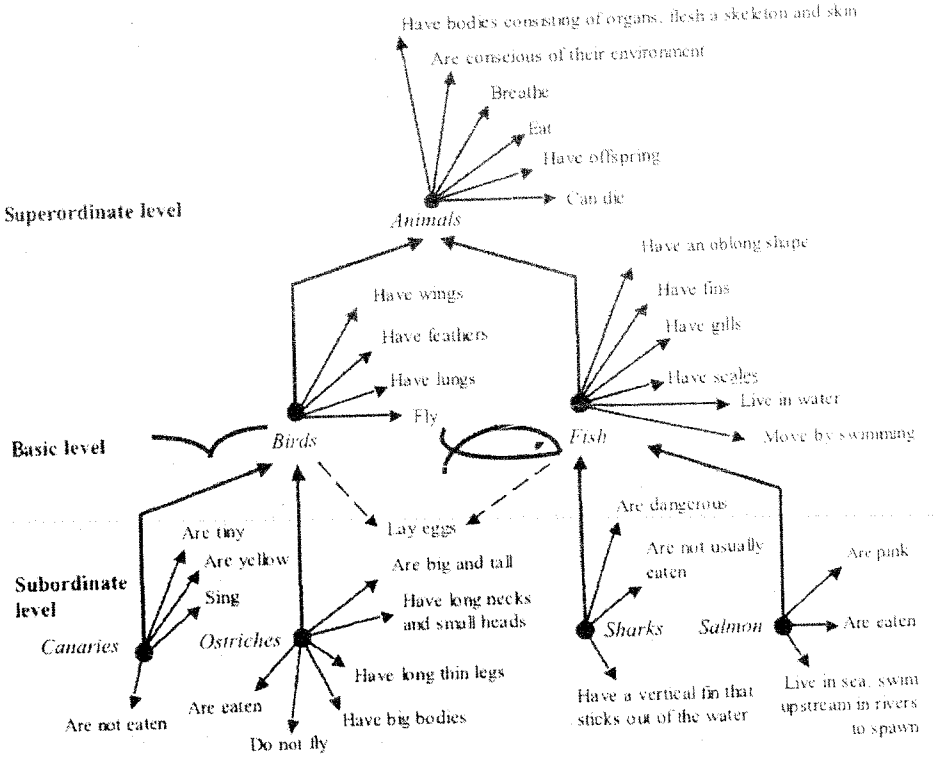


Figure 7: Categorising entities, based on their inherent and behavioural properties

- Superordinate level lexemes have a generic character that enables us to use them to make predictive generalisations during scientific descriptions.
- Demographic attribute contrasts like *female* x *male*, *adolescent* x *adult* and *urban* x *rural* usually form part of the superordinate level of conceptual categories.
- Basic lexemes are the ones used in everyday language. They usually form part of the core vocabulary of a language (the first 1000 or 2000 words) and there are relatively few other concepts conflated in their everyday meanings.

- Basic level lexemes are also used with a greater variety of meanings than superordinate and subordinate level words. They are the first words learnt by toddlers. Humans usually have visual and auditory gestalts for them.
- The gestalt nature of basic level lexemes enables us to make simple stick-like drawings of them (like the two slanting and converging lines that represent a flying bird, and the two lines and a dot that represent a fish in the Figure 7 above). Auditory gestalts allow us to imitate the sounds that things make (for example, a mouse *squeaks*, a snake *hisses* and a duck *quacks*).
- In addition, swearwords are usually basic level words while their scientific cognates are loan words from the classical languages, Latin and Greek, as in *cock* x *penis* and *shit* x *excrement*. All of this should alert one to the fact that one cannot make a precise scientific characterisation of phenomena by using mainly basic level words as descriptive terms.
- Subordinate level words, like *canary*, share all of the distinguishing attributes listed directly associated with them, like, *are small, are yellow, sing* and *are not eaten* plus all of the attributes that are above them on the taxonomy.
- Because bundles of attributes higher up on the taxonomy are summatively represented by words like *animal* and *bird,* one's brain subconsciously fills in the properties that are conflated in *animal* and *bird.*
- In subordinate level words like *ostrich*, *shark* and *salmon*, we usually conflate a larger number of descriptive concepts than in superordinate and basic level words. For the word *ostrich*, we for instance have to stipulate that it is *a big, flightless bird with long legs, a long neck and a relatively small head, that naturally occurs in arid regions of Southern Africa and that lays eggs as large as twenty four hen's eggs.*
- When one thinks and communicates about scientific or academic matters, one tends to use lexemes that are of a generic nature so that one can generalise one's conclusions as in, *adults more often suffer from technology fear than children*. One also tends to use subordinate level lexemes in phrases that are more complex so that one can be more specific in one's characterisations: *We have to distinguish between small and medium enterprises and informal enterprises. The former are part of the formal economic sector and are subject to the constraints of long-term planning. The latter do not form part of the formal economic sector and are characterised by the impulsive, unmotivated abandonment of one set of survival strategies for another set of untested survival strategies.*

To summarise, what one knows is the sum total of all hierarchically associated concepts in one's mind. These concepts are organised into vast categorical domains of knowledge, such as forms of transport, types of food, dangerous animals and types of clothing. In each domain of knowledge, we subcategorise concepts into further sub-domains in terms of the number of properties that entities share. When we communicate our ideas about our concepts, we conflate those concepts into words and subsequently organise them into hierarchical patterns that we call sentences.

Role

Fauconnier and Turner's theory incorporates the theory of role relationships. According to this theory, thinking about events involves participant role relationships (who does what to whom with what), place (where) and time (when), to form image schematic patterns as set out below:

- Concepts like AGENT AND PATIENT, EXPERIENCER AND STIMULUS, BE, MOVE, REST, CAUSE, SOURCE, PATH, DESTINATION and CONTAINER are combined image-schematically to represent events.
- Particular sentences are perceived to be similar because they share generic image-schematic structure.
- By this account sentences like *The baby crawled into the closet, The car drove into the garage, The students sauntered into the lecture hall* and *The snake slithered into the crevice* all share the same image schematic elements in the generic space.
- These generic elements of meaning are combined to form the common event structure AN AGENT VOLITIONALLY MOVES ALONG A PATH INTO A CONTAINER.

Neurophysiologists like Edelman (1989 & 1992) and Calvin (1996b) consider the theory of image schemas to present a plausible account for the symbolic nature of human thought. I quote three paragraphs from the account given by Calvin regarding the crucial role that image-schemas play in cognition in general and in grammar in particular:

> Underlying our vast network of interrelated literal meanings (all of those words about objects and actions) are those imaginative structures of understanding such as schema and metaphor, such as the mental imagery that allows us to extrapolate a path, or zoom in on one part of the whole, or zoom out until the trees merge into a forest...
>
> Schemas are often about one thing relative to another. They include the little words of grammar – only a few dozen in number – that position things or events relative to each other on a mental map: relative location (above, below, in, on, at by, next to), relative direction (to, from, through, left, right, up, down), relative time (before, after, while, and the various indicators of tense such as –ed), relative number (many, few, some, the –s of plurality), relative possibility (can, may, might), relative contingency (unless, although, until, because), possession (of, the possessive version of –s, have), agency (by), purpose (for), necessity (must, have to), obligation (should, ought to), existence (be), nonexistence (no, none, not, un-), and more.
>
> Other common schemas are blockage, center-periphery, full-empty, more-less, near-far, splitting, attraction, balance, matching, removing a restraint, attracts, circles, part-whole, and the easy to misuse containment. Note that schemas tend to refer to movement, rather than static properties (they're often structures of an activity, not attributes of an object such as wet or cold). Even more than abstracts, schemas are flexible enough to fit many similar situations with differing details (Calvin 1996a: Chapter 10).

Image Schematic Role Relationships

In this section, I discuss a number of prototypical role relationships that constantly reoccur in scenarios and which could therefore be taken as forming part of the constitutive principles of sentence formation. In cognitive linguistics, image schemas are considered pre-linguistic sensory images that largely exist below the level of conscious awareness. Image schemas are

considered cognitive structures that arise from universal aspects of human morphology. Image schemas arise from how the human body interacts with our three-dimensional environment. They have a physical basis because we are upright beings with visual, auditory and olfactory senses that favour sensations coming from in front of us, as well as a social basis because we co-exist in human communities. Image schemas are the same for everyone, regardless of the language a person speaks.

The Being Schema

An object exists/ is situated somewhere in three-dimensional space:

- *The vase is on the table.*
- *Your clothes are in the wardrobe.*
- *Help me look for my car keys. They must be somewhere.*

The Happen Schema

A passive entity (patient) is involved in some process:

- *The tap* (patient) *is leaking.*
- *The water* (patient) *is boiling.*
- *The children* (patient) *are sleeping.*
- *The vase* (patient) *gleams in the moonlight coming in through the window.*
- *The curtains* (patient) *are blowing about in the wind.*

The Do Schema

An active entity (agent) is performing some sort of an activity that causes some effect to her/himself:

- *John* (agent) *is out jogging.*
- *Jamie* (agent) *is studying.*

- *He* (agent) *went sailing early this morning.*
- *Jack* (agent) *cycles to work every morning.*
- *They* (agents) *went hiking in the mountains* (separately).

The Agent Dominates Patient Schema

An active participant (agent) is dominating a passive participant (patient) through some action, with or without an instrument, by supplying the energy for the action, controlling the course of the action and causing some effect to the passive participant through the action:

- *The doctor* (agent) *operated on the patient* (patient).
- *The dog* (agent) *chased the cat* (patient).
- *The woman* (agent) *folded the cream* (patient) *into the batter* (patient) *with a whisk* (instrument).
- *Sam* (agent) *ate all the bagels* (patient).
- *John* (agent) *stole stamps* (possession) *worth $400* (possession) *from Pete* (patient).

Klopper 1999 proposed that the thematic role, agent can be further specified as being a co-agent in cooperative event scenarios, or as being a counter-agent in competitive or confrontational event scenarios. In a cooperative event, role pairs like agent and patient could be realised as co-agents as in *The boy* (co-agent) *helped his father* (co-agent) *carry the box up the stairs* in cooperative events, or as counteragents in competitive or confrontational events as in *John and Jane* (counteragents) *played chess*, or *The two boys* (counteragents) *are beating one another with sticks.*

The Co-Agents Cooperate Schema

Two or more participants are actively cooperating with one another to achieve a mutually beneficial objective:

- *Sue and Jane* (co-agents) *are planning the party*

- *The boy* (co-agent) *is helping his father* (co-agent) *carry the table up the stairs*
- *John* (co-agent) *sold his stamps* (possession) *to Pete* (co-agent) *for $400* (possession)
- *They* (co-agents) *went hiking in the mountains* (together)

The Counteragents Compete Schema

Two or more participants are actively competing with one another, or acting in confrontation with one another to achieve a mutually beneficial objective:

- *Sue and Jane* (counter-agents) *are arguing about the party*
- *The boy* (counter-agent) *is fending off his attacker* (counter-agent) *with a stick* (instrument)

The Stimulus Stimulates Experiencer Schema

An entity that operates on one's senses evokes some sensation in an experiencer:

- *The chattering monkeys in the trees* (stimulus) *drove the dogs crazy* (experiencer)
- *Somersaulting* (stimulus) *disoriented the boy* (experiencer)
- *Children* (experiencer) *hate cabbage* (stimulus)
- *The rookie* (experiencer) *hurled when he saw the beheaded corpse* (stimulus)

The being, doing and happening schemas present relatively mundane, background scenarios, used to set the scene for the more interesting interactions that involve agents and patients co-agents and counteragents, experiencers and stimuli. We use the being schema to simply situate entities in time and space. We use the happen schema to portray passive processes. We use the do schema to portray individuals engaged in activities on their own. We use the agency schemas to portray external human interactions and

the stimulus and experiencer schema to portray what psychological effects external stimuli have on experiencers' mind states.

Because humans are gregarious, we have an anthropocentric perspective of our environment. We mostly take for granted the time and place of events, and the instruments that we use, and often leave them out of sentences—the most basic mini-stories that we tell one another. We populate our sentences, and the narratives that we weave by combining sentences, with types of agents and patients that we construe as heroes, villains and victims. In sentences agents, patients, stimuli and experiencers are obligatory roles, while it is optional to stipulate instruments, time and place, as in *He sliced the cake (in the kitchen) (with a knife).* Instruments can be foregrounded by using them in theme position at the head of sentences, as in *the dog fetches the paper every morning*, which becomes *every morning the dog fetches the paper.* Similarly, instruments can be foregrounded by using them in the theme position, as in *he killed his opponent with this dagger* which becomes *with this dagger he killed his opponent.* Instruments can also be foregrounded by reconceptualising them as agents, as in *this dagger killed his opponent.*

Finally, the schema that interrelates stimulus and experiencer is fundamental to cognition and to the interpretation of the narratives that we tell one another. Whenever we try to make sense of what we observe around us, or interpret what others are communicating to us, we are experiencers, subject to stimuli that influence our perceptions and conceptions through our senses.

Blending and Optimality Theory

Fauconnier and Turner state that their theory of conceptual blending also incorporates *optimality theory* (OT). This theory can be traced back to Prince and Smolensky 1993, which introduced OT in the domain of phonology as an alternate framework of linguistic analysis to the rule-based theory of generative grammar. Within phonology, OT has largely supplanted rule-based frameworks (Gibson et al. 1994; Itô et al 1995; Boursma 1998; Hale & Rice 1998). It has also been extended to syntax (Bresnan 2000; Bresnan & Aissen 2001 and semantics Blutner 1998, 2000; Anttila & Fong 2000), but its use is not yet as widely accepted as in phonological analysis.

According to the MIT Encyclopedia of Cognitive Science 2003, optimality is a theory of linguistic universals and universal grammar. This theory posits that the grammars of all human languages share a set of *very general pre-linguistic universal constraints*, denoted by the abbreviation *Con.*

These constraints are sufficiently simple and general that they would conflict in many specific contexts if they were all to operate at the same time.

The grammar of any specific language resolves these potential conflicts by ranking the universal constraints of *Con* into a *constraint hierarchy* in which higher-ranking constraints could neutralise lower-ranking ones in cases where competing language forms are in conflict. Particular languages have characteristic features because they rank the universal constraints differently from other languages.

It is possible to compute the typology of all possible human languages[1] as the result of all possible rankings of these constraints. An OT analysis explains why some grammatical patterns are possible in a particular language while others are not.

With regard to the process of constraint ranking Bresnan and Aissen (2001) describe OT as a *combinatorial engine*, a universal language generator[2] of all possible linguistic structures whose output is not in the forms of particular languages, and not even bound to the overall typological space of natural languages[3]. This hypothetical language generator merely provides a common vocabulary for precisely describing all kinds of linguistic structures, natural and synthetic, for any given linguistic content. Which of these generated structures are selected as the outputs of particular grammars is determined by the relative strength of very general but violable hierarchy of constraints external to the universal language generator, but specific to particular languages.

For particular languages the proponents of OT posit a four-component linguistic system consisting of 1 underlying representations; 2 grammatical rules; 3 competing surface representations; and 4 a hierarchic system of constraints that regulate interpretation violations as basis for selecting particular surface representations. The basic idea of OT is that, as part of natural variation within the language of individual speakers, competing language forms are regulated (optimised) by an array of hierarchic constraints that become progressively more general and powerful. This entails that higher

[1] This is the case also for languages that do not exist anymore, or that do not yet exist.

[2] Abbreviated as GEN in OT literature.

[3] This point of view implies that the algorithmic principles on which optimality is based would also be able to generate non-human communication codes.

level generic constraints can neutralise lower level constraints that are more specific as part of the optimisation process. For instance, where generative phonology would require a set of autonomous rules to regulate the use of the English plural morpheme –s which is pronounced voiced in some words, but unvoiced in others e.g. *bags* [bægz] vs. *cats* [kæts], a single higher level optimality constraint allows the plural morpheme –s to be voiced after a voiced stop consonant like [g] and to be unvoiced after a voiceless stop consonant like [t].

Fauconnier and Turner (2002:311) state that because the governing principles of conceptual integration networks 'characterize strategies for optimizing emergent structure ... such ... principles are called "optimality" principles'. They add, 'governing principles also frequently compete with each other'. Fauconnier and Turner (2002:321) state that 'the principles for compression are optimality principles because they compete among themselves and with other principles and goals'.

Klopper (2002) relates optimality to the evolution of communication systems to accommodate increasing cultural complexity:

> Humans optimise a variety of forms of communication within a culture, and between cultures, to ensure immediate direct personal survival and to maintain their culture as a long-term indirect survival strategy.

The theory of the optimisation of human communication (TOHC) has the following corollaries:

1. On the principle of economy, no culture will evolve a system of communication that is more complex than is required for optimal communication within or between cultures.

2. Human communication and interaction contain *indexical* features as evidenced in verbal and nonverbal communication codes (such as gestures, facial expressions, locomotion, posture) that are directly grounded in actual instances of communication, and *symbolic* features that, as codes, first relate to one another in complex hierarchical patterns (such as phonemes, or written symbols, that are combined to serve as symbolic labels for conflated concepts in the form of

morphemes and lexemes[4], which in turn are combined according to predictable patterns to form sentences that can be used to refer to actual events[5]). Only in semiosis related to other symbolic elements in the human communication codes, can any subset of codes be used to refer to entities in the human environment.

3. Specific instances of communication can be ordered along a compliance-gaining continuum that progresses from *cooperation* to *competition* to *confrontation*.
4. New forms of communication will from time to time emerge in a culture to give expression to the increasing complexification of that culture.
5. When new forms of communication emerge in a culture they never supplant existing forms, but instead absorb and relativise[6] them as part of the new more extensive communication processes.
6. Humans use newly emerged forms of communication as survival strategies to innovate existing domains of knowledge of their culture and to create new domains of knowledge.
7. As a form of communication matures, it becomes ubiquitous.
8. Older forms of communication are employed more ubiquitously than newer ones.
9. Communicators employ ubiquitous forms of communication subconsciously.

[4] The concept CAT is symbolically represented by the English phonemes (distinctive speech sounds) [k][æ][t] or their written letter equivalents *cat*. These combinations of sounds and letters serve as symbolic labels for the conflated concepts {ADULT, FOUR-FOOTED, HAIRY, PREDATORY, FELINE, ANIMAL}. Only in combination can these symbolic features be used to constitute the lexeme 'cat'.

[5] The lexeme 'cat' can be used in the role of AGENT along with 'mouse' in a PATIENT role in the sentence *The cat is chasing the mouse* which is built up according to a specific hierarchic pattern, represented by labelled brackets in [Sentence [Subject Noun Phrase, AGENT the cat] [Verb Phrase [Transitive Verb is chasing] [Object Noun Phrase PATIENT the mouse]].

[6] By relativisation of forms of communication, existing forms of communication are assigned new functional roles relative to newly emerged ones.

10. Existing forms of communication could be simplified in response to catastrophic stressors that impact a culture.
11. Basic as well as simplified forms of communication could become more complex under the influence and in the direction of more complex forms of communication during cross-cultural contact if the users of the more basic forms of communication perceive a communication advantage in emulating the forms of communication of the more sophisticated culture.

While the above-mentioned aspects of optimisation relate to the evolution of culture and communication for survival sake, Fauconnier and Turner relate optimality to competition of mental resources during cognition. Applied to conceptual blending, optimality entails that in the case of ambiguous expressions, and other types of expressions with more than one potential meaning, the potential interpretations are competing with one another as possible solutions to resolving ambiguities. One example of such competing interpretations is in the realm of counterfactual expressions.

Counterfactuality and Conceptual Blending

The term *counterfactuality* refers to reasoning used to conceptualise two alternate future scenarios between which one must choose. The following types of statement all contain that prompt for counterfactual blending by choosing between alternate scenarios:

- Conditionals like: *if (only), if I were you, if you ask me, unless, maybe, perhaps, rather not,*
- Modals like: *will, would; can, could; shall, should; may, might; must, have to;*
- Infinitives like: *running (causes) ..., sleep deprivation (leads to) ...* and *eating bran is ... for you;*
- Compound nominals like: *child-safe beach, ovenproof dish* and *gut wrenching accident scene.*

For example, *if I knew you were in town, I would have come to see you earlier* prompts one to envisage two alternate scenarios, one where you

knew something and acted on that knowledge, and a second scenario where you did not know something and consequently did not act. Similarly, *he can easily bend that pipe* prompts for a scenario where the pipe is bent, alongside a scenario where the pipe isn't bent. A person asking, *are you cooking the pie in an ovenproof dish?* envisages alternate scenarios where the dish has been shattered by the heat of the oven, alongside a scenario where the dish isn't shattered.

Fauconnier and Turner (2002: 230f) defines counterfactuals as follows:

> In this book, we use "counterfactual" to mean that one space has forced incompatibility with respect to another. But there is a narrower and more common use of the term to mean that one space has forced incompatibility with respect to a space we take to be 'actual'.

The implication of Fauconnier and Turner's statement is that, while one may prefer a particular interpretation (one did not know someone was in town, one has not been deprived of sleep, the beach is safe for children), one must keep in mind the possibility that the competing alternate scenario may be realised.

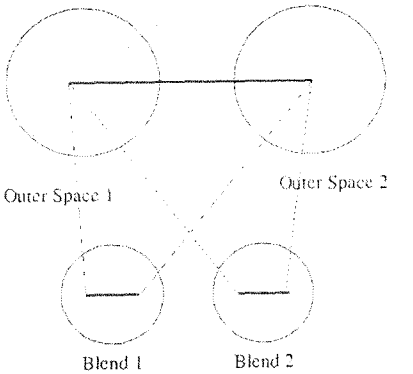


Figure 8: Counterfactual blends project alternate blended spaces from the same input spaces

Counterfactual blends are instances of blending where vital relations are selectively compressed and projected to two alternate blended inner spaces, rendering alternate interpretations as shown in Figure 8. Counterfactual blends are common in the domain of humour as can be seen in the following pair of "Chinese" proverbs as instances of ethnic stereotyping:

Man who run in front of car get tyred.
Man who run behind car get exhausted.

Moodley and Klopper (2003)[7] argue that when one ethnically stereotypes an individual you relate her/him to overemphasised group attributes in a cognitive process that always invokes emotions and involves value judgements. By extension, when one stereotypes an ethnic group like the Chinese, as in the case of the before-mentioned two proverbs, you overemphasise some attribute of the group's appearance, speech, body language or way of dressing, etc.

In the case of the two "Chinese" proverbs, a comical effect is achieved by linguistic means, through the deletion of the indefinite pronouns *a*, the deletion of the third person singular congruency marker *–s* in *runs* and *gets*, and the misspelling of *tires*. In this context, *man ... get tyred* is open to two interpretations, namely the man has consumed all his available energy, and the man is ridden over by a car. Once a frame for bodily harm has been established for the first proverb, *exhausted* in the second proverb, although spelt correctly, obtains the dual meanings of having consumed all available energy and suffocating from the car's exhaust fumes.

Such dual scope blends are characteristic of jokes, puns, riddles and parables, all of which evoke emotions in the experiencers, and all of which involve value judgements.

The metaphor cluster, *Yesterday is another country ... no one has a passport back there*

The metaphor, *yesterday is another country,* entails two quite mundane scenarios from the being schema, namely that time passes and that place exists. Vital relations relating to place, the more readily understood scenario, are selectively projected into the blend, *time is place* as shown in Figure 9.

This blend activates a belief framework that enables one to reconceptualise time as a counterfactual three-dimensional landscape with the properties height, width and depth. This is a landscape that one could enter, where one may have to move over, underneath and around obstacles, and above all, a landscape where one could encounter three-dimensional beings, as in the scenario, *no one has a passport back there.* A schematic representation of the topography of the extended metaphor is given in Figure 10.

The activation of the *time is place* belief framework enables one to extend the basic and relatively mundane generic metaphor *yesterday is*

[7] Published earlier in the same issue as this article.

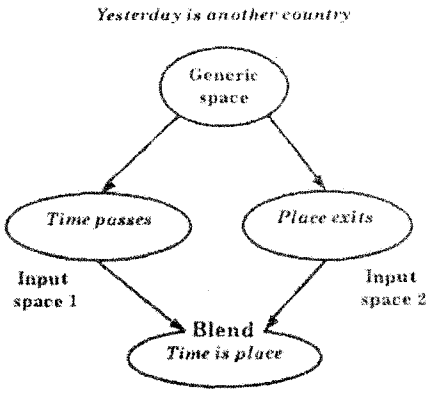


Figure 9: Topography of the metaphor, *Yesterday is another country*

another country, to a more detailed and interesting metaphor, *no one has a passport back there,* which is populated by human beings.

The indefinite pronoun *no one* is a conceptual trigger that populates the lifeless *time is place* landscape with human beings. Potentially, there are all kinds of human, just none with passports to a particular destination. The noun *passport* by inference populates the metaphoric landscape with travellers, authorities that issue passports, and control agents that permit and restrict access to regions of the landscape, based on permissions granted by the authorities.

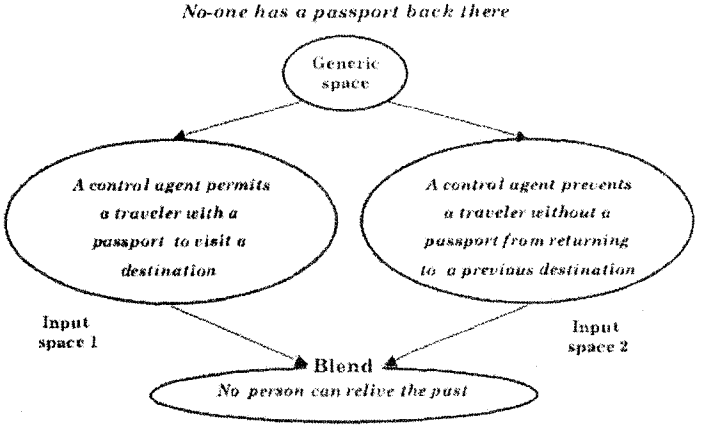


Figure 10: Topography of the metaphor, *No-one has a passport back there*

Interpretation is informed by the words of the metaphor cluster, but co-determined by one's prior knowledge. The metaphor cluster, *yesterday is another country ... no one has a passport back there,* is bound to make some

people think of the law of entropy, also known as the arrow of time. According to this law, in a universe governed by the cause and effect laws that hold for our universe, events only take place in the present, and events only proceed from a more organised to a less organised state. Bringing the law of entropy to bear on this metaphor cluster, leads to three conclusions:

1. One can only experience events in one's present;
2. One can envisage future events;
3. One can remember, but not re-experience events that have already taken place.

As is the case with most instructive narratives, this metaphor cluster also has a moral to it: *Do not let memories of past events and habits determine how you live in the present, including how you plan your future.*

General Conclusions

In this article, I analysed the metaphor cluster, *yesterday is another country ... no one has a passport back there,* against the theoretical background of Fauconnier and Turner's theory of conceptual blending. I showed that Fauconnier and Turner posited a neurophysiological basis for how concepts are extracted to a generic mental space and selectively projected to at least two input spaces from where they are compressed and projected into the blended space to form new inferences.

I showed that prominent neurophysiologists like Edelman and Calvin also foresee a neurophysiological basis for the formation of image schemas, mental imagery and metaphoric thought. I discussed and elaborated on the vital relations that Fauconnier and Turner identified as crucial components of their theory and showed, by way of illustration, how humans commonly stretch and compress temporal relations to achieve human scale thinking.

I showed that emotion is intimately involved in the process of long-term memory formation, and subsequently in the retrieval of long-term memories to working memory during conceptual blending.

I presented the theory of role relationships in considerable detail because, although it is crucial to an understanding of the theory of conceptual blending, Fauconnier and Turner assume prior knowledge of it. I discussed counterfactuals as blends that relate to humour, jokes, puns, riddles and

parables, and finally, I analysed the metaphor cluster, *yesterday is another country ... no one has a passport back there,* as an instance of conceptual blending.

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Interviews

Oral Traditions

Interview with Lewis Nkosi During his Visit to South Africa[1]

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PhD student
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LL Lewis, what was the deciding factor that resulted in your leaving South Africa?

LN Well, in fact, it was a very strange occurrence. I was working for *Drum* and *Golden City Post* at the time—and there was a visiting American who was head of the Foundation, and Nat Nakase took me to dinner at the man's house, called *MISTER WHITE* —(LN emphasis) and it was very strange—he was the head of the Institute of Race Relations in Johannesburg. And so we met this man there and there was a lot of discussion and arguments with some Afrikaner professors, and this guy was so impressed with us—he wanted to come to the townships with us—and when he got back to the United States—he knew people at Harvard, who were running the Newman Foundation and he said he had met intelligent intellectuals in Johannesburg—black guys—and he would like someone like me to apply to the Foundation; and what you did then was send specimens of your writing to the Newman Foundation and if you were accepted, then they invited you to Harvard. But the Government of the day

[1] The interview was conducted on April 10 2003 at the Rob Roy Hotel, Durban Kwa-Zulu Natal.

refused to give me a passport when I got this offer, and I became quite reconciled with the idea that I wasn't going to leave. And then, my friend Harold Wolpe—who is dead now- he was a lawyer but I was a friend of the family—and I always used to help Anne-Marie with the children when Harold was arrested or was away—so, I was quite close to the family. Harold was so angry about this refusal of the passport without even the courtesy of an explanation—so he just combed the Statute book until he found this law, that *nobody, but nobody*, had ever used before in South Africa—(LN in a ponderous mocking tone) THE. DEPARTURE. FROM. SOUTH AFRICA. ACT. And he threatened to take the South African Government to the Supreme Court if they didn't give me a piece of paper *immediately* within a week. And it would have taken the Government changing the law by introducing a Bill in Parliament—you know—just for one person who was not even an activist—except *writing* against apartheid—so in the end they decided that it was not worth it—give him the papers, but let him fuck off. And what you do is to sign this piece of paper saying you agree you are not going to come back.

LL Ever?

LN Ever—so long you can show that you have no business assets—you are not going to take any capital out of the country—[smiles] but, you know, a black boy (amused laugh) what capital has *he* got to take out of the country?

LL Lewis, in a previous interview you said that language is the key to your roots, yes?—why then do you use so little of your own language in your writing?

LN Ah yes, I didn't exactly put it that way—that it is a key to my roots—I said that a lot of what goes on in my writing, there is my language behind it, sometimes you don't even notice—I mean, it isn't a question of using Zulu—you know—linguistic terms in order to show that you are in touch with your language—you hear it in the tonalities of the English language when it's the Black people speaking—like in *Mating Birds* when its Mamlambo at Cato Manor laughing about stains on white women's undergarments and she uses certain expressions—she uses certain *kinds* of humour—and I'm sure it wouldn't be *there,* unless I had grown up in that environment—so when I come back to the country, this automatically brings back memories—just talking to these people in Zulu and that guy, [LN referring to the gate guards at the Rob

Roy entrance] when he was laughing at what I was saying—we were connecting about something that is common to us and that was through language obviously, but I don't deliberately exploit this—in the same way certain people think they have to translate from their mother tongue to English in order to show that they are in touch with their roots.

LL You made an interesting point in your recent video [*Fugitive Memories of Place*—David Basckin and Zoe Molver]—you said that you have never suffered from 'homesickness'.

LN [Thoughtful] No ....

LL Please to elaborate?

LN Because I think homesickness is precisely that—it's a sickness ... [laughs].

LL Really?

LN Ja [still laughing] I mean, I am not *sick*!

LL But Lewis, surely you must miss or long for your home, your country, sometimes, yes?

LN No ... no, you know, there are certain *ways* of *missing* the country, of *missing* the sea for example, missing *Durban*, which is not homesickness.

LL It is a longing then, or nostalgia—perhaps a better word?

LN It is not even a longing to come back to live or anything like that—it is something *akin* to nostalgia, or memories of the past. And what comes through to me most of the time, which really strikes the cords that produce those resonances, is when I hear township music, like on the radio in Switzerland, and suddenly I start dancing to it and I remember how people used to dance—but *that* I don't call homesickness—I just think of it as missing your country sometimes- which occasionally happens—I mean, everybody misses their roots, their childhood sights—that's why I come to visit here—looking at that valley [we are facing the Valley of a Thousand Hills which includes Embo to the right

where Lewis lived as young child] and thinking—ah, this is where I grew up—but I can't see myself thinking ... [mock passion and pointing to the scenery below] *Ah ... I'd like to go back to live in a hut in the middle of all this bush!*

LL So Lewis, in Europe, how do you maintain your African identity, if at all?

LN Oh, I don't have a *compulsion* to maintain what is called an African identity—I really don't think about it that way. I see myself as an African, of course, but basically as a South African. I'd like to cite a statement that someone like Spivak made—yes, she is an Indian, she is a philosopher, she is a literary scholar and she has lived in America most of the time—and she was talking about these multiple identities that post-colonial people choose from—and she said well you make use of them as is required by the circumstances—she said that when I arrive at London Airport and people talk to me in a certain way or challenge me on the grounds of who I am or how I look- then I feel, you know, like an *Indian*. So identities, they are very complicated things—there are times when I don't even think about whether I'm an African or not. I definitely have never thought of myself as a *Euro*pean, but, there are times when I don't think of my African identity—when I just think I am *me*, or when I think I am a *writer*, or when I think I am a *novelist* and or, you know, but then there are times when I hear people denigrating what is supposed to be African, so they are telling lies about Africa or about my country, when suddenly *that* other identity rears up, which is a defence of my heritage, if you want to call it that—so, I mean, identities are *contingent*—meaning that they rear their heads when they are needed for, you know, one reason or the other, they are like clothes that you wear—I mean, you don't wear the same clothes everyday?

LL Quite so—I have the same experience—I am from Europe but I live in South Africa and agree with your views on ways of missing one's country and interchangeable identities. But now an interesting question for me, but possible not for you—is that having considered the *titles* of your works, such as the *Rhythm of Violence, Home and Exile, The Transplanted Heart, Tasks and Masks, A Voice from Detention, The Prisoner, The Forbidden Dialogue,* I seem to sense a dark pilgrimage here. Lewis, why *these* titles in particular?

LN Well, I don't know ....

LL You did not consciously decide on these?

LN No, no, these are things that I, well yes, I entrust my life into your hands for that, so *you* work it out [laughing].

LL I will try—but then, on the same note—why a *black* psychiatrist—why not just *any* psychiatrist?

LN [Animated] Oh yes, one has to use the black psychiatrist—first of all—because it ties up with the theme of this guy being the first black psychiatrist—which one wants to emphasise, because it was an unusual thing in London, and black does not actually mean African—he is supposedly a Coloured South African because his father was white and so he is related to this white woman through their father. *But,* it immediately raises certain issues when a white woman is visiting a *black* psychiatrist—rather than *any* psychiatrist—you immediately know something is going to happen there—the news is being leaked [laughs] so its an easy way of evoking a situation that is going to become important automatically—any way.

LL Ah Lewis, so you *do* consider your titles!

LN [Laughing] I leave you to work those others out!

LL Your writings are firmly rooted in South Africa, Lewis, why is this? You don't seem to include anything about the other countries you have been to—your work is set in the South African context always, yes?

LN Yes, that is quite interesting—I think this is very common amongst South Africans, black exiles, anyway. Very rarely do they write about the societies in which they live, in the way that say V.S. Naipaul will situate his novels in Britain and get away with it. One way of answering that question is by retelling the joke that you can take the boy out of the country but you can't take the country out of the boy—which basically means that if one is interested in 'mining' one's memories, what one remembers of the country is what comes to the forefront of your consciousness most of the time. And I have never felt close enough to the places I live in to think that I want to devote my life writing about those societies. English society, for example, is too complicated for me—I can write about South Africans in London, but to write about

'*Buckinghamshire*' [LN mimicking in exaggerated English accent] that kind of story is what British writers can so ably handle in tonalities of speech that are related to those northern people—you know—its just- I don't feel emotionally linked to that kind of thing.

LL Lewis, I feel that there is a lot of bitterness underlying your writing—in *Mating Birds*, for example, on one single page, you mention the words 'rage' and 'anger' six times. I also find the landscape in *Mating Birds* to be very angry—even the picture on the cover somehow conveys a sense of anger. Perhaps you won't agree, but that is how I read it. Does your writing bring some sense of healing for this latent anger and hurt? Because Lewis, there must be some sense of anger, some residue of hurt left in you as an exile? About the way you were treated, about the way your people were treated, about all the collective injustice you experienced and witnessed as a Black South African—you yourself tellingly used that wonderfully eloquent expression 'fuck off' earlier, which neatly underscores a particular emotive viewpoint?

LN [Pensive] I didn't write it to expunge or to heal a wound—I tried to situate myself into the situation of someone treated in a certain way, expelled from school, and needing recognition which is denied him and so this is, if I may say so, a re-presentation rather than a kind of psychotherapy which, once you have written about it, you got it out of your system—really, I didn't feel that way, and most people who have read *Mating Birds* end up saying you know the strange thing about *Mating Birds* is how it is without bitterness, it is full of humour, and the way you write about Veronica for example—there is more love there than hatred, which is true, I think—that I am probably more in love with her than hating her and you can tell in the way she is treated when she is making those preposterous statements in court—that Sibiya is looking at her, and instead of thinking—how *disgusting,* how *could* you, he's thinking—my goodness, she's just like a novelist—she's inventing stories!

LL Lewis, you admit that when you eventually get close to Veronica, she does not live up to the ideal—and that the ideal 'landscape' only exits in the imagination ?

LN Ja, this is a philosophical statement. You try to word certain assumptions with—you know, how do you say it?—about positivist proof of things? —that when you look at the world you assume the world is supposed to

be like *that*—and then when you actually confront the world at close range, you realise that, no, it is more normal than you supposed it was, and the same thing when you look at a white woman for the first time and you think oh, she's going to be some *fantastic* sexual experience—maybe it will be—but you wake up in the morning lying side by side she's just a woman, so you stop thinking about it as in its idealised form—when things are distant always they become idealised in a sense—so what I'm trying to say is , some of the things you put in a novel are really a way of expectation, a way of philosophical discussion of certain issues, not because of something actually is supposed to have happened that way in the situation—it's a way of making a statement. But I make a statement, for example, based on the Hegelian notion of recognition in which the other needs the gaze of the other, in order to achieve full identity—that is a very Hegelian statement—so it isn't as if when this Sibiya looks at the girl on the beach and for the first time she looks straight in his eyes and then they 'see' each other for the first time—it isn't as if this is a phenomenal thing that was happening just that day—it was in a sense my way of applying the Hegelian notion of the gaze and recognition and the answering gaze and so on. So, the novelist brings all the readings and philosophical assumptions into creating situations. That is why the author is called the *author*—they have the *author*ity to write what they like—and you know, authors tell most terrible lies!!

LL ... but at the same time you are creating an identity for Sibiya and Veronica—it again comes back to the question of *identity*.

LN Ja, that's true, that's true ....

LL ... and in order to maintain that identity, they also have to operate within the limits of their ....

LN Situation? Yes, I am surprised, astonished, that one of the criticisms offered by somebody—and I think it was a woman critic—that Lewis Nkosi doesn't allow Veronica to develop her own perspective, her own identity, so everything is seen from this Sibiya's perspective—that seems to me such a *reductionist* and crude way of thinking about that situation—first of all, because this was in the apartheid era, where this Sibiya will not know *what* Veronica is thinking. So what would be the point of allowing her to assume a centre of consciousness since she is being gazed at by this black boy, you know,—he is attracted to her—and the only time of course she speaks, is in court when she's

lying, but there is also a moment when she is talking to this man who visits her and suddenly you see what kind of person she is—that she is really a good woman when she says 'why don't you let the native go why do you bother'—because she's trying to quieten down, calm down this man who is getting sexually jealous.

LL I think that writers both create and recreate places and spaces- do you think this is valid in terms of you writing, Lewis ?

LN I'm sure this is true—I mean, Durban, Cato Manor is *there* in *Mating Birds* and certainly a share of Zululand is in *Mating Birds*—because there is a description of the sea seen from Eshowe—from the *highlands* of Eshowe. Firstly we could see the sea from the school and we could see the ships, because we were high enough to see the ships beyond the horizon but if we were down there by the coast you wouldn't have been able to see those ships and how the sea looks at different times of the day—in the morning, it is flecked with sunlight and in the evening .... all of those are *strands* of memory about place and about whether it automatically gets into your writing.

LL Your description of the courts—I had to reconstruct a place familiar to me, because it is not in reality as you describe it in your book ?

LN Ja, look, I didn't even bother to get the courts—I mean ....

LL You artistically recreated place?

LN I realistically reproduced. In fact Lindy [Lindy Stiebel, Department of English University of Durban Westville KZN] pointed this out after reading *Mating Birds*—because we were driving from Berea on the top of Musgrave Road past the gardens, the Botanic Gardens and I said I wanted to see the city from the heights of this place in Durban—looking down on the centre of Durban from on high—and this is a very *good* perspective to describe the city from- so I just automatically I used this travelling from the cells to the magistrates courts or whatever you know, from seeing the city from that perspective. [LN reflective] but I wasn't even conscious of that I was trying to reproduce. My aunt got married to the Khumalo's and they lived on this plateau near the Drakensberg mountains, and there is this scene where these guys are drinking beer at night, and were sitting under the trees and singing rural songs

[LN singing a simple tune in varying intonation and tapping on the table with a far away look in his eyes]:

Ake ngiy'e Kwa Zulu ngashiy'u Baba
Ake ngiy'e Kwa Zulu ngashiy'u Baba
Ake ngiy'e Kwa Zulu ngashiy'u Baba ....

[LL: English translation: I must go to Kwa Zulu because I left my father—This is a very rural song which means that he is somewhere else where he is happy, but at the same time he *needs* to go back because of his family.]

LN So I put all these things in my novels, you see, and I'm aware of where it comes from.

LL Lewis, the tune alone expresses a longing for home—it is so sad! [a while of reflective silence—LN gazing at the hills and we comment on round huts vs square spaces and no spaces.]

LL I don't know if you will agree Lewis, but I feel that your writing is sometimes perhaps an exploration of both belonging and alienation ...?

LN Mmm, its too *bold,* because I don't know what it actually means—alienation—what would alienation mean in my ....

LL It's all there in your song, Lewis. I think that it would probably include the fact that you had to leave the known for the unknown—a new place, and this then juxtaposed against your sense of belonging in *this landscape,* these two concepts or themes.

LN Ja, I am really not aware—to me it just seems natural—I mean, I am of the country, but also already outside of the country, so I'm able to see the country from a distance that is not permitted to people who had never left the country.

LL Yes—you said at some point that when you leave your own country to live elsewhere, you discovered things that you didn't know or have suppressed. What are these 'things', Lewis?

LN Well, maybe you discover for example that you don't need white people as *white* people, something that people going out of the country probably suppress, or even loving those others and its, you know, its so complicated I cant even describe—you have to pick out a whole lot of things. That repressed is in my terminologies of Freudian terminologies doesn't mean consciously trying to conceal things—things that are simply not obvious to you, and then you discover them by having been *removed* from those things—for example: I discovered certain things about *speech* that had not been very obvious to me—how Zulu people speak very slowly in the traditional mode—you don't just go in and blunder into explanation about this and speak too fast—there is something about eloquence that is disturbing to village elders if you speak too fast. So you have people saying [drags out the words at length] 'mmm ... y e s, y e b o, and I discovered that this was annoying me as it took so much time and I wanted to get it over with—so you have Sibiya in jail trying to explain what happened between him and the girl and these people are listening to him and thinking, oh my goodness, he is no longer one of us; he speaks too fast, and also, making a judgement, an ecstatic judgement that is based precisely on the rapidity of his speech and thinking oh ja, he must not be telling the truth if he speaks so fast—it means that he actually *did* rape the girl or whatever, but they will not *say* it—so yes, those are some of the things you discover when you are removed from your own environment—[retrospectively] I probably could have discovered it just living in the urban areas.

LL [Lunch arrives] Lewis—lets have lunch—bon appetite and thank you for spending your day with me.

❋ ❋ ❋ ❋ ❋ ❋ ❋ ❋ ❋ ❋

Keynote Address

Establishing Dialogue: Thoughts on Music Education in Africa[1]

Mogomme Masoga

Introduction

Finding Ourselves: Context

I must confess that I was rather hesitant about accepting the invitation to deliver the keynote address at such a conference as this. Partly my hesitation was centered on my *naivety* when it comes to the theories and methodologies of music research and science. Even so, I am not completely new to the musical experience and practice. I was born and bred in families and clans with a rich musical background. One of the instances that I can recall was when I was introduced to the basic esoteric knowledge and the skills of handling oracular tablets. With regard to the digging for and the gathering of herbs as well as with the administering of medicines, songs and dances characterized the entire

[1] Keynote address at the PASMAE (Pan-African Society of Music Art Education) Conference, Kisimu, Kenya, 5-11 July 2003 with the theme: Solutions for Music Education in Africa. The author notes with appreciation the doctoral bursary (1999-2001) support of the National Research Foundation (NRF) (formerly the Centre for Science and Development (CSD) that made it possible for the culmination of this research paper and acknowledges the scholarly comments and guidance of Proff PJ Nel (doctoral promoter) and MA Moleleki (doctoral co-promoter) who were the driving force in the development of the author's doctoral thesis, *Dimensions of Oracle-Speech in the Near Eastern, Mediterranean, and African Contexts: A Contribution Towards African Orality.*

process. Novices in the healing and divining training had to use music, i.e. clapping of hands, drumming and dancing to induce ancestral trances on a daily basis. Songs like *khalel'nkanu, khalel'nkanu, nkanu y'baba b'yi buzi nkanu* (I am crying for the healing horn, let my ancestral spirits bring the healing horn to me) were repeatedly sung by the novices led by their seniors in the sangoma lodges (*izindomba*). With drums beating in the background novices danced and evoked their spirits to become active. Then, I was informed by one research informant Koko *Magwetja Nkwe ya Thaba* that *badimo ba retwa e bile ba lebogwa ka mekgolokwane* (ancestors are praised and thanked by means of ululations which are characterized by songs and dances). In most cases those around the possessed novice or trainee are expected to respond by clapping hands and beating a drum rhythmically. Usually the spirit in possession begins to sing her or his favoured song and is then joined by those who sit around the possessed person. In one of the spirit possession activities (trance related) I observed the following:

> The novice (Mrs X) was sitting on the floor when she began to shiver, become agitated and had uncontrollable hiccups. She moved her feet uncontrollably. Immediately those sitting around her, spoke patiently: *Botse botse, le seke la tla ka bogale, tlang ka lethabo, e kaba mokgekolo goba mokgalabje, re a le amogela* (Wonderful, wonderful, do not come with trouble, come with good tidings, we welcome you). The *ithwasana* (novice) then moved out of the ancestral room towards the trainer's (*gobela*) hut. She was going to *hlehla* (to greet accordingly). She then sang the preferred ancestral song: *Awee... shai... mankarankara* and thereafter greeted the trainer.

Secondly, it also reminded me of my interview of diviner-healer Gogo Nkosi from Majaneng in the North West province of South Africa. She (Gogo Nkosi)[2] used music to decipher the *ditaola*[3]. On one specific occasion the client-in-

[2] She has a strong background in Sepedi divination and healing practices, but her divination technique derives from a Nguni approach. She uses the clapping of hands to accompany her divination process. The audience interject by shouting (affirmatively) *siyavuma* (meaning we agree with the divining bones) to indicate their active participation in this process.

[3] *Ditaola* from Sepedi is derived from the verb root *laola* which translates as to divine or, to seek or establish meaning.

consultation (*molwetsi*)[4] was accompanied by the clapping of hands as he breathed into the bag full of *ditaola* and threw them on the floor. When divining bones (*ditaola*) that lay scattered on the floor, having been thrown by *molwetsi,* Gogo Nkosi began her musical divinatory performance (*go laola*):

1. Gogo: A re yeng le ditaola[5]

Audience *Siyavuma* (clapping hands while shouting in agreement with the oracle)[6]
2. Gogo: Ka mokgwa o dibolelago ka gona[7]

[4] As Peek (1991:2) rightly asserts, 'A divination is often the primary institutional means of articulating the epistemology of people ... is central to the expression and enactment of his or her cultural truths as they are reviewed in the context of contemporary realities'. In this case, the use of *ditaola* and going through the *laola* process in itself offer and guide the enquirer into the entire context of esoteric knowledge, symbolic power, and performative beauty.

[5] An interesting formula – it functions as both the opening phrase and it also paces the divination process. The diviner-healer uses this formula to call for the attention of the audience present and at the same time authorizes the divining bones to function. It means *let us begin and go along with the divination process*. The audience is supposed to respond affirmatively: *siyavuma* (we agree). In this case it is important for both the diviner-healer and the audience present to find a common space of agreement. This then affirms the divination process. This again shows the intercultural nature of African divination and healing. *Siyavuma* is in this case expressed in a Sepedi context while noting its Nguni derivation. Divination in an African context is both dynamic and intercultural, and it further employs varied devices and patterns. Some of these devices and patterns are borrowed from other African cultural orientations.

[6] Clapping of hands in a rhythmic way introduces a musical form and content. The diviner-healer provides most of the lyrical basis while the audience supports the entire musical structure. It becomes important for the process not to suffer from boredom but instead offers both meaning and entertainment for both the diviner-healer and the audience. As Finnegan (1970:2) argues, 'Oral literature is by definition dependent on a performer who formulates it in words on a specific occasion – there is no other way in which it can be realized as literary product'.

Audience: *Siyavuma*
3. Gogo: Ge ke eya ke tsamaya le taola tsa gago
Audience: *Siyavuma*
4. Gogo: Eeh ditaola tsa gago di wele makgolela papa waka
Audience: *Siyavuma*
5. Gogo: Ge eya ke bolela le taola tsa gago
Audience: *Siyavuma*
6. Gogo: Molomo ka basemanyana
Audience: *Siyavuma*

Translation

1. Gogo: Let us go along with the bones
Audience: We agree/confirm or we are with you
2. Gogo: According to your bones
Audience: We are with you
3. Gogo: As I go along with your bones
Audience: We are with you
4. Gogo: This is a critical bone fall
Audience: We are with you
5. Gogo: As I go along with your bones
Audience: We are with you
6. Gogo: Gossip by boys

Lastly, I can also share one of the appealing and rhythmic wedding songs sung in my village:

Dikuku di monate
Lenyalo le boima
Rena re a tsamaya
O tla sala o di bona makoti

[7] The diviner-healer is able to exhort her audience to go along in the divination process. In this case she builds on the formulary pattern and emphasizes the fact that the divining bones have the capacity to speak the truth. The divining bones are said to be powerful as they reveal the mysteries of life, for life, against life, and on life. Life's binary oppositions are detected and analysed through the process of divining bones. The diviner-healer uses the expression *ka mokgwa wo di bolelago ka gona*. It seeks to keep both the speaker and audience on track.

> Wedding cakes are tasty
> But marriage is a tough zone
> We leave you and you shall see to finish – (cf. referring to both the bride and groom).

Against this background, I want to share some thoughts and views on the issue of Music Education in Africa. There are many controversies in this field of study, but I shall not engage these, i.e. controversies concerning 'ethnomusicology', and the differences between Euro-centric and Afro-centric approaches to science.

The Right Time for the Periphery to Occupy its Own Space: *The Real Challenge*

Ntuli (2002:53) points out that:

> Africa is neither Europe nor America. Africa's problems are not European or American problems. Africa's solution to her problems cannot be anybody's but Africa's. If we accept these truisms, we then accept that Africa had to find her own indigenous ways to define, identify and address her challenges.

Further Vilakazi (2001:14) addressing the International Conference on Indigenous Knowledge Systems at the University of Venda in 2001 argues that:

> The correct history of African people shall be written by people who, through knowledge of African culture and languages, can use both oral sources and written sources. This means that such scholars shall need to be in close, broadly embracing contact and communication with ordinary, un-certificated African men and women in urban and rural areas. Serious methodological issues arise. This should be the great fruitful encounter between African culture and civilization, stored in oral traditions, on one hand and evidence stored in written documents and archaeological finds, on the other hand. Many questions arise here: the identification of sources, the reliability of sources, the critique of sources, oral tradition as a critique, corrective, supplement, or confirmation, of written and archaeological evidence; written and

> archaeological evidence as a critique, corrective, supplement, or confirmation of oral tradition.

The above laments, although harsh and over stretched, benchmark challenges faced by critics of 'things not African' in the context of the existing programs and inputs. Music and education are not immune from these challenges. It is not the intension of this presentation to pursue the history behind such a challenge but to merely acknowledge the fact that every discipline finds itself challenged to rethink its African relevance (meaning the contextualization processes of our disciplines in the face of such challenges).

I am often amazed of the contestation that exists between scholars in favour of *Indigenous Knowledge Systems* as opposed to those who stand their ground in support of *Endogenous Knowledge Systems* (Crossman & Devisch 2002). The former relegate *Endogenous Knowledge Systems* to being inborn generic systems born out of a need for survival while *Indigenous Knowledge* is said to be local. Further, one can mention the debates that are taking place in the Music and Ethnomusicology debates. All these contestations point to one direction: *knowledge is a contested terrain.* As Crossman and Devisch (2002:96) say, they base their investigations and approaches on the calls made by Ali Mazrui, Joseph Ki-Zerbo, Paulin Houtondji, and Jean-Marc Ela for the adaptation of education to the African context with the objective of looking for new schools of thought reflecting this objective on the continent. However, they (Crossman & Devisch 2002;97) discovered that,

> apart from the efforts of a few individuals scattered here and there in universities, Africanisation, or endogenisation, was instead generally a moot issue for most academics and university administrations, at least in the human sciences.

1 The Problem of Education

The problem of 'Africanised' Education is always met with criticism. Byamungu (2002:15) asks the following key questions:

> When you are an African child and you go to school, what do you learn after the initial alphabet? When you have come to know how to read and write, which books are you given to read? What is the final aim of the fascinating stories you are made to summarize for the exam? Put

> differently, what is the aim of the initial project of education? Is there any correlation between what is learnt at school and what life demands? As it were, is the thematic choice, thrust and goal of the African academy relevant to the conditions of the Africans?

Byamungu (2002:16), concludes, that the overall answer to the above questions is a big NO. Obviously the challenge is on Education and worse for that matter when one juxtaposes Education to Music issues. Undeniably, this challenges Music Education researchers and teachers to revisit and reorganize. It requires a change in pattern (Byamungu 2002:17). Byamungu (2002:17) challenges:

> If the dictionary tells us that the word 'home' means both 'a place of origin' and a goal, a 'destination,' then the African Music Academy needs to find a home.

1.1 Relevant Education

This serious challenge reminds one of past academic exchanges at the University of Cape Town over the curriculum debate on teaching (Teaching Africa: 1998). Mamdani in his presentation at a seminar at the Gallery, Centre for African Studies, University of Cape Town contested the African Studies programme curriculum as follows,

> I have carefully studied the substitute syllabus and find it seriously wanting on intellectual grounds: I intend to spell these out in detail in a more suitable context. I should like to underline two facts before this Faculty. One, the syllabus reproduces the notion that Africa lies between the Sahara and Limpopo. The idea that Africa is spatially synonymous with equatorial Africa, and socially with Bantu Africa, is an idea produced and spread in the context of colonialism and apartheid. It is a poisonous introduction for students entering a post-apartheid university.

What seems to be the bone of contention in Mamdani's submission is that it is not only the quality of the content of what is prescribed in education, but also the perceptions that go with the teaching of content. In education, one does not only need a relevant education but also the right perceptions. One mistaken perception, for example, or we may call it a mistaken framework, is that people

in South Africa do not see them part of the African continent. When they use the designation 'Africa', they refer to a space north of the Limpopo. He regards this as 'poisonous' for prospective African intellectuals and academics.

Be that as it may. The great need is for relevance in education. Questions which relate this concern are: Does the present Music education curriculum reflect the needs of the African communities? Does the curriculum help to unleash the inherent potential of the people to think and solve their problems? Does it help the pupil to develop his/her observational and analytic capacities? There is need for this forum to find a correlation between what is learnt at school and its ability to be useful in society, and also to transform society into a better place. Otherwise the time spent at school will not deliver what is expected of it. As Kyeyune (2002:46) argues,

> there needs to be a review of the curricula of our schools and colleges to ascertain their relevance and the gaps that must be filled for the institutions to answer the call for suiting education to current times and needs.

African Music Education debates should be accountable to African communities in terms of their locus operandi and not to the ivory towers considered to be centres of excellence while they remain irrelevant as to the context-content relationship in which people live. This challenges the conference to grapple with the concept of the local critical mind. Creative minds must make their contribution to African societies. This is a social obligation. Creative energy must be translated into social advancement, and be engaged and located with the people.

This route of practicing relevant intellectuality with regard to music means that there must be an openness to learn from and with the people. Many scholarly institutions are not open to what learn from the people as to what their needs are. What are the needs of the people with regard to a more scholarly engagement of music education? The answer is not an easy one, and will take much research. It is however central, because it opens educational institutions to the people for their benefit and empowerment.

From this follows that there must be a willingness and actual action of the music educators to be present with the people. With this, I mean face-to-face contact. Much education and training in Africa takes place without any empathy and understanding of the actual situation in which people find themselves, and their actual needs and experiences. It is therefore only by being

actively present with the people, that the educator can hope to make a positive contribution.

Another central feature of education is the critical attitude. This should also be so for music education. There must be a critical awareness of the possibilities and potential of African music. However, as with all cultures and cultural phenomena, such awareness also needs to lead to the identification of the enrichment of music and music education that comes about through influences from other cultures. It is true that intercultural influences do not take place in a vacuum, and that such interchanges and interactions bring about new hybrid forms of both the kinds of music people produce and develop, and the strategies for education they develop.

Lastly, in essence, relevant music education is all about engaging communal life and co-operativeness. People participate in and perform African music in communal contexts. It is also central to health and healing practices. It plays healing roles in terms of bodily illness but also socially. As performance and also as participation, it connects the disconnected, and opens up better understanding, communication, and integration into he environment. This is central to the dignity and integrity of the local people. African Music education should be about life, and for the continuous improvement of the quality of life, and health.

2 The Question of Language

The second key challenge is language. Due to its colonial legacies, Africa can be divided into anglophone, lusophone and franchophone parts (Prah 2002:103, Ntuli 2002:53). Prah explains the problem by stating that African people have been subjected to

> British, French and Portuguese approaches to colonial education in Africa in general, and the use of language in education in particular. The British, in principle wanted to create African cadres who would serve as interlocutors between colonial administration and mass society, but who were sufficiently educationally anglicized, and who would be able to play complementary roles in the establishment of the pax Britannica in Africa. They made greater use of the indigenous languages, than the French who preferred to make Frenchmen out of

> Africans and therefore applied a policy of, more or less, zero tolerance to African languages in education.

These divisions cause problems facing African indigenous languages on the continent. The subject of language has generated passionate responses from African writers such as Ngungi wa Thiong'o, Ama Ata Aidoo, Chinua Achebe, Gabriel Okara, Es'kia Mphahlele, and Wole Soyinka, among others. The issue has been one of the most contested questions in postcolonial discourse. As Owomoyela (1996:3) asks:

> What is the connection between language and cultural identity? What danger does the continued ascendancy of European languages pose for the vitality of African languages?

More (1999:343) also observes that one finds in most cases, Europe

> [h]as infiltrated Africa's secret corners: homes, meetings, social gatherings, literature, family and interpersonal relations. Europe becomes the mediator in the lives of Africans ... whether domesticated or not - as a medium of communication.

There is a need for Music Education researchers and teachers to take seriously the question of language in their work. They need to make a contribution to the 'conscious reaffirmation of the dignity of African languages' and also a contribute to the 'liberation or decolonization of the African mind' with regard to Africa's languages (Masoga 2002:313). Significant in this instance, is that much of the uniqueness of African identities, is found in the languages. Ntuli (2002:54) for instance points out that '[t]here are words and concepts that elude translation' The challenge goes as far as making sure that the music education debates and researches should engage, theorise, analyse, systematize, develop, support, market, innovate by making use of indigenous languages. This is well articulated by Prah's (2002:116) conclusion and agitation that,

> I have over the years been arguing that indeed the missing link in efforts at African development is the question of language. Without the use of African languages, Africa is not going to be able to develop and would be for long remain condemned to stagnation, inferiority and lack of cultural self-confidence.

3 Indigenous Knowledge and Music Education

Indigenous Knowledge challenges are another key area. How indigenous is the African Music teaching and research? Should one simply equate ethno-musicology to indigenous knowledge concerns? Further, has any relevant and 'non-offending' terminology been formulated to capture the issues of African indigenous knowledge as they pertain to music?

These questions raise the issue of the improving of the status of African Music Education and research on the continent. In this regard, there is a need for Music Educationists to understand the past indigenous knowledge systems located in different regions of Africa. The challenge is to critically study these systems and see how they had transformed the past into challenging knowledge forms. One also needs to ask how they could currently be used for addressing present African problems and challenges. Alternatively, one also needs to ask how they could be criticized because they have failed to assist African inspirations in the face of colonial and neo-colonial hegemonies (Masoga 2002:309). This requires the stimulation of critically-based research initiatives that are carried out with the participation of the communities in which they originate and are practiced. It is by linking Africa Music education initiative(s) with their roots, that it may become dynamic, based on accumulated traditional-indigenous-cultural knowledge practices, holistic and situated within a cultural element (Masoga 2002:314).

African Music education and research, then, cannot avoid the pressure of local realities. The danger of freezing out local realities for long, may result in the following: 1) the compromising of the reclamation of African dignity and pride; 2) the loosing of valuable knowledge(s) which are vital to the quality of African life and culture, now and in the future; and, 3) even worse, the posing of a threat to the activities of community development and the alleviation of poverty. If this happens - which to a large extent is still the case in education in South Africa - academia's absence of presence with the people and their knowledge(s), will not deliver on their aspirations and needs (Masoga 2002:314).

4 Taking Music Science and Knowledge to Science

The articulation of music science with other fields of science constitute another challenge. Having looked at one of the South African Universities' Masters degree programs and its curriculum, I was taken aback to see that research

methodology and theoretical and conceptual studies of music only surfaced late in the course. One of the Music Department's staff who explained the reason behind this state of affairs, said that the problem is that many music teachers focus more on practical issues and are reluctant to engage the scientific enterprise. If this is the case then one is forced to question the scientific basis of music as well as the scientific quality of the course. As discipline, music needs to be studied with the same scientific rigour as the other sciences. On the one hand, music scholars must become more open to other scientific theories, paradigms and approaches. On the other hand, scholars must not hesitate to experiment in the same way that other sciences experiment. Music research and science need to be mutually open, and engage other scientific disciplines in order to remain part of the developments in science.

One question one may ask, concerns the different ways in which music may develop as it articaultes with the HIV/AIDS pandemic. What kinds of musical developments can one engage? What kinds of musical analyses, musical interpretations, musical conceptual formulations, musical compositions, musical curriculum formulations, and teaching strategies and devices may music researchers and educationists come up with? This is a real challenge.

Another perspective comes from Visvanathan (2002:39-40) who challenges that science should always be a pilgrimage, a journey. He says: 'Pilgrimages usually begin in wonder, submission and faith, but modern science is the first journey that began in doubt'. The typical scientific discourse one then needs to engage, differs from the modern science paradigm. Visvanathan (2002:43) calls this a movement from the glossary of restraint to a language of celebration. He also says:

> If science eventually is to be a spiritual exercise, it needs to be playful. A pilgrimage always needs the carnival and its communitas ... One needs laughter, the playful inversions of the clown, the surrealism of Dali to enter science, because at present it is too pompous and too burdensome: it is over-serious. Only laughter can break the brittle authoritarian of science, dissolve the methodological pomposities ... the tragedy of science is that it has lost its sense of play ... possibly because science sees nature as dead, science too becomes deadening, incapable of infusing life-giving metaphors into itself .... I think it is time science goes public, like the old lectures that Faraday or Raman

gave. Then science will begin again in wonder and not in doubt (Visvanathan 2002:47).

In conclusion, I have not aimed to provide answers in this presentation. Rather, I have tried to ask a few questions. I think that these are questions music researchers and educators need to grapple with in a more concerted way than before. The debate and dialogues we engage are important ones, and I hope that this conference will provide incentives for further developments. Key to the presentation is that Africans need to take responsibility for things African, that they are relevant in their education and research, that they address the issue of the question of language in music education and research, and that they articulate their work with indigenous knowledge as well as the scientific enterprise. I thank you.

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Book Reviews

A Life of Faith: Review of Betty Emslie's *An Autobiography: One Beggar to Another*

Book Review
An Autobiography: One Beggar to Another[1]
by Emslie, Betty L
Durban: Privately published, 2002, 322 pp.

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To be given a book is a rare treat but when the book given is one written by the donor, the treat is a double one. Such was my fortune with the book under review.

I was first acquainted with Betty (Beatrice) Emslie through the church—St. Mary's, Greyville, Durban—at a time when South Africa was undergoing transition from the Nationalist Government to democracy under Nelson Mandela. Although I did not socialize with Betty outside the church, I

[1] The authors wish to acknowledge the support of the National Research Foundation for the project 'South African Literature and Life Writing'. The views expressed in this review are those of the authors and not of the NRF.

was always in awe of what I perceived as her vast biblical knowledge, her ability to deliver coherent and interesting sermons and teachings, and her apparent spirituality. My relationship with the author, while not an intimate one, enriched my reading experience considerably.

Having said this, the ease of slippage from page to person—that is, my sense as reader of moving through and beyond the text to the people and events depicted therein—is not consistent. Betty begins her narrative by telling something of the story of her late paternal grandfather, Hyman Levenson. He is a man she greatly admires. Indeed, she describes a 'psychic' (5) bond with him which seems unlikely given their extremely infrequent contact during her life and also her staunch Christianity and his Jewish faith. She knows little of his life, she says, having established meaningful contact with him only when he was in his nineties, but finds herself compelled to recount his life of hardship: he escaped from Czarist Russia to settle in Lithuania and then Britain and finally South Africa. It is this part of the story, the early part devoted to her grandfather's life, in which the narrative style is most disruptive of the communication process: because Emslie's facts are somewhat sketchy, she spoils the story by interjecting with too many questions. She wonders what sort of work motivated Hyman's father to travel to Britain. What made Hyman return to England from Glasgow? Did the Leveson family emigrate to South Africa after the Anglo-Boer War, and did the British Government fund their trip? The questions punctuate this early part of the narrative. I found such questioning when no answer was possible an annoyance. One is pulled away from an engagement with the story to be reminded of the writer's own difficulties in the construction of the account. However theoretically interesting such counterpointing of *writing* as production of meaning with *reading* as production of meaning with may be, the effect is obtrusive and frustrating: the reader cannot possibly guess the answers or ponder on possible solutions. This criticism aside, and the fact that the writer spent too many pages on her grandfather's history when a paragraph or two would have done, I found myself impatient to discover Betty's own life story.

Life stories are voyages of exploration not only for readers, but for writers too. Emslie introduces her autobiography (typed on the laptop her daughter gave her for her seventy-third birthday!) with a brief discussion of the role of life writing as a tool for self-discovery:

> People write autobiographies to find out who they are. I was not aware of this as I set out to put down the story of my life, but I know that as I

have spelled out certain incidents, I've gained an insight into my psyche (n.p.).

The nature of the insights, the truths, are inextricably tied to the nature of the writer at the time of writing. Thus a writer may, at thirty, interpret certain events and experiences differently from the way she does at sixty. In *Recent Theories of Narrative*, Wallace Martin observes that whereas we often conceive of truth as unchanging, in narrative—all narrative, fictional and non-fictional—truth is time-dependent. This means that the significance of events may change when they are viewed in retrospect (1986:76). The fact that this applies especially forcefully in life writing indicates just how widespread and fundamental is the practice of conceiving of one's life as a story—a story whose meaning changes as does the narrator's consciousness.

Like most people engaged in life writing, Emslie works through her memories in chronological sequence. After leaving her grandfather's story, she begins with her background in Durban, the poverty of her family situation and her schooling at a number of different schools during the time of the 'Great Depression'. Emslie gives an evocative look at family life during this time of great hardship for many people. An historian herself, she places her family's travails in the context of world disorder by embellishing the account with historical information. The marital discord of her parents, the constant moving from rented rooms to rented houses and back to rooms left the young Betty, a dreamy child, reliant on her own concept of what constituted 'life' when she and her siblings were placed, 'for their own safety' in the Ethelbert Children's Home in Malvern, Durban. She and her brother and sister were sent by train to join their mother in Johannesburg for a holiday and then sent, unescorted, back to Durban. The family was, finally, re-united in 1930. They settled in Johannesburg. Life, however, was not to be easy. For instance, Emslie's parents' loved bridge and every Saturday evening they would leave their children unattended for long periods of time as their bridge partners lived two or more bus rides away from the Levenson home. The look at the Emslie's family life from the inside is privileged viewing but at the same time presents a sample of lives lived by many people during the trying 1930s.

Fortune came to Betty in her final year at primary school when her godmother Aunty Lily stepped in and arranged for school fees to be paid by her brother-in-law, William Macfarlane. The Macfarlanes, being childless, honoured their benevolent gesture and saw Betty through high school in

Johannesburg. She was also given a bicycle by the Macfarlanes which she used to cycle many miles to and from school. To her own surprise, Betty matriculated well and began her working career as a 'secretary' to an irascible Dean of Dentistry at Wits University. She says of this: 'I was to take the plunge into working closely with a man who did not enjoy good health and had a terrible temper' (77). Also, on Mr. Macfarlane's insistence, she trained as a radiographer.

The turning point in Emslie's life had come earlier on, in 1941, when she was just sixteen: one Sunday she felt compelled to attend the service at Johannesburg's Central Baptist Church. Once there (to the acute embarrassment of her brother) she answered the call to know God better. Her father's disgust at her having 'gone and got religion' (64) was no deterrent. Thus began a life committed to missionary work, a commitment shared with Rex Emslie, the man she married in 1946, and their three children.

They first devoted their lives to work on mission stations amongst the Bapedi people. Away from schools in remote and very primitive homes (one of which could only boast of a long-drop toilet after her father-in-law insisted that this was necessary!), Betty taught her firstborn child, Megan, at home using the correspondence method used in Australia for children living in the Outback. (Coincidentally, I, myself, in the same year, was taught by my own mother using this method.) At around this time, suffering the after-effects of the recent birth of her second daughter and third child, Betty found the 'Bagananwa to be very slow to respond to the gospel message' (147). She was alarmed to discover that the local people called themselves 'the Refused Ones'—she was to learn that this meant they doggedly refused to listen to new ideas which included the message of Christianity. There were few converts, although they were there for ten years. She says, 'As for me, my heart was overwhelmed with despair—maybe because I could understand their words as they shouted them and could detect the defiance in their voices' (148). Betty tells of her descent into depression and wretchedness and the final 'cry for help' when she attempts to take her life by way of taking an overdose of *phenobarbitone.*

The Emslie children were, before too long, sent off to boarding school in Pietersburg. Their fate echoes my own so I found myself paying close attention to this period of Emslie's story. She asserts that the closeness of her life with her children was not compromised by their being apart from her—I would like to ask her children if they agree with this statement. My own disjunctions resulting from ten years in boarding school have echoes and resonances lasting into my near old age. Also striking a very personal chord in

me was Betty's account of how she would leave her children with others in the school holidays, justified since she was teaching a five-hour day of 'vacation bible school'. Like Betty's children, in the school holidays I was left to my own devices as my mother was busy playing golf, bridge, tennis and poker. I found company and distraction playing with the children of my father's employees (that is, only the white ones, in accordance with our colonial mindset). There is a section in the boarding school anecdote when Betty tells how every time they had to take their son, then aged six and a half, 'back to boarding school after the holidays he would scream blue murder and Rex would have to carry him into the dormitory kicking furiously' (164). That's more like my memories of such incarceration!

Emslie offers some overview of South Africa during the apartheid years and the ways this impacted on missionary work. She was critical of the system but confesses that, being something of a coward (her own assertion) she avoided making direct confrontational comments or taking any pro-actively anti-apartheid action. Nevertheless, she did not share the view of her missionary husband, Rex. He was of the school that thought that a Christian intervention would be the only action needed and God would see to the restoration of a fair system of government. 'Rex had complete confidence that the preaching of the Christian Gospel would eventually solve all problems because it would advance peoples' way of life, values and economic conditions' (171). This reminds one of the legacy left by Livingstone when he saw the two-pronged solution of Christianity and commerce being the 'civilizing' force that would see Africa become an extension of European democracy.

Neither is the itinerant nature of Livingstone's existence in Africa all that dissimilar to that of the Emslies. They left the Elim mission in 1962 and relocated to Cape Town for a short while. It was during this period that Betty renewed her acquaintance with her ninety-eight-year-old grandfather, Hyman Levenson, who was resident in a Jewish Old Age Home. She recounts an occasion when the children accompanied her: 'the children stared aghast at the strange sunken-faced individuals lying in their beds who were following their every move with protruding eyes. Donald and Jenni cowered behind me, trembling and tearful' (180). Moreover, Hyman, who had no visitors, was suspicious of her motives. However, Betty continued with her visits until the Emslies relocated to Durban in 1963. He died soon after, just months before his one hundredth birthday.

In Durban, the family moved into a church house in Glenmore. Their missionary work centred around the Indian areas of Merebank and Chatsworth.

Emslie talks of her work with the children and her 'Pied Piper of Hamlyn' experiences in calling the children to her open-air pavement Sunday school by means of the ringing of a large hand bell. (An interesting aside is that a local parson, the Rev. Tibbs Naidoo has completed a masters thesis on this work and quotes the Emslies extensively and describes their work at length.) In 1971, Betty herself undertook to study at Natal University and earned the degree of Bachelor of Arts. She went on to take a Bachelor of Theology degree which she completed in 1978. She and her husband were sent again to Cape Town where their final term of missionary work was completed among the coloured people of the Cape Flats (1974 - 1977). It is at this juncture that Emslie confesses to what she perceives as her lack of courage. The year was 1976, the time of the uprisings in Soweto and elsewhere, when school children objected to the enforced use of Afrikaans as the medium of instruction. This led to the killing of many unarmed school children, and Emslie says, 'For the first time in my life I learned how great a coward I was. I became afraid to drive daily to the Bible College because it took me through Athlone and other suburbs where riots were taking place. I asked Rex to drive with me and even then we made a long detour in order to avoid trouble spots' (233). Emslie mentions the effect on her of the later killing of the American student, Amy Biehl: this frightened her greatly.

The Emslies retired to Durban in 1977 and started worshipping at the Church of the Nazarene. In 1978 she completed her Honours degree through Unisa and made plans to begin a Masters degree in New Testament theology. She tells of a brief period in Port Elizabeth (1979) when she and her husband taught at a bible college. In 1980 the couple returned to Durban and, since she had received an offer of a lectureship at Unisa, left for Pretoria for a two year stint of studying and teaching. It was while she was there, in 1982, that her husband died of a heart attack. Rex's funeral was held at the Chatsworth church that he himself had built. She recounts the many positive sentiments professed by those attending, including converts of his ministry.

Even as a widow, Emslie's life continued to be characterised by change: her retirement to a flat in Durban, in 1987, was shortlived: she lived for three years (1994 - 1997) at the Casa Robles Missionary Retirement Centre near Pasadena, California, teaching English to Armenian women and biblical studies to other students. Betty could not settle in America, however, and after three years she accepted her son and daughter-in-law's invitation to live with them in Westville. Although happy with them, independence once more beckoned. She now lives in a retirement home on Durban's Berea, and spends her days in taking 'weekly Bible study meetings' at the retirement home, visiting family,

writing and reading, and generally enjoying her well-earned relaxation after a life of hardship and self-sacrifice.

As I was, and still am, a member of the Church she attended at that time (1987 onwards), I had the privilege of hearing her preaching. I also attended the Women's retreat at Fort Nottingham to which she alludes. Her mention of Rev Rogers Govender, at this point in her story, is apposite to my own experience of attending a church whose mission it was—and is—to be a non-racial body of Christians worshipping and living without recourse to *apartheid* policies.

It is pity that the book, as a private publication, is relatively difficult to come by. With some minor editorial amendments, the book would be a worthwhile publication. The story is of interest to those who would like to learn about how a life lived in terms of Christian principles of self-sacrifice can be one of fulfillment and security. But I also recommend this book to any reader who might assume the opposite, namely, that a missionary life is glamorous or, perhaps, easy. Emslie's story might also interest readers who are informed by a postcolonialist theoretical approach. Broadly, in this view, the western need to change those unenlightened peoples they encounter (through religious conversion amongst other means), is anathema; nevertheless, the *ways* in which such projects are implemented and the justifications for such interventions are of great concern in postcolonial analysis. Such readers might find Emslie's life story—a life wholly devoted to the spreading of the Christian gospel, mostly amongst Africans and Indians—rich for examination. For better or for worse, the missionary enterprise in Africa continues to demonstrate its effects and influences. History will be the judge of whether or not it was a worthwhile endeavour; but history, as we know, is an inconsistent interpreter.

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Recent Reviews of Life Writing Publications III

List of Publications Consulted

All publications are from South Africa, unless otherwise indicated.
Prices are quoted in South African Rand.

The African Book Publishing Record
Arena
Die Burger
Cape Argus
Cape Times
Daily Dispatch
Fair Lady
The Herald
H-Net Book Review
Journal of Cultural Studies
London Review of Books
Mail & Guardian
The Mercury
The Natal Witness
NELM (National English Literary Museum) News
Pretoria News
Rapport
Saturday Dispatch
The South African Journal of Cultural History
Sowetan
The Sunday Independent
Sunday Times
Weekend Post
The Women's Review of Books
Wordstock

Contributing Reviews Editor: Judith Lütge Coullie
School of Languages and Literature
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Awerbuck, Dianne
Gardening at Night.
By Dianne Awerbuck
London: Secker & Warburg, 2003, 247 pp. R141,00
'Why this book should be called a novel is a bit of a mystery. Presumably most of it is fiction, though it is told in the first person, and the protagonist-memoirist is the author, Dianne Awerbuck. Just how much of it really did happen will be known only to those people really close to her. If it is autobiography why not just say so, since it has the long baggy shapelessness of a lived life, forgivable in a memoir, less attractive in a novel'. Awerbuck's story begins in Kimberley, South Africa 'where very early on her Jewish biological father is ejected from the family and then commits suicide.... Readers need to brace themselves for an ongoing deluge, a 'sea of troubles', which also includes abortion, abandonment, deaths from car crash, overdose and diving off a bridge. And cancer.... The day-to-day superficiality of a middle-class white existence in the Eighties and Nineties in South Africa is often well caught...'.

Jane Rosenthal. *Mail & Guardian: Friday* June 13-19 2003:iv.

Gardening at Night is an intimate account of growing up and growing aware in South Africa in the '80s, the '90s and the new millenium. Awerbuck tells her story 'with total honesty and without sentimentality .... The story is bleak in parts, but also bitter-sweetly funny'.

Kay-Ann van Rooyen. *Fairlady* July 2003:171.

Basson, Wouter
Secrets and Lies: Wouter Basson and South Africa's Chemical and Biological Warfare Programme.
By Marlene Burger & Chandre Gould
Cape Town: Zebra Press, 2002, 231 pp. R139.95.
Authors Chandre Gould (a researcher for South Africa's Truth and Reconciliation Commission) and Marlene Burger, a journalist, have tried to unravel the story of Wouter Basson, the first head of a biological and chemical warfare programme to go on trial in the world. The book is not an easy read: it is a tangled web of events, people and companies which stretches over many continents; however, it is too good a story not to read. *Secrets and Lies* is a laudable effort insofar as anybody has been able to paint a picture of the apartheid state's chemical and biological warfare programme.

Estelle Ellis. *Cape Argus* October 4 2002:12.

Breytenbach, Jan
The Buffalo Soldiers: The Story of South Africa's 32 Battalion.
By Jan Breytenbach
Alberton: Galago, 2002, 360 pp. R270,00
This is Colonel Jan Breytenbach's personal account of South Africa's involvement in the Angolan civil war in the mid-'70s. The Buffalo soldiers, along with South Africa's notorious Koevoet irregulars, were the main opponents of the MPLA and Cuba during the Angolan civil war and the border war against Namibean freedom fighters, the South West African People's Organisation. The war left scars, and amongst them is Breytenbach's bitterness at the way ex-President F.W. de Klerk disbanded his battalion before the 1994 democratic elections.

Archie Henderson. *Cape Argus* April 11 2003:10.

Dean, Geoffrey
The Turnstone: A Doctor's Story.
By Geoffrey Dean
Liverpool: Liverpool University Press, 2002, 273 pp. R139.95.
The turnstone is quite literally a curious bird moving along the shore, using its beak to shift pebbles to see what lies underneath. It is the apt title of the autobiography of former Port Elizabeth doctor, Geoffrey Dean. He's plainly a brilliant researcher whose research into porphyria, multiple sclerosis and lung cancer led to him being made Commander of the Order of the British Empire in 2003. His account is spiced with anecdotal material that cannot fail to interest.

Robert Ball. *The Herald* January 22 2003:4.

'If it was there to be researched, you can be sure that doctor Geoffrey Dean has probably studied it in his 60 years of globe-trotting. He starts at the beginning and ends at the end, not always the best way to keep readers transfixed, but in spite of a sometimes pedantic style Dean's work is so fascinating it's impossible not to remain interested'.
Di Caelers. *Cape Argus* March 21 2003:9.

de Kock, Eugene
A Human Being Died that Night.
By Pumla Gobodo-Madikizela
Claremont, South Africa: David Philip, 2003, 193 pp. R140,00

Pumla Gobodo-Madikizela, associate professor of psychology at the University of Cape Town, worked in the Rehabilitation and Reparations Committee of the Truth and Reconciliation Commission. In this book she recounts her acquaintance with apartheid's henchman, Eugene de Kock. The relationship (arising out of 46 hours of interviews) between the interviewer and the man who came to be known as Prime Evil allows for fascinating insights into their psyches, but also into the very nature of reconciliation and forgiveness: the search for the human in the inhuman which make this a book that will become seminal reading on the TRC. Do not miss this book.

Jennifer Crocker. *Cape Times* June 13 2003:10.

Apartheid's master assassin, Eugene de Kock, is now serving 212 years in jail for crimes against humanity. Pumla Gobodo-Madikizela's first exposure to de Kock came in 1997 when he testified about his part in the murders of three black policemen and a man who was their friend. A few days after the hearing, Gobodo-Madikizela met the widows of two of the victims, one of whom said that her tears were not only for their husbands but also for de Kock. This empathetic act led to Gobodo-Madikizela's desire to interview de Kock to find answers to fundamental questions about forgiveness and remorse, at the level of the individual and the nation.

Each chapter of *A Human Being Died That Night* unveils new horrors and new hope, new questions and offered explanations. It sheds light on the dynamics of a threatened (white) society which wanted results, sometimes revenge, and the threats the 'other side' faced. Every South African should own a copy.

Lindsay Slogrove. *The Mercury* June 26 2003:13.

The desire of many reviewers to cast de Kock in the role of a South African Hannibal Lecter, to erase complexity and specificity, should not put readers off this book. In his preface, Albie Sachs asks whether Gobodo-Madikizela and de Kock can stop being a black South African woman and a white South African man and simply be humans. My question was: Can any South African? Gobodo-Madikizela answers these questions in terms of an analysis of individual versus structural and systemic crimes.

Carol Christie. *Wordstock* June 29 2003:2.

This is a fascinating book that raises disturbing questions about the nature of evil, of what it is that produces monsters in society and whether, by trying to

understand perpetrators, we give them a way out: pertinent questions in a society where former enemies live side by side. Gobodo-Madikizela's writing is intensely powerful, shattering assumptions about what constitutes our humanity.

Laurice Taitz. *Sunday Times: Lifestyle* August 3 2003:13.

'Dread, Zebulon' (Elliot Josephs)
Memoirs of a Closet Guerrilla.
By Zebulon Dread
Self-published (South Africa).
This autobiographical novel by South African 'cultural terrorist' is an honest and exciting tour through an interesting life. The book focuses on his traumatic childhood with an abusive father in a township 'littered with children' and bedevilled by gangs, alcohol and drug-abuse. He goes on to criticize the middle classes and political ruling classes (past and present).

Erns Grundling. *Die Burger* June 17 2002: 7.

Fafunwa, Aliu Babatunde
Memoirs of a Nigerian Minister of Education.
By Aliu Babatunde Fafunwa
Lagos: Macmillan Nigeria, 1998, 369 pp. $7.00.
Fafunwa was a university teacher and administrator, and later Federal Minister of Education under Nigeria's President Babangida. Early sections of this volume overlap with Fafunwa's previous memoir, which extended up to 1979. Throughout, Fafunwa provides details which are 'massively in excess of what is expected of a 'good read' memoir', but which may be useful to those who use it as source material on the history of educational planning in Nigeria. The photographs amount to 'little more than autohagiography .... not inappropriate in a book mired at the level of management that offers, finally, little insight into the problems and challenges facing the Nigerian educational system'.

Chris Dunton. *The African Book Publishing Record* 38 (1) 2002:10.

Fischer, Bram
Fischer's Choice: A Life of Bram Fischer.
By Martin Meredith
Johannesburg & Cape Town: Jonathan Ball, 2002, 164 pp. R143.00.
Born into 'well-connected Afrikaner "royalty"', Bram Fischer is remembered

today as an advocate who defended anti-apartheid activists in South Africa in the 1950s and 1960s. He saved Nelson Mandela and others from the gallows in the Rivonia trial. In 1966, he was himself sentenced to life imprisonment.

The author 'does his best to maintain impartiality but cannot disguise his admiration for Fischer's sacrifices. At times, the book is intensely moving. It deserves a wide audience'.

Bruce Bennett. *Sunday Times: Lifestyle* November 24 2002:13.

Fox, Justin
With Both Hands Waving: A Journey Through Mozambique.
By Justin Fox
Cape Town: Kwela Books, 208 pp. R95.00.
Getaway magazine journalist Justin Fox was asked by his editor to drive from Ponta da Ouro in Mozambique's extreme south to the Rio Rovuma in the extreme north in one month. He and a couple of mates made it just about all the way, but then two of them got malaria and dysentery and they had to make for Malawi. This account of the journey is wonderfully literate (not surprising, as Fox holds a doctorate from Oxford University) and makes for highly entertaining reading. My only gripe is that at times there is a certain joylessness as one feels that they are racing to get from place to place. But for anyone who has ever been to Mozambique, ever wants to go there, or simply for those who love travel books, this is a must-have addition to the shelf.

Tony Weaver. *Cape Times* August 30 2002:12.

Given the lack of good roads and the accommodation which is 'generally non-existent or way below acceptable standards', travelling through Mozambique is not for wimps. But it has much to offer, and Fox's account is both educational and highly entertaining. To keep an audience enraptured without the benefits of glossy pictures, takes great skill. Fox has it aplenty.

Debbie Derry. *The Herald* August 21 2002:4.

Fox recounts his travels with a few friends in Mozambique during which he 'met some extraordinary people and travelled over some extraordinary roads, saw misery and beauty and enormous potential and explored many of their own feelings about living as whites in Africa'. The journey, Fox says, 'taught me to see differently ... plunged me into depression and made me soar. It had done everything a journey should do'. One small disappointment with this book is the poor proofreading.

Vivien Horler. *Cape Argus* August 16 2002:12.

'Fred'
Fred at Your Service, Ma'am: Reminiscences of a Service Dog.
By Lauren Singer
Illustrated by Tony Grogan.
Claremont: Spearhead, 2003, 86 pp. R105,00
Fred is a golden retriever who is a service dog serving author Lauren Singer who was diagnosed with multiple sclerosis twelve years ago. The title is listed as Spearhead biography and that is exactly what it is—Fred's ancestry, life as a puppy, separation from family, initiation into service age one; then his life with Singer. This account, told from Fred's perspective, is a gem which will move you in so many ways with humour and insight all rolled into one.

Robyn Cohen. *Cape Times* May 30 2003:12.

Fugard, Athol.
The Captain's Tiger: A Memoir for the Stage.
By Athol Fugard
New York: Theatre Communications Group, 1999. 64 pp. R134,00
(Also, Johannesburg: Wits University Press, 1997. 88 pp. R45.)
This quasi-autobiographical play has two plots: the external plot concerns the life of Betty le Roux, the protagonist's mother. Tiger, the protagonist-author, is writing a novel about her life. The internal plot concerns the particularity of Tiger's growth and maturity as a writer. The play makes 'the point that a writer's creative imagination inextricably intertwines with the reality of his environment, and that 'creative authority and freedom'
can only find a voice when the writer tells the truth'.

Peter Anny-Nzekwe. *Journal of Cultural Studies* 3,1,2001:224-228.

Hamilton, Steve
I Want my Life Back.
By Steve Hamilton
Johannesburg: Penguin, 2002, 384 pp. R95.00.
This is a deeply, deeply disturbing book which you could only want to read for two reasons. One is if you are a drug addict wanting to break free; the other is if you know someone who is an addict and you want to understand them so as to help them. If you have ever felt a craving for anything vaguely narcotic, then read this book and give yourself a chance.

Craig Bishop. *The Natal Witness* September 6 2002:7.

At the age of six, Steven Hamilton had to help his drunk father home. This is one of a number of harrowing incidents in this damaged life. But it is a testament to both Hamilton's wryness and the skill of his co-writer Alison Lowry that the book never becomes oppressive. Hamilton, who descended into drug addiction and who now makes his living as a public speaker, has been clean for twelve years.

Michele Magwood. *Sunday Times: Lifestyle* September 8 2002:13.

Holgate, Kingsley
Cape to Cairo: One Family's Adventures along the Waterways of Africa.
By Kingsley Holgate
Cape Town: Struik, 2002, 207 pp. R169.95.
Holgate recounts an epic African adventure, and if this tale doesn't make you want to buy a Land Rover and head off for the experience of a lifetime, nothing will. *Cape to Cairo* is a recreation of Holgate's leather-bound, sweat-stained journal that accompanied him, his wife, son and four friends as they journeyed up the continent.

Adelle Horler. *Cape Argus* November 1 2002:14.

Kingsley Holgate is one of Africa's great adventurers, a modern-day Livingstone, if you like, who is passionate in his quest to explore some of the remotest and most fascinating regions of the continent and the world. This account is a great read, wonderfully written with informative, amusing and fascinating stories, and it looks good too with its journal-like cover and layout crammed full of interesting visual tit bits.

For all those who love Africa and adventure, this is one of those must-haves.

'G.F.' *Pretoria News, Interval* January 13 2003:3.

Ing, Andrew
Paris to Pamplona on a Barstool.
By Andrew Ing
Cape Town: Lighthouse Publications, 2002, 102 pp. R72,00
Ing recounts the somewhat hedonistic 18-day journey that he and four South African friends undertook through Europe. No space is wasted on descriptions of the countryside or places of interest; the focus of this unusual travelogue is

the various liquids the travellers manage to imbibe en route. The humour, which is boyish and often lavatorial, is mirrored by pen-and-ink illustrations. The misuse of foreign phrases is a great source amusement.

Penny Grimbeek. *Fairlady* March 2003:163.

Jacottet, Edouard
Murder at Morija.
By Tim Couzens
Parklands: Random House, 2003, 474 pp. R150.
Murder at Morija is the biography of Edouard Jacottet, an eminent scholar and missionary of the Paris Evangelical Society in Basutoland (now Lesotho), as well as the history of the Christian mission he served amongst the people to whom he devoted his life. Jacottet was poisoned in 1920: there was no trial and no one was ever convicted of the murder. In this 'compelling and groundbreaking' study, Tim Couzens sets out to solve the murder.

Unnamed reviewer. *Arena* July 2003:32-33.

The story, which traces the history of the bringing together of the Basotho nation under Moshoeshoe and the role of the early missionaries, is compellingly told by Couzens. Couzens 'spent the best part of the last ten years researching the book' and offers a comprehensive history of how it is that the nation of Lesotho still exists independently today, resisting being swallowed up by South Africa which surrounds it.

One of the central themes concerns the interdependence of the personal and the political: for both the missionaries and the chiefs who formed alliances with them there were choices to be made. Couzens' exploration of this theme shows his understanding of 'the magic and meaning of history... of how personal choices alter the future'.

Jennifer Crocker. *Cape Times* May 9 2003:7.

Johnson, Nkosi
Nkosi's Story.
By Jane Fox
Parkview: The Life Story Project/ Spearhead, 2002, 303 pp. R120,00
This is the story of a black South African boy and his white mother and their courageous battle against AIDS. The book also opens 'a whirlpool of questions about cross-cultural adoption, ordinary people's fears and unethical journalism'.

Christi Naude. *The Natal Witness* December 20 2002:13.

At the age of two, Xolani Nkosi arrived at Gail Johnson's after the closure of the care home where his mother Daphne placed him. All the controversies are in this account: getting HIV+ children into school, making public statements about AIDS and anti-retrovirals, and the media furore around Gail's supposed exploitation of her son. Fox deals deftly with the politicking madness that surrounded him, the love, the ugliness, and gives (with what must have been excellent research) insight into the 11-year-old's choice to stop and let go. Expect to sniff through this book while the family's, especially Nkosi's and Gail's, spirited approach to life and their humour bring bitter-sweet floods of tears on many occasions.

Justine Gerardy. *Daily Dispatch* January 4 2003:4.

Jonker, Ingrid
***Ingrid Jonker: Beeld van 'n Digterslewe.* [*Ingrid Jonker: Portrait of a Poet's Life.*]**
By Petrovna Meterlerkamp
Hermanus: Hemel en See, 2003, 252 pp. R250,00
Meterlekamp sought to collect as much material as possible about the Afrikaans poet, Ingrid Jonker, who—in 1965 at the age of 31, a year after she had won a prestigious literary award—walked into the sea at Three Anchor Bay, Cape Town, and drowned. This book contains 140 photographs and 60 letters and manuscripts which give an overview and perspective which has previously not been available. The author/compiler insists that this is not a biography, but rather an attempt to present the facts as objectively as possible, to leave it up to the reader to make up his/her own mind.

Ampie Muller. *Cape Argus* July 4 2003:10.

Keitetsi, China
Child Soldier: Fighting for my Life.
By China Keitetsi
Bellevue: Jacana, 2002, 218 pp. R154.95.
Child Soldier is a harrowing account of one person's traumatic childhood—and traumatic adulthood. Following her departure from an abusive home, China Keitetsi, at the age of nine, was dragged into Uganda's National Resistance Army, which dehumanised her and turned her into a killer. She survived attempted rape as well as imprisonment, and finally fled the army.

With its straightforward and simple language, *Child Soldier* makes an accessible read. It is not a comfortable story, but it is gripping and an impressive tale of courage and determination in the face of horrific odds.

Reggy Moalusi. *Mail & Guardian, Friday* February 7-13 2003:3.

Koch, Blaise.
In, Around, Through and Out: An actor's life.
By Blaise Koch
Claremont: Spearhead, 2002, 319 pp. R130.00.
In a career stretching over 30 years, South African, Blaise Koch, has appeared in more than 250 stage productions. This book is a record of his life as an actor and as a man, struggling to come to terms with his HIV-positive status. This is an important book and an eloquent testament to a special spirit. In the literature of HIV-AIDS, it will unquestionably have a major impact, not only for its insights but for the journal-based immediacy of much of the text.

Kenosi Modisane. *Sowetan* June 28 2002:26.

What could have been an illuminating, moving record of Koch's life—not to mention a fresh take on the stigma of HIV—is instead a tedious, peevish, narcissistic diatribe that reflects so badly on Koch as to be pitiable.

Di Caelers. *Cape Argus* June 10 2002:10.

Although this masterfully told story throws light onto this disease which is, in South Africa, obscured in silence, it often gets bogged down in the award-winning actor's own emotional downswings.

Michele Magwood. *Sunday Times: Lifestyle.* August 18 2002:12.

Kombuis, Koos
***Seks & Drugs and Boeremusiek.* [Sex & Drugs and Afrikaner music.]**
By Andre LeToit (Koos Kombuis)
Cape Town: Human & Rousseau, 2000, 294 pp. R79.95.
This book comprises 294 pages of 'self-centred, self-appreciated, self-delighted, self-contented and self-advanced ravings' of South African 'Boere-rocker' (Afrikaner singer/composer). I'm at a loss as to why Kombuis—and the publishers—got the idea that anyone would want to read about his never-ending trips through Weskoppies mental hospital, coffee shops, drinking and drug-taking sprees.

Eddie Botha. *Saturday Dispatch* March 15 2003:4.

Labuschagne, Riaan
On South Africa's Secret Service: An Undercover Agent's Story.
By Riaan Labuschagne
Alberton: Galago, 2002, 304 pp. R275,00
In this book, Labuschagne describes his 15 years as an undercover agent for the National Intelligence Service of the apartheid government. The book is published by Peter Stiff who has cornered a niche market of books on South Africa's various covert forces. Labuschagne's book draws on Stiff's somewhat fictional style, so most of his claims are not backed up by supporting evidence, but his service in the NIS appears to be well documented.

Sam Sole. *Mail & Guardian* January 3-9 2003:8.

Lessing, Doris
Doris Lessing: A Biography.
By Carole Klein
London: Duckworth, 2000, 283 pp. 18.99 pounds sterling.
Klein's biography has a 'souffle-ish quality': she blanches and trims Lessing's two short monographs about her parents, cannibalises the autobiographies, and supplements these with conversations with journalists, former personal assistants and political and literary acquaintances, and a voluble ex-lover. Although all the key facts are there, Klein is too baffled by Lessing and the choices she made, and usually too disapproving of them, to probe the connection between the life and the work. This is particularly frustrating since there is a problem with Lessing's writing, in spite of all its praiseworthy qualities—its ambitiousness, its formal daring and philosophical seriousness—which it is the biographer's job to address. Klein's 'bland biographical mix' is not the biography Lessing deserves.

Elizabeth Lowry. *London Review of Books* March 22 2001:29-30.

Lewin, Hugh
Bandiet: Out of Jail.
By Hugh Lewin
Johannesburg: Random House, 2002, 264 pp. R150,00
Hugh Lewin was the son of English missionaries. As a young man, he joined the anti-apartheid Liberal Party and the African Resistance Movement, whose aim was to commit acts of sabotage to demonstrate opposition to apartheid. He participated in three such acts before being arrested. At the age of 24, he was sentenced to seven years imprisonment. *Bandiet*, his account of the fear,

physical pain, humiliation and deprivation he and his fellow politicals endured, was published in 1974 but banned in South Africa. Here it is again with some additions, and it's useful reminder of the barely restrained brutality with which the National Party government ruled South Africa for 46 years.

Chris Barron. *Sunday Times, Lifestyle* December 15 2002:13.

Mallet, Nick and Rob van der Valk
Nick & I: An Adventure in Rugby.
By Rob van der Valk & Andy Colquhoun
Cape Town: Don Nelson, 2002, 224 pp. R102.00.
This account of the years during which Nick Mallet coached the Springbok rugby team is simply and honestly told by Rob van der Valk. The book not only gives the reader an insight into rugby personalities and events behind the scenes in the Springbok camp, it also exposes the political minefield—principally regarding racial quotas in the team - which the Springbok coach must negotiate.

Fritz Joubert. *Die Burger—Boeke* June 10 2002:9.

Mdakane, Zinhle
No Way Out: Story of an X-Street Kid.
By Zinhle Carol Mdakane
Durban: Life History Series, University of Durban-Westville, 2001, 139 pp. R100,00
Zinhle Mdakane was raped on the way home from school when she was only six years old. She does not confide this horrifying event to anyone. Thereafter, her family situation deteriorates when both of her parents find new partners and Mdakane gives birth to an illegitimate baby. This is the boy her mother has always wanted and Zinhle is cast out and forced to leave her child behind. From this point her life descends into a gruelling chronicle of misfortune. *No Way Out* makes for painful reading. Its style is not polished but what it has to say is certainly worth hearing.

Shirley Kossick. *Mail & Guardian: Friday* August 8-15 2002:3.

The idea behind this first-person novel is superb, and the issue tackled an important one, but the actual execution is disastrous. The narrative lacks plausibility and is grammatically and structurally flawed.

Myolisi Gophe. *Cape Argus* May 13 2002:10.

The autobiography begins with Zinhle Mdakane's unhappy childhood in KwaZulu-Natal, South Africa, and her later years on the streets of Durban and Johannesburg. At the same time, there unfolds a tale of crime, drug abuse, torture and murder—but also of humanity and empathy in hopeless circumstances. This account (like that of Zazah P. Khuzwayo in the same series) is self-published and thus represents a refusal of a marginalised black woman to be silenced by cruel circumstances and by an unsympathetic publishing industry. Unlike the majority of recent South African autobiographies, Mdakane's is not largely political. However, it is in stories such as these, between the lines of official history and political history, that valuable political and historical commentary is to be found.

Annemarie van Niekerk. *Rapport* June 9 2002:17.

Meer, Ismail
A Fortunate Man.
By Ismail Meer
Cape Town: Zebra Press, 2002, 287 pp. R180,00
Sadly, the author died before completing this most detailed of autobiographies. On his death, his widow and children took up the task. Together they have demonstrated how a life-long standing in his local and the wider community was won and maintained.

Meer was certainly fortunate in his family, his friends and acquaintances, in his professional, legal colleagues and, not least, in his mutually loyal political comrades in the anti-apartheid struggle. Above all, he was blessed by birth into the Islamic faith: a religious conviction that carried seamlessly through to his public life.

Alan Lipman. *The Sunday Independent* January 5 2003:17.

Mhlaba, Raymond
Raymond Mhlaba's Personal Memoirs: Reminiscing from Rwanda and Uganda.
By Raymond Mhlaba, narrated to Thembeka Mufamadi
Pretoria: HSRC and Cape Town: Robben Island Museum, 2001, 192 pp. R114.80.
While the story of this veteran of the anti-apartheid struggle is 'engagingly forthright', the manuscript should have been more carefully edited.

Tim White. *The Sunday Independent* July 7 2002:18.

Mogoba, Mmutlanyane Stanley
Stone, Steel, Sjambok: Faith Born on Robben Island.
By Mmutlanyane Stanley Mogoba
Johannesburg: Ziningweni Communications, 2003, 87 pp. R115,00
Mogoba's activism in the Pan Africanist Congress landed him on Robben Island in 1964. It was nearly soul destroying and was meant to be nothing less. But prisoner 20/64 turned to Christianity and found the moral and spiritual strength the authorities hoped would be beaten out of him. He later rose to become leader of the Methodist Church and more recently—and controversially—he returned to politics as president of the PAC. His book, he believes, offers an explanation to Methodists, especially, who were distressed by what they saw as a revocation of sorts. He asserts that there is no contradiction between the two roles in a society like South Africa's.

Michael Morris. *Cape Argus* May 16 2003:10.

Mphahlele, Letlapa
Child of the Soil: My Life as a Freedom Fighter.
By Letlapa Mphahlele
Cape Town: Kwela Books, 2002, 214 pp. R99.95.
Commander of the Azanian People's Liberation Army, the armed wing of the Pan African Congress, Letlapa Mphahlele has rewritten the history of South Africa and of the PAC. *Child of the Soil* depicts his childhood, his life in exile and recounts anecdotes about struggle leaders, politicians and other vivid characters.

Needo Kumbaca. Daily Dispatch October 9 2002:6.

Far from being a liturgy of the black man's burden or a catalogue of atrocities inflicted on the defenceless masses, Mphahlele's book ably steers away from sob stories to focus on his life as a freedom fighter in the anti-apartheid struggle. There are no sacred cows in Mphahlele's book. He puts all liberation movements under the microscope, but the harshest criticism is reserved for his party, the PAC.

Mongadi Mafata. Sowetan October 11 2002:8.

Letlapa Mphahlele was a commander in the Azanian People's Liberation Army. He was the man who ordered the massacre in the St James' Church in Cape Town (in which 11people were killed) and the Heidelberg Tavern attack (in which 4 people died). These attacks on civilians took place after Nelson

Mandela and the liberation movements had been freed. Later Mpahalele applied for amnesty from the Truth and Reconciliation Commission, but then withdrew his application. Yet he believes in reconciliation.

Myolisi Gophe. *Cape Argus* October 25 2002:18.

Mugabe, Robert
Robert Mugabe—A Life of Power and Violence.
By Stephen Chan
Ann Arbor: University of Michigan Press, 2003, xvi + 240 pp. $27.95.

'Stephen Chan, a New Zealander, was on the staff of the Commonwealth secretariat from 1977 to 1983. He was an early advisor to Mr Mugabe's government. He is today professor of International Relations and dean of Law and Social Sciences at London University's School of Oriental and African Studies'. He attempts to describe Mugabe's metamorphosis from 'brave statesman' and 'a byword for reconciliation' into someone who 'has missed his chance to enter history without shame'. The result is a narrative with as many contradictions as Chan sees in the character of his subject. Chan's lingering devotion to Mugabe shines through. Paradoxically, he is, as a political scientist, unfair to Mugabe, failing to understand the magnitude of the problem that Mugabe—unlike Ian Smith before him—faced in maintaining stability as the country's population doubled in 20 years. The first prerequisite of any real democracy is an ability to face the unvarnished truth and Mr Mugabe could never do that. Neither can Chan.

Michael Hartnack. *The Herald* March 12 2003:6.

Despite its title, this book is not a biography in the generally accepted sense of the term. Instead, it deals (in strictly chronological order) only with Robert Mugabe's years in power between 1980 and 2002. It thus fails to consider Mugabe's rise to leadership—'crafted by deceits and treacheries' —during the liberation struggle days. Although written by a professor at London's School of Oriental and African Studies, the book is 'not a purely academic text' and the references do not include any of the existing books on Mugabe, such as the biographies by David Smith et al, Martin Meredith and David Blair. There are some errors of fact in Chan's account, as well as some omissions and some seemingly irrelevant inserts: Chan does not examine Mugabe's early achievements in domestic reform (especially education and health) or failures such as his inability to stamp out corruption.

Elaine Windrich. H-Net Book Review. H-Safrica@h-net.msu.edu. May 2003.

Rorke, Winnefred and Agnes Lottering
Winnefred and Agnes: The Story of Two Women.
By Agnes Lottering
Cape Town: Kwela Books, 2002, 248 pp. R89.95.

Agnes Lottering, a mix of Zulu and Irish, decided, at the age of 65, to tell the story of her life and that of her mother, Winnefred Rorke. Under South Africa's apartheid regime, those of mixed blood often found themselves in the horrible position that the law forbade them to be part of one group yet they were also discarded by the other group. Lottering recounts an amazing life, and displays an inner strength and a love for the land and her people that is quite astounding. She shows a rare talent for telling her life story with an honesty and openness which not only take her on her own journey of discovery but do so for the reader as well.

Diane de Beer. *Pretoria News, Interval* January 30 2003:2.

This micro-history in the form of a story is more than the story of Agnes and her mother. It is also the story of women and their relationships and families and the violence that they have to endure; it is also about love, and how it follows its own logic and is not always contained within the boundaries set by laws. Their stories are uniquely South African as they trace the lines of marriage between male colonisers and Zulu women.

One could criticise aspects of this book—the stories of mother and daughter could have been better integrated, the narration sometimes lacks momentum as it overindulges in detail—but it offers a special and personal glimpse of the past.

Herman Wasserman. *Die Burger* December 2 2002:7.

Roup, Julian
A Fisherman in the Saddle.
By Julian Roup
Houghton: Jacana, 2003, 251 pp. R148,00

A Fisherman in the Saddle consists of two separate but complementary stories. Both books are a pastiche of memoir, travelogue, geography and history. Through geographical and personal changes, the two constant passions in Roup's life have been horses and fishing. *Switched* focuses on fishing rituals

with his dad, mates and strangers. *Horse Medicine* is the more biographical of the two.

Roup was the privileged son of an industrialist Jewish father with Lithuanian roots and a mother of 'blue chip Boer Rugby Royalty'. A sickly child, Roup hated rugby and remained an outsider. When he was six or seven he got his first horse and was given free reign to roam the beaches near Cape Town. As an adult in 1980, he and his wife emigrated to the UK; here, cut off from family and birthplace, he says horses became his nation, his identity and his friends.

Thankfully, Roup doesn't 'trundle out the predictable white [South African] privileged angst justifications for leaving the motherland'; instead he focuses on 'the pain of losing one's cultural space, of discovering how South African you are when you leave'. Roup's stories are 'enjoyable, interesting and informative... refreshingly devoid of self-posturing'.

Robyn Cohen. *Cape Times* June 27 2003:12.

I really don't know what to make of this slightly strange book that is actually two books in one. For one thing, it does not have a back cover, but two front covers. The two tales are basically life stories and read like one-sided conversations during which Roup bangs on about his younger years in Cape Town. He writes well: his style is easy-going and colourful but a wildly exciting reading experience it is not.

Henri du Plessis. *Cape Argus* July 18 2003:10.

Ryan, John
One Man's Africa.
By John Ryan
Jeppestown: Jonathan Ball, 2002, 346 pp. R159.95.
Over the last 40 years, veteran news correspondent John Ryan has travelled extensively in Africa, reporting on events in countries such as Angola, Mozambique, Zambia, Lesotho, (the then) Rhodesia, and in his native South Africa. During the course of his career, he has been involved in five wars, detained four times and witnessed the final, painful death throes of white rule in Africa. In *One Man's Africa* he gives a vivid, colourful account of what it was like to be a journalist on assignment in these event-filled, often traumatic, defining times. Insightful, intelligent, scrupulously fair and written with a sort of sustaining humour and an eye for the absurd, it blends history with his own personal experiences.

Anthony Stidolph. *The Natal Witness* November 6 2002:6.

Sharpe, Chrystal
Dog in my Footsteps: More Stories of a Vet's Wife.
By Chrystal Sharpe.
London: Penguin Books, 2002, 249 pp. R110,00
Dog in my Footsteps is Sharpe's second book about life with a vet. And a very interesting life it is because her husband, Dave, doesn't run an ordinary small animal practice but specialises in marine and wildlife animal care, with only a small sideline in treating Fluffy and Spot. The beauty of Chrystal's writing is the way her domestic animals come to life, each finding a voice. She writes with humour, clarity and an unbounded love of nature.

Samantha Bartlett. *Cape Times* March 21 2003:12.

Sisulu, Walter and Albertina
Walter and Albertina Sisulu: In Our Lifetime.
By Elinor Sisulu
Claremont: David Philip, 2002, 448 pp. R220,00
A biography of epic proportions, *In Our Lifetime* traces the life histories of two outstanding and leading activists during the dark days of the struggle against apartheid. The author (who is married to their son) covers their respective childhoods in the Eastern Cape and then later their lives together in Johannesburg and how they dealt with apartheid. The story of the Sisulus is also the story of the rise of the ANC, the Treason Trial and the making of Robben Island into an icon of the anti-apartheid struggle. The book also provides rare insight into the rocky relationship between Albertina Sisulu and Winnie Mandela. This eminently readable and well-researched biography tells the story with great sensitivity and depth, but tends to be too positive in that it doesn't give a sense of the full gamut of human experiences, the foibles, the mistakes that were made.

Trevor Oosterwyk. *Cape Argus* January 31 2003:14.

There is a plethora of publications on how South Africa was liberated, but *Walter and Albertina Sisulu: In Our Lifetime* is in a class of its own. It is an intimate account of one family's role in the struggle for democracy. Sensitively written, it manages its enormous historical freight and its vast cast of actors with judicious balance and insight.

The biography conveys vividly the contrast between Mandela's magnetism and Sisulu's self-effacing manner, the latter serving as the liberation organisation's senior strategist.

Andries Walter Oliphant. *The Sunday Independent* February 16 2003:18.

The biographer is to be congratulated; she provides an account of all the major phases of both Walter and Albertina's political involvement, without allowing the political pre-eminence of Walter to relegate Albertina as a footnote to her major partner. This biography shows that despite Walter's 26 years of incarceration, constant harassment of Ma Sisulu and other members of the family, they nevertheless continued their relationship and love for one another and their children. Ma Sisulu's contribution provides an interesting and critical case study for examining the specificity of African feminisms and their contexts.

Raymond Suttner. *Mail & Guardian, Friday* February 14-20 2003: 1-2.

Slaughter, Carolyn
Before the Knife: Memories of an African Childhood.
By Carolyn Slaughter
New York: Alfred A Knopf, 2002, 222 pp. $32.00
Memoirs have been an important genre for white women in Africa: the writings of Karen Blixen, Doris Lessing, Kuki Gallman and others sound a constant note—Africa gets under your skin, defines your inner landscape and becomes your measure of outward beauty. But many white women writers have sought, as well, to confront the evil processes that allow them access to this landscape. Carolyn Slaughter tells the story of her own childhood in a family which, like colonialism, is rotten at its core. Slaughter's father revels in the power of his race and colonial status, her outwardly glamorous mother is a feeble depressive at home.

Slaughter's story is told with bitter humour and passion, in lyrical writing that leaps off the page in unforgettable images. Yet, perhaps because of the seductive power of the writing, I read with increasing unease the implicit metaphor of the book: the heart of darkness. The inner world of family trauma parallels the outer world; colonialism is akin to rape. It is far away from Africa, in the bleak English landscape, that healing finally begins. But this points to the limitations of the metaphoric association of Africa's heart of darkness with

intimate violence: in reconciling her inner world Slaughter had to turn away from the more messy responsibilities of 'the white woman's burden'.

Shireen Hassim. *The Women's Review of Books* XX,2, November 2002:10-11.

Swartz, Simeon and Olga
A Life of One's Own.
By Hilda Bernstein
Bellevue: Jacana: 2002, 293 pp. R160,00
This book is essentially a pair of cameo stories of Hilda's father, born Simeon Swartz, and her sister Olga, and their separate experiences of Russia and England after 1917. Bernstein is a careful, scholarly writer who has gone into great detail about the political and historical context.

Vivien Horler. *Cape Argus* February 7 2003:14.

Uys, Pieter-Dirk
Elections and Erections: A Memoir of Fear and Fun.
By Pieter-Dirk Uys
Cape Town: Zebra Press, 2002, 230 pp. R129.95.
Pieter-Dirk Uys is a remarkable man who has written a remarkable book. Divided into three sections, he looks at his own past, then at the lead-up to the elections in 1999 and lastly, in the third 'and most important section', at AIDS in South Africa and the rest of the world. The book reveals a man who feels strongly about South Africa and its people.

Unnamed reviewer. *Weekend Post* November 16 2002:6.

van der Merwe, H.W.
Peacemaking in South Africa: A Life in Conflict Resolution.
By H.W. van der Merwe
Cape Town: Tafelberg Publishers, 2000, 223 pp. R89.95.
'H.W. van der Merwe pioneered the field of conflict resolution in South Africa. This book is a memoir of his life as a peacemaker in that troubled nation. The early chapters chronicle his childhood, education and formative experiences, culminating in what he describes as the 'moment of truth: Afrikaner becomes African'. By that he means the shedding of the racial prejudices he has been taught. The bulk of the book describes his experiences as the director of the Centre for Intergroup Studies. Its director for 25 years, van der Merwe provides an authoritative history of that institution (renamed in 1994 the Centre for

Conflict Resolution), which under his tutelage became the leading centre of mediation in South Africa.

His personal story is at the same time a narrative of the major figures and events in South African political history ....

Peacemaking in South Africa will be of interest to a broad audience: students of apartheid, of conflict resolution and of Quaker faith and practice. Its interdisciplinary approach is its appeal. It is highly recommended for libraries at all levels'.

Lyn Graybill. *The African Book Publishing Record* 38,1,2002:11.

Vaughan, Iris
The Diary of Iris Vaughan.
By Iris Vaughan
Cape Town: Stormberg, 2002, 131pp. R120,00
The Diary was written at the time of the Anglo-Boer War by a young girl whose father had given her a notebook to use as a 'diery' so that she could write 'the truth, the whole truth and nothing but the truth', instead of being rude to his guests. This delightful account retains all the spelling mistakes—thus enhancing the authenticity and unintended humour to be found in Iris's amusing perspective on the world.

Paul Murray. *Cape Times* January 17 2003:10.

A slice of authenticated South African history, Iris's diary is invaluable. But above all it is laugh-aloud funny.

Laura Melville. *The Natal Witness* January 20 2003:8.

Williams, Chester
Chester: A Biography of Courage.
By Mark Keohane
Cape Town: Don Nelson, 2002, 224 pp. R119.95.
This biography of South African Springbok rugby legend, Chester Williams, gives an intriguing view of relationships in South Africa's top rugby teams during the 1990s. Williams claims to have been the victim of other team members' racism.

Douglas Carew. *Weekend Post* October 19 2002:3.

The biography contains shock revelations which are 'standard and necessary as selling items for such books. As is the honesty with which Williams talks about

his youth' in apartheid South Africa—a youth which was surprisingly relatively free of overt political influences. *Chester* tells of how Williams was made to feel more and more aware of his black skin as he progressed in rugby. Author Keohane has 'done a good job of reflecting William's personality'.

Kevin McCallum. *The Sunday Independent* November 3 2002:21.

Zungu, Andreas Z.
Usukabekhuluma and the Bhambatha Rebellion.
By Andreas Z. Zungu, translated by Dr. A.C.T. Mayekiso
Durban: Centre for the Study of South African Literature and Languages, University of Durban-Westville, 1997, 70 pp. R36.00.
Usukabekhuluma, originally published in Zulu in 1933 and here translated by the late Dr. A.C.T. Mayekiso, is a valuable retrieval of South African oral history. Referred to throughout the text by his praise name, Chakijana, Zungu was enrolled by the Boers in the Anglo-Boer War of 1899-1902, was captured by the British, betrayed the Boers and continued vacillating between the two groups. Later, he is instrumental in the murders of the chiefs who co-operate with the British by paying poll-tax. He was sentenced to death but was reprieved when he agreed to tell all, thereby betraying his comrades.

Almost biblical in its simplicity of the language used in the translation, this narration reveals the complexity of the personality of Chakijana/Zungu.

Elaine M. Pearson. NELM News 37, May 2002:7.

Multiple subjects

The Afrikaners
The Afrikaners: Biography of a People.
By Hermann Giliomee
Cape Town and Charlottesville: Tafelberg and University of Virginia Press, 2003, xix + 697 pp. R295,00
Hermann Giliomee's book—which took 10 years to complete—traces how, over 350 years, revolt and protest became the motivating force in the history of the Afrikaner. All is meticulously documented. The book clearly demonstrates how the language, Afrikaans, made the Afrikaner nation. The issue which is not tackled in the book concerns the threats that the language now faces in the democratic South Africa.

Ampie Coetzee. *The Sunday Independent* May 18 2003:18.

Complexity and controversy are often good signs of great history. Good, clear writing is usually a bonus. Yet all three are to be found in Hermann Giliomee's new magnum opus. Biography as a genre is a form of history that focuses on a person, a life, achievements and failures, context and character. Giliomee's biography of the Afrikaner reveals a highly complex people whose sense of identity is multi-layered, formed by a range of conflicting experiences: multiple nationalities; a sense of African-ness, yet with strong ties to Europe; the experience of being an underdog, yet also having an experience of *baasskap* (being top dog); fiercely independent, yet with a strong sense of group solidarity. At the end of the book, Giliomee sums up Afrikaner history as embodying 'both a fatalistic anticipation of inevitable collective defeat and a mysterious vitality'. There is a sense of both in this book. No one will agree with everything Giliomee says. But only a politically naïve or mean-spirited few will accuse him of attempting to justify apartheid. Giliomee's approach insists that we consider complexities, not stereotypes, and he does this magisterially in a book that will become a classic of South African historiography.

Anthony Egan. *Mail & Guardian: Friday* May 9 - 15 2003:iv.

Giliomee's attempt to tell the Afrikaners' story with empathy but without partisanship is the first major survey of South African history written from a post-1994 perspective. If there is a theme running through this book it is the suggestion that the Afrikaners' urge to survive, rooted in their history and particularly in their humiliation and defeat at the hands of the British Empire, was the mainspring of apartheid, rather than simply an obsession with racial purity. Giliomee acknowledges the devastating effects of apartheid legislation, yet he does not explain how a kindly, civilised, church-going community such as the Afrikaners could contemplate with equanimity the appalling human suffering inflicted by these policies.

Gerald Shaw. *Cape Times* May 16 2003:7.

British Soldiers in the Cape Colony

The British Army in the Cape Colony: Soldiers' Letters and Diaries, 1806–58.

By Peter B. Boyden (ed.)

London: The Society for Army Historical Research (Special publication No. 15), 2001, 165 pp. 10 pounds sterling.

By studying the letters and diaries published in this book, several themes emerge, for example the country and its people (the British soldiers stationed in

the Cape Colony had the opportunity of seeing unfamiliar landscapes inhabited by peoples with very different ethnic, social, cultural and religious backgrounds from those of the British Isles); military accommodation; military service (for example references to guerrilla operations against the Xhosa and the Khoikhoi); food and prices; recreation (for example climbing Table Mountain, hunting lions, and horse racing), and contacts with home. Dr Peter Boyden (Assistant Director: Collections at the National Army Museum in London) must be commended. He has selected manuscripts that are both interesting and important; he has edited them thoroughly, and annotated the texts in a balanced way. The bibliography and comprehensive index are very useful.

André Wessels. *South African Journal of Cultural History* 16,2, November 2002:132-134.

Political Prisoners: Apartheid South Africa and Communist Czechoslavakia

(Joseph Mati, Johnson Mgabela, Monde Mkunqwana and Jiri Mesicki, Lola Skodova, Jiri Stansky)

Fallen Walls: Voices from the cells that held Mandela and Havel.

By Jan K. Coetzee, Lynda Gilfillan & Otakar Hulec

Prague: Lidové Noviny Publishers (with the Robben Island Museum), 2002, R129.95. 194 pp.

Straddling two continents, this collection of prison writings compares and contrasts the political struggles that gave birth to two vibrant new democracies of the 21st century: South Africa and the Czech Republic. Their two extraordinary leaders, Nelson Mandela and Vaclav Havel, have urged that the role played by ordinary men and women in effecting freedom and justice be acknowledged. And this is what the authors have done. Despite its sad subject, it is an uplifting book.

Adrienne Carlisle. *Saturday Dispatch* June 15 2002:4.

There are remarkable parallels in the modern history of these two seemingly dissimilar countries: in both the large majority of people were deprived of freedom and human rights by oppressive systems of government established (in both cases) in 1948. Both were affected by wider processes that shaped world history during the second half of the 20th century—in particular the Cold War period that led to each of the two countries finding themselves categorised into a bloc: South Africa as part of the West and the former Czechoslovakia as part of the Eastbloc. Both regimes led their countries into deep international

isolation. Both regimes collapsed shortly after the fall of the Berlin Wall by the end of 1989 and gave way to a democratic transformation. Both countries had as first presidents former prisoners of conscience who touched the hearts and minds of the world.

The contrast occurs on personal levels: the tales from Robben Island are characterised by an absence of bitterness while the mood of the Czechs is darker, more sceptical. But all of these ordinary individuals tell of determination, of firm adherence to principle, and the unflinching sense of personal truth.

Unnamed reviewer. *Grocott's Mail* June 7 2002:7.

Read, Herbert and Lily Visser and descendants
Bridging the Divide: The Story of a Boer-British Family.
Angela Read Lloyd. Johannesburg: Jonathan Ball, 2002, 465 pp. R220,00
Angela Lloyd's skillfully crafted family history tells the story of her English-born grandfather, Herbert Read, and his Boer wife, Lily Visser, and their descendants. This handsome, well-illustrated book contains extensive quotations from family letters and personal papers, and while some are a little indulgent, they contribute much to the immediacy and intimacy of the narrative. Although Lloyd has sketched the political and economic background competently, it is in terms of conventional, pre-1980s historiography rather than more rigorous modern scholarship.

Jackie Loos. *Cape Argus* December 27 2002:10.

In 1901, Herbert Read married a Boer woman, Lily Visser: this is the 'divide' that was 'bridged'. Although the Read-Visser ties were strong during Herbert's, Lily's and, at first, their children's times, they gradually weakened as the families' political views differed more and more. This long book would have benefited from some excision; also, Read's account seems to show tremendous bias.

Dorothea Meihuizen. *The Natal Witness* December 10 2002:6.

Refugees in South Africa
We Came for Mandela: The Cultural Life of the Refugee Community in South Africa.
By Keith Adams (ed.)
Rondebosch: Footprints Publishers, 2001, 98 pp. R150,00

This collection of essays, poems, stories and photographs written and taken by a diverse group of refugees in South Africa seeks to show the complexity of the refugees' situation. 'While the essays, poems and stories cover both the pain and the happiness that these people have experienced, they seem only to scratch the surface. The heart of *We Came for Mandela* is in its photographs'; these enable the reader to comprehend the many dimensions of daily life in this community.

Elise Deeqa DeLancey. *The African Book Publishing Record* 38,1, 2002:18.

South Africans and the Anglo-Boer War
The Brave Boer Boy and Other Stories.
By Taffy & David Shearing
Sedgefield: Privately printed by Taffy and Dave Shearing, 2002, 148 pp. R150,00
This is a collection of 36 stories told to the authors over the past 25 years while on the trail of the Anglo-Boer War in South Africa. The book includes a story about the young Winston Churchill shortly after his capture by the Boers. This is a successful book, filled with interesting pictures and sketches.

Lourens Schoeman. *The Herald* June 4 2003:4.

South African Families
Group Portrait South Africa: Nine Family Histories.
By Paul Faber
Cape Town: Kwela Books, 2003, 240 pp. R315,00
There are enough important historical figures in *Group Portrait South Africa* to contradict the claim—in the foreword by Nelson Mandela—that it is about 'ordinary people'. The book, edited by the Africa curator of Amsterdam's Tropenmuseum with Anneri van der Merwe, is the result of an exhibition held last year to explore families that displayed 'diversity in terms of cultural, economic, social and geographical backgrounds'. This is a glossy tribute - full of mementoes, commissioned art works and images by the country's top photographers—to more than a century of the South African family. Like soap operas, or epic movies, each story sweeps across generations and provides just enough family dirt to be classified as healthy voyeurism.

Matthew Krouse. *Mail & Guardian: Friday* March 28 - April 3 2003:iv.

Group Portrait South Africa is a glossy and very beautiful book, however, for all its superb pictures and illustrations it feels a little like Weigh Less bread—light and insufficient. The book falls perfectly into the coffee table genre: just when you expect to read more about the characters, the authors hop to a new generation of the family. It does remind one, however, that we still need to hear the stories of soldiers who fought in the South African Defence Force in the 1980s and the Umkhonto weSizwe cadres who survived the ANC camps.

Patricia Oppelt. *Sunday Times: Lifestyle* April 6 2003:21.

Young South Africans

Steering by the Stars: Being Young in South Africa.

By Mamphela Ramphele

Cape Town: Tafelberg, 2002, 176 pp. R120,00

In *Steering by the Stars* Ramphele, formerly vice-chancellor of the University of Cape Town, explores the post-apartheid experiences of the youth of New Crossroads (an environment characterised by violence and alcoholism) near Cape Town. The sociological study, begun in 1991, set out to trace the everyday lives of 48 adolescents—in 1993 the group was trimmed to 16—each of whom would be observed into adulthood. Ramphele finds that constitutional rights of the child are meaningless to the children of New Crossroads; corporal punishment, physical abuse and rape are common. Moreover, in circumstances of crushing poverty, uniformity—a group mentality—is seen as essential for survival and individual success is thus spurned, causing successful people to leave the township and depriving the community of positive role models. As failure envelops everything, poverty and depression deepen. And Ramphele is scathing in her criticism of the ANC government's inaction.

Tim White. *The Sunday Independent* March 3 2003:18.

Zimbabweans

Beyond Tears: Zimbabwe's Tragedy.

By Cathy Buckle

Johannesburg: Jonathan Ball, 2002, 218 pp. R140,00

In *Beyond Tears* Buckle faithfully records the horrifying experiences of victims of Robert Mugabe's cynical land grab, showing how his calamitous policies, persecution of the opposition and persistent disregard of law have sent the

country into complete economic free-fall. Direct and heartfelt, her accou makes illuminating, if very depressing, reading.

Anthony Stidolph. *The Natal Witness* February 13 2003:19.

