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Alternation

**Interdisciplinary Journal for the Study of the
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Management, Informatics and Research Design

Guest Editor
Rembrandt Klopper

2011

CSSALL
Durban

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Introduction

Rembrandt Klopper

This issue contains a number of contributions in management, informatics and research design. What started as an initial spring shower of submissions in 2010, developed into sustained summer rains of more than fifty manuscripts - enough for both issues of 2011. *Alternation* 18.1 is going to press now, and *Alternation* 18.2 is due to go to press in the second half of the year.

In retrospect, I have had the privilege to edit 10 special issues of *Alternation* over the past decade, with themes related to management, informatics and research capacity development. These are areas of investigation that over the last number of years have developed from being of academic interest only to highlighting actual possibilities for research-driven career development opportunities in entrepreneurship, in corporate settings and in every-day working life. Collaboratively, we have developed an integrated and comprehensive constructive discourse that provides firm foundations for a large number of research trends and practices currently in demand. The research has also laid the groundwork for reporting the results of ongoing or concluded postgraduate research projects. It is hoped that this issue will also advance research in these areas and embolden prospective researchers to launch their own projects in the near future.

The current issue constitutes 19 articles that can be divided into one of three broad knowledge domains, namely management, informatics and research design. The individual contributions are:

1. Kasturi Behari-Leak and Sandra Williams focus on crossing the threshold from being a discipline expert to becoming a discipline practitioner.
2. Yvonne du Plessis looks at the requirements for utilising cultural intelligence as managerial competence.

3. Msizi Mkhize, Rubeshan Perumal and Sadhasivan Perumal report the results of a survey of accounting firms' managers' and trainees' perceptions of diversity management in KwaZulu-Natal, South Africa.
4. Shamim Bodhanya proposes the application of a concept model to illustrate the tragedy of the commons in the sugar cane supply chain.
5. Wilfred I. Ukpere analyses mechanisms to ameliorate negative impacts of globalisation on human resources, industrial democracy and humanity.
6. Micheline J. Naude and Charles O'Neill elucidate the quest for survival in the South African automotive industry, also within supply chain management.
7. Natalie Astrup and Brian McArthur present the results of an exploratory study on the relationship between emotional intelligence and transformational leadership in information systems managers.
8. Mari Jansen van Rensburg and Teresa Carmichael analyse research results on service learning among business school students.
9. E.J. Louw and T.J. Maubane present a case study of the management of a community project.
10. L. Monji and K. Orltapp present the results of an exploratory study on the relationship between organisational trust, job satisfaction and employees' intention to leave.
11. Kasthuri Poovalingam and Suleman Docrat analyse consumer decision-making in the selection of shopping centres around Durban.
12. Anesh Singh and Sam Lubbe write on evaluating the quality of free online information for decision-making.
13. Huibrecht M. van der Poll, Aletta McGee and Nico J. Booyse present the results of a study of students' perceived ability in the use of a computer application in a community outreach project.
14. Indira Padayachee, Paula Kotzé and Alta van der Merwe present the results of a study of course management systems from a usability perspective.
15. Neil Skea and Manoj Maharaj present the results of an empirical analysis of problems around wireless network security.
16. Sanjay Ranjeeth focuses on the impact of learning styles on the acquisition of computer programming proficiency.

17. Dan Remenyi, Shaun Pather and Rembrandt Klopper discuss some philosophical assumptions underpinning academic research.
18. Stan Hardman and Udo Richard Averweg analyse practitioner research from a critical systems perspective.
19. Rembrandt Klopper makes the case for image schematic role relationship theory in narrative analysis.

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Crossing the Threshold from Discipline Expert to Discipline Practitioner

Kasturi Behari-Leak
Sandra Williams

Abstract

This paper explores a participatory process between a Law lecturer, an academic literacy practitioner and students as teacher agency was conceptualised and theorised as a means of promoting student success. This position paper identifies and advocates a shift in the role of the lecturer as discipline expert to practitioner to provide students with the much needed community of practice (Wenger 1998) and to bridge the gap between epistemological access to disciplines (Morrow 1993) and student identity. This investigation is premised on the notion that students are usually identified as the only ones lacking in effective academic practices; little attention is given to lecturers' reluctance or inability to embrace methodologies that make disciplinary practices explicit to students to enable them to become academically literate in the discourse of the university as well as their specialist disciplines. The study draws on interviews with the lecturer and focus group discussions with students. Informed by the theories of New Literacy Studies, Rhetorical Studies and Threshold Concepts, the paper presents the notion of 'crossing the threshold' from discipline or content expert to discipline practitioner. The paper suggests that it is through intense and sustained critical conversations between the discipline expert, student and academic literacy practitioner that the role of the lecturer may shift to a shared space where academic literacy is embedded in the methodological practices governing the pedagogy of the discipline. It is also suggested that higher education provide the opportunity and scaffolding for lecturers to move into an academic development role within the parameters of their own faculties and disciplines.

Keywords: Scaffolding, shared space, critical conversations, disciplinary practices, community of practice, teacher agency, participatory process, new literacy studies, rhetorical studies movement, multidisciplinary practice, discipline expert, academic discourse

Background

Higher Education in South Africa faces many challenges today. Creating and growing a knowledge economy in South Africa is of high importance and the drive to produce graduates who are capable of contributing meaningfully at this level is warranted. However the socio-academic challenges that students face daily, with the discourse of the university as well as their disciplines are stumbling blocks which prevent the attainment of the national imperatives.

The National Benchmark Tests (NBT) Project (2009), developed by Higher Education South Africa (HESA) and commissioned by the Department of Education (DOE), demonstrates among other things, the inefficiencies or ‘stumbling blocks’ in Higher Education. Students in the basic and intermediate bands together indicated that the majority of students entering higher education need support in academic literacy (AL), without which students’ chances to achieve a degree of quality within a reasonable time would be negatively impacted.

The cohort of university students today is larger and more diversified in terms of academic ability, motivation and cultural background. Biggs (1999) argues that this new landscape ‘is not a matter of acquiring new teaching techniques, as much as tapping the large research-derived, knowledge base on teaching and learning that already exists. Through reflective practice, teachers can then create an improved teaching environment suited for their own context’. He further maintains that ‘we have to adjust our teaching decision to suit our subject matter, available resourcing, our students and our individual strengths and weaknesses as a teacher’.

The HESA report recommends that HE institutions institutionalise their support mechanisms. Traditionally, institutionalised support mechanisms have taken the form of bridging programmes, intervention strategies and writing support programmes for students deemed ‘at risk’, to improve throughput rates and deal with the problem of student under-preparedness. However, the effectiveness of such programmes has been

disappointing (De Klerk, Van Deventer & Van Schalkwyk 2006). One explanation for this is that they are based on a deficit model, which sees students as lacking in generic skills. AL is consequently seen as the remedy or a quick fix to students' immediate problems without providing skills and practices that are sustainable and transferable across the curriculum. Despite the interventions, which are still evident at many HE institutions in SA today (Boughey 2002), students are still seen as lacking in areas of critical thinking, academic writing and academic discourse.

The foregrounding of AL as an indicator of academic success validates the work done by academic development practitioners over decades and HESA'S focus on AL support (NBT Report 2009) could make a strong case for the embedding of AL in the mainstream curricula of the university.

Our education scenario today is challenging education practitioners to redefine themselves. Where once it was expected and sufficient to be 'just' a discipline specialist or content expert imparting knowledge to students, today it is crucial, as evident in the NBT report, that content knowledge is combined with effective academic practices to provide a solid foundation for students, especially undergraduates, to complete their degrees and diplomas effectively, critically, meaningfully and within a reasonable time.

However, lecturers have been resistant to moving into this integrated space, believing that it is not their area of expertise (McKenna 2004) and that the problem is not with the discipline but with other factors such as an inadequate schooling system, top heavy curriculum and too many students. Lecturers erroneously assume that students will acquire the discipline discourse just by being immersed in it (Paxton 1998), and do not see the need to teach students how to acquire the discipline specific codes (Ballard & Clanchy 1988).

It is from this premise that the research process of exploration and conceptualisation of the new role of the lecturer in HE began. The aim was to see to what extent the discipline specific lecturer could cross the threshold from disciplinary expert to disciplinary practice. Such an integrated approach called for a reflexive glance at the often contested area between the lecturer's academic territory and the field of academic development. This study is framed by the theoretical traditions of New Literacy Studies (Gee, Street & Lea), Rhetorical Studies Movement (Geizler, Bazerman) and Threshold Concepts (Meyer & Land).

Research Context and Problem

This research is situated in the discipline of Business Law within the Business Faculty of a University of Technology, where traditionally business students enrol for the subject as a filler subject. Legal education is no longer exclusively the domain of ‘pure’ Law students as most undergraduate business qualifications require students to complete a course or module in Law. Although Business Law may be an introductory course it has to be substantial as students have to acquire a basic understanding of how Law works and its impact on business. Vida Allen (2007) suggests that the intention is not to turn non-Law students into lawyers but to introduce the legal environment so that business practitioners recognise the need to seek further professional legal advice where necessary.

At the Cape Peninsula University of Technology the cohort of students enrolled for the Business Law course is educationally diversified. Students who have completed their high school careers at schools equipped with possibly the best that high school education in South Africa offers sit alongside students who lack in their preparedness for tertiary education and struggle with the academic demands. A further and potentially the most important challenge students face is negotiating teaching and learning through the medium of English which may be their second, third or even foreign language.

Students enrolled for Business Law are ‘forced’ to do Law as it is a prescribed component to qualify into their respective fields. Their needs are very different to those of a ‘pure law’ student. They do not necessarily have the desire to learn about Law. These students often consider Business Law as complex and far removed from the discipline they are registered for and learning thereof is consequently neglected by them. A common question is ‘Why must we study Law?’ From a lecturer’s perspective it seems as if non-Law students are not ‘wired’ to understand the demands of studying Law. The teaching happens within a quagmire of legal jargon and requires students to be critical thinkers, able to deal with legal processes and arguments.

In 2009 the enrolment for the full time Business Law class was 160. Lectures consist of 2 x 90 minute per week sessions to complete the formal course syllabus and it typically consists of an introduction to South African Law, basic principles of the law of contract and specific contracts for Marketers. These two weekly sessions were largely uninterrupted

transmission of pre-packaged knowledge to students with very little interaction with students. While this teaching method has the advantage of imparting information to large classes quickly (time) and efficiently (limited resources), is it pedagogically sound? The words of Gower (1950) ‘a lecturer dashed in at five minutes past the hour, gabbled dictation until five minutes to the hour, barked forbiddingly ‘any questions’ and then dashed out’ ring true for many lecturers in the field today.

On the concern of how Business Law should be taught, Hanita Sarah Saad (2006) refers to the two different approaches in teaching Law. The first is the traditional or ‘black letter’ approach requiring the retention of legal knowledge, the skills to identify the issues and then application to the given situation. The second approach is the environmental or ‘law in context’ approach which seeks to provide the student with the knowledge of how the legal environment impacts on business decisions and to assimilate the understanding of law with the processes in the business environment.

The above factors demand that the teaching methodology for Business Law should specifically be tailored to address the needs of our students. This is a challenge all Business Law lecturers at Management Faculties face. However as is the norm in Law lectures and as concisely described by Allen (2007) ‘a law lecture usually starts out with an explanation of the legal principle, followed by important cases which either set the ‘precedent’ for the principle and/or expanded principles. Facts of cases will be described and decisions made by judges will be explained’. This is the teaching method employed at most Law schools and this is what most Law lecturers themselves were exposed to. This is also the only experience that Law lecturers draw on when they first start lecturing.

This conflict between what the students need and what the lecturer expects, which compromises the quality of teaching and learning in Business Law highlighted the need for ‘other’ methodologies to be introduced to make the teaching more effective. Literature suggests (Bellah *et al.* 1996) that a hybrid of methods should be employed to teach law to other disciplines as the traditional lecture fails to identify the students’ weaknesses and needs.

In order to identify students’ weaknesses and needs the lecturer introduced tutorials. The tutorials were conducted after new content material was covered during the formal lecture. During these tutorials, students were expected to identify and apply the legal principles. The tutorials were

conducted in small groups of approximately five students who would collectively discuss, debate and produce one set of answers. These sessions took place during class periods where the lecturer was present to guide and assist them or at a time and place convenient to the student. Another shift away from the traditional lecture was the introduction of student lecturing opportunities. Small groups of five students are elected to present certain Business Law topics to the class. This format allowed for short sections of the course content to be taught by the students, presenting them with the freedom to dictate the style of teaching.

These ‘other’ methodologies presented a window for the lecturer to observe and gain some insight into how students learn. However students still struggled and the challenge of making the students’ learning more meaningful remained. The lecturer’s task grew more onerous in terms of:

- Assisting students to apply their knowledge
- Inculcating the skills of legal analysis so that students can recognise the process and attributes in the context of their likely professions
- Helping students to assimilate their learning of law subjects with their learning of other subjects
- Enabling students to see how Law subjects were going to be relevant to them in ‘real life’ (Christudason 2005).
- A shift was needed but by whom and to where?

Theoretical Framework

This study is informed by three theoretical traditions namely New Literacy Studies (NLS), Rhetorical Studies (RS) and Threshold Concepts (TC). NLS provides an understanding of AL that is more relevant to demands in HE today. It contrasts with earlier work in AL, which focussed on an autonomous model (Street 2003) aimed at teaching struggling students a set of discrete skills that were thought to assist them in their reading and writing challenges at university. Language, in this autonomous, study skills model, which sees literacy as an individual and cognitive skill, focuses on the surface features of form and concentrates on teaching students formal features of language such as sentence structure, grammar vocabulary and punctuation.

According to Lea and Street (2006), one of the main flaws with this approach is that it presumes that students can transfer their knowledge of writing and literacy unproblematically from one context to another. It pays little attention to context and is implicitly informed by autonomous and additive theories of learning, such as behaviourism, which are concerned with the transmission of knowledge.

The New Literacy Studies (NLS) movement, of which American scholar James Gee is considered to be one of the founders, marks the move away from this autonomous, deficit model and foregrounds the act of learning as a social practice, not simply a technical and neutral skill (Gee 1990; 1992; 1998). Gee's understanding of learning points to the 'thinking, feeling, believing, valuing and acting as a social network' (1990).

Brian Street (2003) claims that the way in which people address reading and writing is always embedded in social practices, such as those of a particular job market or a particular educational context. 'Literacy practices' coined by Street, as opposed to 'literacy skills' captures the social and epistemological link that embeds literacy in a social, constructivist theory of learning (2003).

South African AL practitioners expand on the vision of NLS in the context of SA education. According to Leibowitz (2001), AL is a culture specific set of linguistic and discourse conventions. Academic Literacy can also be said to be 'the ways in which students must read, write, speak, listen, even be, for success in the University' (McKenna 2003). 'Knowing how to speak and act in academic discourse' (Boughey 2002) is what differentiates tertiary students from their high school counterparts. Students need to master 'the use of different competencies and conventions' (Weideman 2005) to be successful.

Rhetorical Studies Movement sees literacy as socially constructed (Geisler 1994; Bazerman 1994) and argue that the nature of expertise is constructed from two domains of knowledge namely 'domain content' and 'rhetorical processes'. The latter refers to the hidden traditions that students are not taught, resulting in their inability to navigate through and negotiate meaning of the domain content, or to see the relationship between text, audience and social context. AL projects in SA today have attempted to 'explore how this tacit dimension can be made explicit' (Jacobs 2007) so that students are made aware of the meta-language used in the subject to

construct knowledge, to assess and to evaluate. Often it is difficult to make this meta-language explicit to students as lecturers are unable to identify for themselves what counts as tacit knowledge in their own disciplines. The hope is that students will acquire these constructs without explicit help. Furthermore, the perception is that teaching these norms overtly would be seen as teaching the obvious (McKenna 2003).

Meyer and Land's (2005) 'Threshold Concepts' provides a fresh perspective on how the discipline expert could begin the process of crossing the threshold to make this meta language explicit to students. Threshold concepts are defined as 'concepts that bind a subject together, being fundamental to ways of thinking and practising in that discipline' (Meyer & Land 2005). Practices such as reading, specific disciplinary language, approach to problem-solving and style of writing are examples of 'threshold concepts' that need to be acquired by students. The process of acquisition may represent how people 'think' in a particular discipline, or how they perceive, apprehend, or experience particular phenomena within that discipline. A student who has acquired a threshold concept should be able to relate that concept to their thinking about everyday and professionally contextualised problems without prompting: it should become their way of construing situations.

In order for discipline specialists to identify the threshold concepts in their discipline, they need to interrogate the nature of their field of study to unpack how meaning is made and experienced. This critically reflective process requires the discipline expert to question pedagogical practices, teaching methodologies and domain content to uncover the tacit processes that students must be privy to so that they 'crack the code' of their learning. Examples of the questions that discipline specialists could use to identify threshold concepts are presented in the Findings.

Methodology

In this study a qualitative research design was used. According to De Vos (1998), qualitative research aims to understand and interpret the meaning that the subjects give to their everyday lives and focuses on the different ways in which people experience, conceptualise, perceive or understand the world (Struwig & Stead 2001). The focus of the exploration in this study was on

the metaphorical ‘distance’ that the Law lecturer had to cover in order to cross the threshold from discipline expert to discipline practice. The first interview with the lecturer helped to ground the research problem; the focus group discussions (FGD) helped to uncover ways of thinking and practising in the discipline and the second interview with the lecturer allowed us to identify if the lecturer knew what the tacit knowledge or threshold concepts within the discipline were.

Data Collection

Data was gathered through semi-structured interviews and focus group discussions. The first interview with the lecturer and the first focus group discussion used the same interview schedule as a probe and took place between the AL practitioner (interviewer) and discipline expert (interviewee) and AL practitioner and students (respondents) respectively. The FGD took the form of an open discussion where respondents (the students) gave input, made comments and asked questions. De Vos (1998) defines a focus group discussion as a ‘purposive discussion of a specific topic or related topics taking place between eight to ten individuals with a similar background or common interest’. Perkin (1982) states that in a FGD, the respondents, under the guidance of the moderator, talk about the topic that is believed to be of special importance to the investigation, answering questions of how and why people behave as they do.

Data Analysis

Data analysis enabled the researchers to organise and bring meaning to the information received (Struwig & Stead 2001). In this study, responses to the interview schedule were recorded and open coded (Geisler 2004) according to broad themes while the FGD were audio-taped and transcribed.

Findings and Analysis

In this section the findings are discussed and analysed. Both sets of responses, students’ views (FGD) and lecturer’s responses (interview) were to the same questions and are juxtaposed below to highlight contrasts in the two perspectives. The broad themes that emerged, namely, teaching methodology, assessment, discourse, writing, reading, language used in Law

and status of the subject, are presented together with the verbatim extracts (see italicised text below) reflecting the lecturer's responses, followed by student responses and analysis.

Focus Group Discussion 1 and Interview 1

Theme: Teaching Methodology

Lecturer: I use a typical lecture format, with discipline specialist lecturing to large group of student in lecture hall. Focus is on content and syllabus demand, notwithstanding the pressure of time. Additional tutorials are held for smaller groups. Student participation is minimum in lecture but greater in tutorial.

Students: There was too much work to complete in too short a time. The syllabus demands CDDV BN were too great given that they were not 'pure' Law students. They drew attention to the high expectations placed on them to produce outputs and little time to focus on the 'how to' or the process. Classes were too large to do group work, pair work or other 'interesting' things.

Analysis: The structure and format of the Law classes lends itself to a transmission model of teaching. The emphasis on domain content affirms the foregrounding of content knowledge as the basis for engagement with the discipline. Students are placed in passive role and have no agency, voice or power over their learning. Meaning is not negotiated but transmitted; the overarching aim being to imbibe as much information as possible. The act of learning as a social practice (Gee 1990; 1998; 2003) is overshadowed by a content and syllabus focus.

Theme: Assessment

Lecturer: Students are unable to successfully decode and respond effectively to questions in their exam papers, resulting in high failure rates. In assignments and tests, they fail to structure their answers in an 'acceptable way' for academic demands of a university and for the subject Law.

Students: Students felt that their exams required them to employ archaic study methods and they were strongly opposed to the rote learning and memorisation needed in Law. The legal terminology, case law and precedents with many dates to remember made it problematic. They associated the methods with the learning of History at high school. The instructions in tasks were unclear and no help was given to ‘break it down’. They were unaware of format, rubrics and how assignments and tests were marked. More especially they felt that there was insufficient feedback on completed tasks so students did not know where and how to improve.

Analysis: Much of the exam oriented work is left to the devices of the students. It is assumed that students know what is meant by, in the lecturer’s words ‘acceptable’ ways for university and subject demands. The examination practices that students need are assumed to be in place and the expectation is that they can instinctively reproduce work that meets the demands of HE and the subject itself.

Theme: Discourse

Lecturer: Students are not ‘wired’ for Law, I mean ... they do not have the background or foregrounding necessary for understanding the ‘legalities’, nuances and subtleties involved in the subject. They are unable to understand legal discourse; legal texts; or legal style in oral and written texts.

Students: They felt that while they could not write or speak like lawyers, there was an unspoken expectation that they should be able to do this. Their legal experience at age 20 (approximate age of students in the Law class) was very limited so they failed to see and understand how legal texts, written or spoken, are framed. They felt that if they asked for these practices to be explained fully, the lecturer would feel that her subject was being oversimplified and trivialised, as the unspoken view is that it takes a particular calibre of student to handle the rigours of Law. The discourse used by students to express their concerns revealed their inability to exercise power over their own learning.

Analysis: The lecturer's discourse, unbeknown to her, identifies the very rhetorical processes that Business Law students would need in order to be successful (nuances and subtleties) yet her comment reveals that she cannot distinguish between problems arising from the content domain and those that are tacit practices; she saw the list of problems as entwined and enmeshed. If her students did not have the 'foregrounding for Law' as she pointed out, what had she done in her capacity as expert in the field to provide this? Not being 'wired' speaks to tacit processes that students could only possibly experience from working in a community of practice (Wenger 1998). The lecturer is a key member of that community; yet she believed that her students should have acquired these aspects without her overt explanation of them.

Theme: Writing

Lecturer: Students are unable to reproduce the types of written texts that would qualify as legal. The lack of precision and relevance to the case being studied makes their writing a loose narrative, devoid of the argumentative style that is typical of lawyers.

Students: The legal style of writing was problematic for students as it is not an everyday practised genre. While they were aware of legal documents such as wills, rental contracts and cell phone contracts, for example, they did not have to until now produce such documents for an audience. They did not understand the style (genre) required of them.

Analysis: The word 'reproduce' locates the lecturer's frame in a behaviourist mode of learning where students are expected to mimic the targeted task and text. The writing that the lecturer expects 'is not embedded in social practices, such as those of a particular job market or a particular educational context' (Street 2003). The lecturer still sees the written ability as literacy skills' rather than a 'literacy practice'.

Students are not instinctively aware of the genre that is required of them. If students are not made aware of the different language and semiotic practices associated with the requirements of different genres

in academic contexts, it is not an easy task to produce a legal text without understanding what constitutes legal texts, how they make meaning, and how they are constructed. Lea and Street (2006) identify the link between cultural practices and different genres. Subject areas and disciplines use different genres and discourses to construct knowledge in particular ways (Bazerman 1988). The academic literacies model, which emphasises the importance of explicitness in teachers marking for students the shifts in genre and mode (Lea & Street 2006), provides a more effective model to understand the relationship between writing, text production and epistemology; helping students to understand what ‘counts’ as Law in the subject.

Theme: Reading

Lecturer: Students have difficulty with reading academic and legal texts. They cannot extrapolate information, they can’t make sense of the vocabulary ... they just can’t do it. Students find it difficult to think critically and apply critical thinking skills when faced with a case study or legal precedent.

Students: In general students were overwhelmed by the amount and detail involved in reading legal texts; the texts are dense and overloaded with an unnatural style, phraseology and expressions, frequently heard in courts of Law. They experienced the jargon as intimidating. The reading overload left little time and energy for them to focus on other important aspects such as assessment techniques.

Analysis: The lecturer’s concerns focus heavily on the subject, syllabus and reading skills. It is clear that the lecturer is operating from an autonomous/skills model (Street 2003) of AL focusing on the surface features of texts rather than the reading practices that inform the discipline. How to read legal texts, and not just texts per se, involve rhetorical processes that the Law lecturer should but is not teaching overtly in her class, resulting in students’ inability to navigate through and negotiate meaning of the domain content (Geisler 2004).

Theme: Language Use in Law

Lecturer: Law requires specialised use of language which students (who are mainly 2nd and 3rd language speakers of English) are unable to manipulate and master for the purposes of the subject. Students were overwhelmed by the legalese.

Most of them struggle as they do not seem to be able to identify the issues and their writing is peppered with colloquial terms lacking precision and reasoning found in Law. To illustrate this point here are a few responses from students to questions on a case study:

‘Hi Graham, I feel sorry for you but I think you should sue them. You do work for them and they should pay you’.

‘Graham do not worry I’ll sort this out for you. I heard that’

Students: Students expressed their difficulty with the ‘formality’ of law, the legalese and jargon. Apart from their language use in Law, they spoke about their concerns around their proficiency in English, which was the medium of instruction. They explained that they felt doubly compromised; firstly because for many of them English was not their first language and secondly, the language of Law placed them at a serious disadvantage due to its complexity.

Analysis: While language is a part of AL, a distinction must be made between language as it is used by the discipline and English proficiency. Often the conflation of these two dimensions blurs the line between how language functions as a way of thinking and practising in the discipline as opposed to it being a tool for communication. Both language aspects need to be addressed, separately and together, to see how meaning is made through language. Schumann (1978) reminds us that language acquisition has a social dimension where success is easier if the target culture is similar to the culture of the learner. Given the legacy of apartheid in this country, this matching of cultures is the privilege of a minority of people. However this divide can be bridged by the discipline expert, who can provide by example and classroom practice, an approximation of this target culture in terms of the discipline.

Theme: Motivation

Lecturer: Students see Law as a filler subject and accord it secondary status ... other 'more important' subjects take precedence. They are not motivated to excel as it is not core to their choice of study. Despite the ranking order used by students, the reality is that if students did not pass Law they would not be able to graduate.

Students: They felt alienated by the formality of Law and the feeling of 'otherness' that was created by the secondary status afforded to Law by the other subjects. This they said did not bode well for their ability to succeed in a subject that had already placed such high academic demands on them.

Analysis: The secondary status of Law lowered students' motivation to do well in the subject. Their outsider status as well as not feeling part of an 'academic tribe' (Becher 1993) contribute to their lack of sense of belonging which impacts on their ability to be motivated and succeed.

Focus Group Discussion 2

In the second FGD, students were asked to critically analyse a typical Law assignment question (see Appendix 1). Students were asked to comment on features of the task that they found difficult, without analysing the content of the questions. In other words, students were invited to use a meta-language to critique the effectiveness of the actual task question, without being given the 'tools' to do so. The aim was to see students' capacity to interrogate their own learning. The critical discussion that followed reflected some of the challenges facing them in terms of domain content and rhetorical processes.

From the lecturer's perspective, students are expected to work on such tasks in a team, present their 'advice' orally and submit a written document pertaining to this. Students need to be concise, clear and focused on content to find the outcome of the legal question by analysing relevant facts and then citing authorities and legal rules governing the legal question.

From the students' perspective, the crucial question was the lecturer's expectation of what form the answer should take. The task requires them to

read the case study and respond but the only instruction given is ‘advise him fully’. It was apparent that it should be a written response but the question was not scaffolded in terms of style, genre, length or format that it should be presented in. For the students this was a huge problem as the structuring of the answer required certain writing practices that they felt they did not have.

Students discussed the problematic features and textual challenges in completing the task and this led to broad themes and concerns that emerged. These are framed below as students’ critical questions to provide a landscape of gaps (tacit) in their knowledge.

- What are the writing and reading practices in the genre of Business Law?
- How can these literacy practices be scaffolded?
- Is the discourse in Business Law subject specific?
- What does it mean to ‘give advice’ as required by the task?
- What ‘voice’ should the students use?
- Are cultural contexts important in Law?
- How do these cultural contexts impact on the legality and ethics of the advice given?
- Can legal jargon and phrases such as ‘fringe benefits’ and ‘the agreement is entered into’ be decoded as contextual cues for understanding of the whole?
- Could dictionaries and multilingual glossaries be made available in class, especially for Latin terminology?

Students’ responses and critique highlights that they are multi literate beings. They are able to identify domain content and rhetorical features unconsciously. From a NLS perspective, the multiple literacies that students bring to the classroom, in the rich tapestry of technical, digital, religious, cultural, traditional and indigenous literacies from their social backgrounds, which interface daily with broader social and global networks must be acknowledged. AL is one example of these literacies, arguably the most vital component for success at university. Recognising the diversity, multifacetedness and contextualism of the learning situation (Ballard & Clanchy 1988) creates a depth of experience and practice.

Second Interview

The discipline expert was interviewed for the second time to gauge the understanding of the importance of embracing and embedding AL in the content domain. The lecturer was led through a process of inquiry to look critically at the domain content area of the discipline of Law. A series of questions developed by the threshold concepts advocates Meyer and Land (2003) were used to probe the lecturer's understanding of the rhetorical and tacit processes and practices governing the discipline of Law. This also served to determine the extent to which the lecturer had to shift to successfully make AL part of her own repertoire. Examples of these questions are presented below.

Threshold Concepts for the Lecturer

- How is knowledge constructed in your discipline?
- What are your educational practices?
- How do your practices impact on learning?
- What do reading and writing practices involve in your discipline?
- How does your discipline use language?
- What conceptual thinking is needed in your subject?

(Adapted from Meyer & Land 2003)

Faced with the threshold concepts questions, it became apparent that this was no easy task for the content lecturer. The interview demanded that the lecturer think about the teaching of Business Law within the Management domain, interrogate her teaching methodology and theorise her practices. It became clear through the exercise that the lecturer was not able to respond effectively to many of the questions. While the discipline specialist had correctly diagnosed the problem with her students, she did not have the critical, reflexive tools to identify the ways in which her own methodology, ideology and theoretical framework might have been responsible for the learning challenges in her class. Inadvertently, she had polarised the student and the disjuncture in the perceptions of students and

lecturer indicates that students' challenges are not seen as being embedded in the discipline of Law. This confirms that the lecturer is engaging a skills-based model.

In the discussion that followed, the lecturer expressed the need to become more critical of her classroom practices, which included content, delivery, language use, power dynamics, academic discourse, learning styles and use of media. The lecturer understood that her role was to 'hold the energy' for learning to take place and provide the appropriate scaffolding to help students to succeed.

This scenario is probably true for many educators across the curriculum. For an effective shift to be made, where the lecturer can use AL as a disciplinary practice, lecturers need to be encouraged and trained to interrogate their own subjects using theoretical constructs such as the 'threshold concepts' example. This process of theorising their practices will build lecturers' capacity to scrutinise domain content knowledge and rhetorical processes in their disciplines. Some ideas around applying and incorporating this knowledge into practice could be to use integration strategies, scaffolding activities or interdisciplinary teaching. There are various, related projects in this field that could be drawn on to build lecturer capacity but the scope of this paper does not allow for an exploration thereof. A few suggested activities are offered below as ways of 'making the tacit explicit' in Law.

Examples of these and other scaffolding exercises in Law could include:

- writing questions for case studies in groups;
- explaining rubrics in practical terms;
- providing sample/ model answers;
- highlighting linguistic functions, such as analyse, deconstruct, persuade and evaluate, that are encoded in the discipline;
- analysing features of discipline texts;
- peer reading of texts; and
- outlining of task criteria.

Conclusion

When one looks at what emerged from lecturer interviews and student discussions, it becomes clear that lecturer and student perceptions do not reveal a shared understanding of a common problem. There are very few areas of overlap, showing that both parties are indeed not talking to each other. The ‘tacit knowledge’ that students need to become successful at Law, such as understanding the way arguments are constructed, using critical thinking skills and persuasive language, which are specific to the discipline of Law, are not made explicit to them by the lecturer. The way tests and assignments are marked are not discussed as a meta language for navigation and success. The learning process in the Law class is not scaffolded. The status of the subject affects students’ motivation and enthusiasm for the subject; yet the lecturer is unaware of the presence and impact of these ‘softer’, ‘non-content’ issues on student learning. The meta language of the learning experience is not made explicit either, so they do not have the freedom to move in and out of cluster arrangements such as individual, pair and group work, as it suits them.

When Business Law was viewed through the students’ lens, the problems raised spoke to rhetorical processes and students, unwittingly, were able to distinguish between the domain content and rhetorical processes features to ‘expose’ the vagueness and gaps implicit in their experience. Students are in fact multilayered beings, bringing a vast range of experience, challenge and material that an educator must find a way of tapping. Student and teacher agency are therefore important considerations and a possible solution lies in the collaborative effort between the key players to bring about a lasting and sustainable change in the way students and lecturers engage with their disciplines.

The proliferation of the skills based model in HE does not promote deep, sustainable and transferable learning as evident with the Law students who revealed that they are not able to judge how their knowledge relates to the real world. Their very sterile learning environment does not provide the experience of communities of practice (Wenger 1998). As a result, the Business Law student in this study has limited voice, agency or personal identity and cannot exercise power or control over his or her own learning processes. Moreover, the assumption that students should be ‘wired’ to fit the discipline, irrespective of their multiple literacies and social contexts,

presupposes that students' identities and diversity are not important enough to contextualise learning and 'wire' the discipline to meet the students halfway.

The lecturer has to move from being an observer of the multicultural, multilingual and academic literacy challenges in her classroom to being actively involved in embracing methodologies that make disciplinary practices explicit to students. The lecturer's act of crossing the threshold, from a place of expertise to one of combined expertise and practice, is uncomfortable, rigorous, demanding and sometimes demeaning but the goal is to enable students to become academically literate in the discourse of the university as well as their specialist disciplines. In crossing the threshold, educators are obliged to re-invent themselves to fully meet the challenge of leading the teaching and learning to a place filled with enquiry and research awareness.

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APPENDIX 1

Graham is in the employ of Cricket Balls (Pty) Ltd.
His contract of employment provides as follows:

Graham has to provide his own equipment to perform his duties as cleaner.
Cricket Balls (Pty) Ltd provides his uniform.

He is paid a monthly income of R1 530,00 from which PAYE is deducted.
The agreement is entered into for an unlimited time period.

Graham performs his duties according to a time schedule as determined by
Cricket Balls (Pty) Ltd and he has to submit a daily report on the tasks
completed.

He is allowed to work for other employers if he has completed his daily
tasks.

He receives no fringe benefits.

Graham approaches you, the Human Resources Manager, wanting to know
whether he is an employee of Cricket Balls (Pty) Ltd.

Advise him fully. In your answer you are expected to refer to case law and
explain the test used by our courts.

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Cultural Intelligence as Managerial Competence

Yvonne du Plessis

Abstract

In multi-cultural work settings, confusion, misunderstandings, embarrassment, a sense of being insulted, or a breakdown in relationships often occur, resulting in workplace problems. This happens especially when employees do not possess Cultural Intelligence, an emergent competence for successful management in the 21st century.

Extensive exposure to another culture may lead to a deeper understanding of that culture's values and norms. Given South Africa's demographic profile and multi-cultural work environment, South African managers can be assumed to have a higher Cultural Intelligence because they have been exposed to multiple cultures for decades. Against this background the question arises: What is managerial Cultural Intelligence? Is it more than being exposed to another culture? If so, what should managers do to enhance their Cultural Intelligence competence in the multi-cultural work environment?

The purpose of this paper is to describe Cultural Intelligence as an important managerial competence, and provide guidelines for South African managers working in multi-cultural and multi-national organisations or work settings to develop their Cultural Intelligence.

A purposive sample group of 353 South African managers participated in this quantitative and qualitative study, using a Cultural Intelligence questionnaire developed by Du Plessis, Van den Bergh and O'Neil (2007) and six open-ended questions reflecting on Cultural Intelligence in practice. The results indicate that managerial Cultural Intelligence is a complex combination of at least three key constructs which can form the base of a managerial Cultural Intelligence competency framework: (1) understanding

cultural identity; (2) willingness to engage with and learn about other cultures; and (3) the ability to adapt to a multi-cultural setting. This framework and subsequent challenges could enable managers to use their multi-cultural opportunities fully to build their Cultural Intelligence competence, which is in demand globally.

Keywords: Cross-cultural management, Cultural Intelligence, managerial competence, multi-cultural work environment

Problem Statement, Objectives and Research Questions

Cultural Intelligence is an emerging competence and poses a challenge for successful management in the 21st century. Phenomena such as globalisation, expatriation and multi-national working environments compel managers to interact with multi-cultural stakeholders, including customers, suppliers, employees and communities, in order to deliver the required outputs and ensure the outcomes needed for continued business success.

An understanding of another culture is acquired from extensive and intensive experiences in that culture – it is thought that such exposure eventually leads to a deeper understanding of a culture's norms. Earley and Peterson (2004:100) report that one can obtain a reasonable cultural understanding from multiple cues picked up from observing others and their reactions. Puccino (2007:34 - 38) holds a similar view, but stipulates that exposure to the culture should usually be longer than a year to achieve this effect. The depth of a person's exposure may vary, based on the experience he or she has had in and of another culture. Research suggests that through extensive exposure to another culture a person may develop a better understanding of that culture, especially since there appears to be an ever-present relationship between cultural influence and intercultural contact (Chen & Isa 2003:75 - 96).

In South Africa, given the country's demographic profile and the increasing democratisation of the workplace since 1994, it can be assumed that managers should have a higher Cultural Intelligence, as they have been exposed to multi-cultural work settings for decades. Against this background the following research questions arise: What is managerial Cultural

Intelligence? Is it more than just being exposed to another culture, and if so, what should managers do to really engage with other cultures and enhance their Cultural Intelligence competence in a multi-cultural work environment?

The purpose of this paper is two-fold: to describe managerial cultural intelligence and its importance as managerial competence, and to provide a guideline for South African managers, who as a rule work within multi-cultural and multi-national organisations or work contexts.

The significance of this paper is that it provides clarity on the construct of Cultural Intelligence for managers in an existing multi-cultural work environment and a guideline to enhance their Cultural Intelligence competence, which is a competence much sought after in a global and multi-cultural workplace. Cultural Intelligence can contribute to the strategic capability of leaders and managers and thus of the organisation. Previous research on South African leaders in general and on Cultural Intelligence has been conducted by Smit (2006) and Sauer (2008), but the current study is a pioneering paper exploring Cultural Intelligence as a *managerial construct* in the South African work environment.

Literature Survey

A Description of Cultural Intelligence

Cultural Intelligence is one of the latest contributions on intelligence, finding a place alongside emotional, interpersonal and social intelligence. Interest in these so-called ‘applied’ intelligences is increasing. Studies focus on specific content domains such as ‘social intelligence’ (Thorndike & Stein 1937:275–285), ‘emotional intelligence’ (Mayer, Caruso & Salovey 2000:267–298), and ‘practical intelligence’ (Sternberg *et al.* 2000). The practical realities of globalisation and the importance of Cultural Intelligence has been acknowledged (Earley & Ang 2003) since Schmidt and Hunter’s (2000:3–14) definition of general intelligence, which implies that Cultural Intelligence is a specific form of intelligence that centres around capabilities to comprehend, reason, and behave appropriately in situations characterised by multi-cultural, or culturally diverse environments.

Cultural Intelligence can be regarded as a person’s capability to function effectively in situations characterised by cultural diversity (Van

Dyne & Ang 2005), and, in this study, specifically managers' capability to do so. Therefore, Cultural Intelligence refers to the ability to adapt effectively to new cultural settings (Ng & Earley 2006:7) and hence also to an individual's capability to cope with multi-cultural situations when engaging in cross-cultural interactions and performing in multi-cultural work groups and environments (Van Dyne & Ang 2005). Researchers of cultural intelligence seek to understand the construct of Cultural Intelligence and why some people are more effective than others when they have to adapt to new cultural settings (Ng & Earley 2006:4–19). Determining what contributes to this ability is a crucial question in understanding Cultural Intelligence and its application, which is grounded in multiple intelligence theory (Ang *et al.* 2006:100 - 123; Earley & Ang 2003).

According to the literature on Cultural Intelligence, there are various theories on the composition of the construct. Thomas and Inkson (2005:5 - 9) describe Cultural Intelligence as a construct that consists of three components which, in combination, provide a platform for intercultural flexibility and competence, namely: *knowledge* to understand cross-cultural phenomena, *mindfulness* to observe and interpret particular situations, and adapting one's *behaviour* to act appropriately in culturally different situations. These authors propose that cultural intelligence therefore includes:

- *Cognition*: thinking, learning and strategising;
- *Motivation*: efficacy and confidence, persistence, value congruence and affect for the new culture; and
- *Behaviour*: social mimicry and behavioural repertoires.

By contrast, Earley and Ang (2003), Ng and Earley (2006:4–19) and Van Dyne and Ang (2005) believe that Cultural Intelligence consists of four components:

- *Meta-cognition or Strategy*: the cognitive strategies used to acquire and develop coping strategies that enable one to adapt across cultures;
- *Cognition or Knowledge*: the knowledge one has about different cultures;

- *Motivation*: the desire one has to adapt to different cultures and the self-efficacy, or the belief that one has that one can adapt cross-culturally; and
- *Behaviour*: the repertoire one has of culturally appropriate behaviours.

The differences between these Cultural Intelligence constructs seem to be conceptual. The four-component model of Earley and Ang (2003) adds meta-cognition or strategy, which is omitted in Thomas and Inkson's (2005) three-component model. However, in the three-component model, strategising is included in the cognitive dimension.

Cultural Intelligence as a Multi-dimensional Construct

Sternberg (1986:3–15) proposes that there is an integrative framework of multiple intelligences within each person. *Meta-cognition, cognition, and motivation* are *mental or implicit* capabilities that exist in the mind, while *behavioural* capabilities refer to *explicit* actions. *Meta-cognitive intelligence* implies control of cognition: the processes people use to acquire and understand knowledge. *Cognitive intelligence* refers to knowledge structures, which argues for the importance of knowledge as part of intellect. *Motivational intelligence* refers to the mental capacity to direct and sustain energy on a particular task or situation, which implies a recognition that motivational capabilities are critical to genuine problem-solving in reality (Ceci 1996). *Behavioural intelligence* refers to noticeable signs or explicit actions: what people do, rather than what they think (Sternberg 1986:6).

The multi-dimensional construct of Cultural Intelligence recognises that the meta-cognitive component focuses on higher-order cognitive processes, whereas the cognitive component reflects a knowledge of norms, practices and conventions in different cultures acquired from education and personal experiences. This includes knowledge of the economic, legal and social systems of different cultures and subcultures (Triandis 1994) and knowledge of basic frameworks of cultural values (e.g. Hofstede 2001). Brislin, Worthley and MacNab (2006:40–55) found that people with high

cognitive Cultural Intelligence have a better comprehension of similarities and differences across cultures.

People with high motivational Cultural Intelligence direct attention and energy toward cross-cultural situations based on intrinsic interest (Deci & Ryan 1985) and display buoyancy in their cross-cultural effectiveness (Bandura 2002:274). Those with high behavioural Cultural Intelligence demonstrate suitable behaviours within their context, based on their broad range of verbal and non-verbal capabilities, such as exhibiting culturally appropriate words, tone, gestures and facial expressions (Gudykunst, Ting-Toomey & Chua 1988).

Since the concept of Cultural Intelligence is grounded in the theory of multiple intelligences as discussed by Sternberg and Detterman (1986), Cultural Intelligence is seen to be similar to, yet unlike, other forms of intelligence. Cultural Intelligence is similar to emotional intelligence, because it is a set of capabilities, rather than preferred ways of behaving (Mayer *et al.* 2000:267) or just a general mental ability as described by Schmidt and Hunter (2000:5). The four different capabilities described as being part of Cultural Intelligence, namely meta-cognitive Cultural Intelligence, cognitive Cultural Intelligence, motivational Cultural Intelligence and behavioural Cultural Intelligence, are different capabilities that together make up total Cultural Intelligence. All these capabilities are regarded as important for managers who have to meet organisational objectives by harnessing the efforts of people from multiple cultural backgrounds.

Du Plessis, Van den Bergh and O'Neil (2007) explored the multi-dimensional construct, three-component view of Cultural Intelligence empirically amongst managers in the South African environment, as depicted in Figure 1. They found that South African managers' view of Cultural Intelligence fits into the same basic construct as that described by Earley and Ang (2003); Tan (2004:19–21) and Van Dyne and Ang (2005).

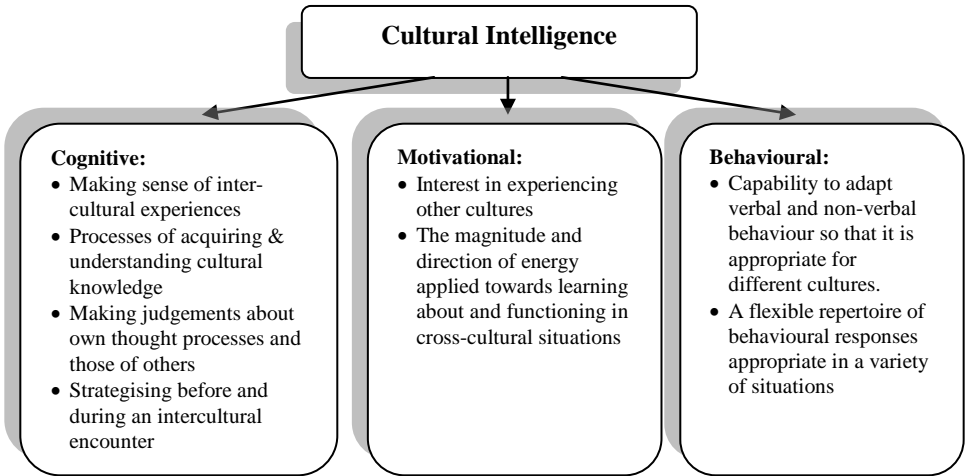


Figure 1: Cultural Intelligence model (adapted by Du Plessis *et al.* 2007 from Earley & Ang 2003; Tan 2004:19–21; Van Dyne & Ang 2005)

Cultural Intelligence of Managers

Since the components of Cultural Intelligence are embedded in managers' understanding, perceptions of value, and actions, according to Du Plessis *et al.* (2007) it is appropriate to consider Cultural Intelligence in the context of a definition of 'culture'. Culture is an elusive concept, as the term can be looked at from various scholarly perspectives. Earley, Ang and Tan (2006:20) define culture as 'the patterned ways in which people think, feel and react to various situations and actions which are acquired and shared among people through the use of symbols and artefacts'. The scholarly definition of Gollnick and Chinn (1994:94) is a more fitting definition for the purposes of this paper: 'Culture is a way of perceiving, believing, evaluating, and behaving. It is: shared, adapted, and constantly changing. A person's cultural identity is based on traits and values that are learned as part of our ethnic origin, religion, gender, age, socio-economic level, primary language, geographical region, place of residence, and disabilities.'

A further simplistic description of cultural elements, within the complex construct of culture, suggests that the concept can be divided into

‘surface’ culture and ‘deeper’ culture (Weaver 1986). Surface culture refers to those elements that can be observed and are obvious, such as language, art, food or festivals. Elements of deep culture deal with the values, feelings and attitudes that we learn by being a true member of a particular cultural grouping. It involves the thoughts and beliefs, the personal values, and the subtle nuances of interpersonal relationships as expressed in actions and words as they are lived daily. Cultural Intelligence, including both the surface and deeper cultural elements, is a pivotal managerial competence in a multi-cultural work environment such as South Africa (Sauer 2008; Smit 2007). Hence, managers have to understand and embrace both the ‘surface’ and ‘deeper’ cultural aspects. An assumption made in this study is that many South African managers have possibly touched on the surface cultural elements, but may still need to embrace the deeper aspects of culture to realise their total potential Cultural Intelligence fully.

The Importance of Cultural Intelligence to Managers

Today’s global economy makes the need for intercultural understanding, relationship building and development obvious (Earley & Peterson 2004: 100). It is common for a manager to work in a multinational organisation, or frequently to shift between countries or provinces. Cultural Intelligence increases effective management in a multicultural context and therefore in a global context. As Thomas and Inkson (2005:5) explain, ‘the need for effective interactions with people from different cultures is no longer limited to expatriates or jet-setting corporate trouble-shooters’ – it is a competency for all managers. For South African managers, this is especially important, as the work environment is inevitably multi-cultural already; and this multiplicity is even more complex in a global setting.

Cultural Intelligence requires being skilled and open about understanding a culture, learning more about it from one’s interaction with cultures, and gradually reshaping one’s thinking to be more empathetic to the different cultures one encounters and adjusting one’s behaviour to be more skilful and behave more appropriately when interacting with people from a different culture (Thomas & Inkson 2003:5–9). The business environment’s increasing diversity underpins the notion that Cultural Intelligence is a

fundamental management competence which promises a competitive advantage to organisations that possess this talent (Tan 2004:21).

Numerous authors have identified the need for and advantages attached to cultural intelligence (Brislin *et al.* 2006:40-55; Tan 2004:19-21; Van Dyne & Ang 2005). Cultural Intelligence is said to increase the effectiveness of global projects and diverse work assignments (Earley & Ang 2003). It has been found that Cultural Intelligence is an important and advantageous capability for the employee, manager and organisation (Van Dyne & Ang 2005). A person with high Cultural Intelligence is able to understand human behaviour better and is therefore in a better position to lead people in a manner that is likely to enhance business success. Higher Cultural Intelligence levels bring about effective communication within the work environment, good cultural judgement and informed decision-making. A person with high Cultural Intelligence is also better adjusted in culturally diverse situations, which in turn increase his or her effectiveness in the workplace. People who have the capability to make sense of intercultural experiences perform at higher levels in multicultural work settings. Those who have the capability to adapt their verbal and non-verbal behaviour to fit a specific cultural setting have a flexible repertoire of behavioural responses that enhance their task performance in culturally diverse settings (Van Dyne & Ang 2005).

It is therefore anticipated that a work group, such as a project team, comprised of individuals with high Cultural Intelligence would be more cohesive and collective in their performance, which would in turn increase efficiency and effectiveness (Janssens & Brett 2006:152). Trust also increases with effectiveness and vice versa, since there is a positive correlation between trust and effectiveness (Costa 2003: 620). Cultural Intelligence can thus contribute to the strategic capability of leaders and managers, and therefore, that of the organisation as a whole.

Research Methodology

The methodology applied in this study was quantitative and qualitative. A Cultural Intelligence literature review and a managerial Cultural Intelligence survey questionnaire developed by Du Plessis, Van den Bergh and O'Neil (2007), adapted from Earley and Ang (2003), Tan (2004) and Van Dyne and Ang (2005), as well as six open-ended questions were used to elicit

responses to find answers to the following research questions: What is managerial Cultural Intelligence? Is it more than just being exposed to another culture? If so, what should managers do to really engage and enhance their Cultural Intelligence competence in a multi-cultural work environment?

Data Collection

The quantitative part of the survey questionnaire had 24-items on Cultural Intelligence, anchored in a five-point Likert scale, ranging from ‘Never’, ‘Seldom’, ‘Often’ and ‘Always’ to ‘Unsure’. As the quantitative part of the study only reflects a small part of the study for the purposes of this paper, it is not elaborated on here.

The qualitative part consisted of six open-ended questions to explore and gather descriptive information on managers’ perceptions of Cultural Intelligence and their understanding and experiences thereof in South Africa, reflecting on the *cognitive*, *motivational* and *behavioural* components of Cultural Intelligence, and their reaction to critical incidents relating to cross-cultural interaction.

This questionnaire was administered to a purposive sample of 500 South African managers operating in multi-cultural work environments. The response rate was 70.6%. Participants completed the questionnaire anonymously in hard copy and their informed consent was given for their participation and the use of the data.

Data Analysis

The quantitative data were analysed by means of descriptive analysis and exploratory factor analysis (see Du Plessis, Van den Bergh & O’Neil 2007). The responses on the qualitative data (open questions) were analysed by means of content analysis. Table 1 shows the demographic characteristics of the sample.

Table 1: Demographic profile of managers in the sample

<i>Age group:</i>	Majority between 26-45 years
<i>Managerial work experience:</i>	Majority between 2-10 years
<i>Qualification:</i>	More than 75% had post-school qualifications

Managerial level:	45% senior management 37% middle management 18% supervisory
Grouping:	58% black and 42% white
Gender:	64% female and 36% male

Final factor rotations led to a re-evaluation of the questionnaire and the scales that were developed, resulting in the following constructs that were to be measured for managerial Cultural Intelligence:

- Factor 1: *Cultural Identity* – relates to the cognitive component of Cultural Intelligence;
- Factor 2: *Adaptability to a multi-cultural setting* – relates to the behavioural component of Cultural Intelligence; and
- Factor 3: *Willingness to learn about different cultures* – relates to the motivational component of Cultural Intelligence.

The factor scale's reliability was relatively high, with a Cronbach's alpha of 0.75. Two of the factors underlying the construct also had a high reliability, with a Cronbach's alpha of 0.746 for Factor 1 and a slightly lower Cronbach's alpha of 0.640 for Factor 2. Factor 3, however, yielded a Cronbach's alpha of only 0.407 and could therefore be eliminated from the scale.

Discussion of Results and Findings

The *quantitative results* of this study indicate that managerial Cultural Intelligence does not involve only exposure to other cultures, but includes a complex combination of at least three key constructs, as depicted in Figure 1. The three constructs have been renamed: (1) understanding cultural identity (knowledge component); (2) the ability to adapt to a multi-cultural setting (behavioural component); and (3) willingness to engage and learn about other cultures (motivational component). These three constructs form the basis of a managerial Cultural Intelligence competency framework, as indicated in Figure 2.

For Factor 1, *Cultural Identity*, a statistically significant difference was found between age groups. The age groups younger than 45 years, who

entered the workplace or built up most of their experience during the 16 years of democracy since 1994 had a better self-identity when interacting or having to interact in a multi-cultural work setting. They have probably developed a better understanding of multiple cultures in the workplace than the older group, who may have become more set in their work ways and were used to doing things their way. This finding corresponds with that reported by Sauer (2008), who found that age and work experience had an impact on the Cultural Intelligence of South African leaders in general; and that younger black South African leaders showed a higher Cultural Intelligence than the older white South African group.

For Factor 2, *Adaptability to a multi-cultural situation*, a statistically significant difference was found between male and female managers, in terms of years of experience and managerial level. In general, female managers displayed a greater ability to adapt and accept other cultures. Years of managerial work experience in a multi-cultural society also signified easier adaptability. This finding is self-explanatory, as experience supports better adjustment and acculturation.

For Factor 3, *Willingness to learn about culture*, showed no significant difference in the sample group. The reliability of this factor scale, with a Cronbach's alpha of 0.407, also indicates that managerial willingness to engage with other cultures is not being perceived by South African managers as a relevant construct to include. Speculation about this finding is that willingness to learn about other cultures may be viewed as a given. It could also be viewed as not significant because managers fear that they are seen as not being willing to engage, which is not an acceptable behaviour in the South African environment. They might also be really willing to engage and learn and therefore this factor shows no significant differences in the sample group.

The *qualitative analysis* was based on six open-ended questions, focusing on the managers' perception of Cultural Intelligence, as well as their reaction to critical incidents of cross-cultural interaction. It revealed the following in response to the six questions:

- 1. Question 1: *An employee from another culture invites you for dinner and you know that the food may be different to what you are used to. What will you do?***

Most respondents indicated that they would accept the invitation. From those

who indicated acceptance, most indicated that if the food seemed unfamiliar, they would *‘give the food a try’*. Other responses from those who accepted the invitation were *‘eat only certain foods’*, *‘inform host of dietary requirements’*, and *‘seek guidance from someone that understands the culture, before going’*.

2. Question 2: What was your most exhilarating moment in having to deal with people from different cultures?

The different positive experiences listed included work-related experiences, such as *‘team building’* and *‘travelling’*, education-related experiences, such as *‘cultural events’*, *‘intercultural training’* and *‘being students – studying together’*; the understanding of intercultural differences and similarities by *‘open communication and sharing’* and specific interactions with different cultures, especially *‘after the 1994 elections, such as sport events’*.

3. Question 3: My most embarrassing moment in having to deal with people from a different culture was ...?

The majority of responses on embarrassing moments were *‘deeper cultural misunderstandings’*, such as making inappropriate assumptions, inappropriate greetings, inappropriate gestures, comments or actions, insensitivity, lack of knowledge or understanding and language barriers.

4. Question 4: What are your goals as a manager/supervisor when specifically dealing with a multicultural group?

The majority of managers responded that they would,

- try to foster a *‘Cross-Cultural Understanding’* by means of knowledge-sharing, seeking to understand differences and recognising similarities, maximising potential and respecting differences by understanding each other; and
- try to meet *‘Organisational Objectives’* by managing diversity, communication with understanding, equal/ fair treatment, achieving results irrespective of various cultures (*‘getting the job done’*).

5. Question 5: *Are you actively trying to learn about other cultures? If yes, how?*

More than 70% of managers indicated that they are consciously trying to learn about other cultures. The means of learning mentioned were:

- *'direct interactions with people from different culture'* by participating in cultural events, ceremonies and rituals (weddings, funerals, etc.), travelling, social interactions and asking questions about the culture(s) different from the respondents' own; and
- *'active learning methods'* such as reading, attendance at workshops, forums or training, exposure via the media (television/ radio/ audio-visual aids/ Internet learning) and learning a new language.

6. Question 6: *In having to deal with people from different cultures, I would like to have answers on the following:*

The majority of responses were related to *'understanding the social conduct and what is appropriate behaviour'* such as *'forbidden /offensive behaviour'*, *'showing respect'* and *'earning trust'*. Answers to these needs lie in deeper engagement with other cultures and direct and open communication with each other in seeking answers.

A summary of the competencies and elements that South African managers regarded as being important in building managerial cultural intelligence is set out in a framework (Figure 2). This framework and subsequent challenges could enable managers to use the existing multi-cultural opportunities fully and to build their Cultural Intelligence competence. The framework serves as a self- managed checklist with questions that managers can utilise to consciously check their competence against or in a managerial training session to create awareness of constructs and to develop actions plans enabling them to build their competence. South African managers indicated that they are eager to learn about other cultures; moreover, they express the need to engage in the 'deeper' cultural components. They appear to regard opportunities for multi-cultural learning as a valuable contribution to interpersonal relationship-building and organisational improvement.

A Cultural Intelligence Competency Framework for South African Managers

Understanding Cultural Identity

- Knowledge of the culture of people I interact with.
- I know the cultural values and religious beliefs of other cultures.
- I know the marriage systems, burial systems of other cultures.
- I know the arts and crafts of other cultures.
- I know the rules for expressing non-verbal behaviours in other cultures.
- I catch myself referring to other cultures as 'their/them/they'.
- When having to praise or reprimand an employee from a different culture, I find it uncomfortable and am not sure how to act.
- When I am part of a multi-cultural work team, I feel left out.

(Be aware of your personal biases, style, preferences, lens and focus).

Adaptability

- I change my behaviour according to the people I am interacting with in a specific situation.
- When dealing with people from different cultures, I will take their particular cultural preferences into consideration when deciding on my actions/interactions.
- I change my behaviour (i.e. body language and speech) when I interact with someone from a different culture.
- When an employee from another culture comes to me with a problem at work, I take that person's culture into account.
- I change my behaviour when I am in a culturally diverse situation.
- While working in a group, I change my interaction style depending on the cultural background of the people in the group.

Willingness to Engage and Learn

- I am comfortable socialising with people in a culture that is unfamiliar to me.
- I am comfortable working with people from another culture.
- I enjoy learning about people from different cultures.
- It is important for me to plan in advance when I have to interact with people from other cultures.
- I think about my views of other cultures.
- My view of other cultures will change if I learn more about them.

(Interesting, but not viewed as significant for SA managers)

Figure 2: Framework of Cultural Intelligence Competencies for South African Managers

Conclusion

Cultural Intelligence and its importance as a managerial competence cannot be denied. South African managers are of the opinion that they can improve their Cultural Intelligence competence. The two main dimensions of competence building for South African managers, who have been working in multi-cultural work settings for decades are ‘understanding cultural identity’ of people in the work environment and ‘being able to adapt’ and engage with people from different cultures. The guideline of components within the Cultural Intelligence constructs that were developed is by no means exhaustive, but could enable managers to use their existing opportunities fully within multi-cultural environments to build their Cultural Intelligence competence, which is sought after locally and globally.

The constant challenge for South African managers, as they indicated in this study, is not to become complacent and think that they can acquire Cultural Intelligence simply by being exposed to working with other cultures. Instead, managers should consciously create, seek and make use of opportunities to engage with the ‘deeper’ elements of other cultures and learn from this engagement. This should enable better relationships and facilitate organisational performance. Further research is needed on how managerial Cultural Intelligence can improve workplace performance, especially in understanding cultural identity and adaptation in multi-cultural environments in different organisational contexts. Some detailed case studies on how managerial Cultural Intelligence is applied and being useful in the workplace are needed.

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A Survey of Accounting Firms' Managers' and Trainees' Perceptions of Diversity Management in KwaZulu-Natal, South Africa

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Abstract

There is a shortage of black chartered accountants, with some progress being made in transforming the industry. Accounting managers must be prepared to effectively manage the increasing diversity of the profession.

The primary objective of the study is to determine KZN accounting firms' managers and trainees perceptions of diversity management in the accountancy profession. The study consists of relevant literature review and it was sourced from journal articles, websites, textbooks and newspaper articles. A prospective, descriptive and analytical, cross-sectional design, using systematic sampling, was employed. The responses of 44 accounting managers and 90 trainees were analysed.

The conclusion reached is that incongruities between managers' and trainees' perceptions of managerial diversity efforts and the equity of remuneration call for greater transparency in existing and future diversity management practices. While the CA Charter remains the guiding professional piece on diversity, poor awareness and the lack of targets/benchmarking may fuel the divided perceptions. The language and

race-based attachments of both trainees and managers are reminiscent of the divisive and exclusive history of the profession. There is still much work to be done in the way of changing perceptions, attitudes and behaviours, before diversity can be effectively managed.

Keywords: Diversity management, accounting firm, accounting firm managers, trainees, accountancy profession, KwaZulu-Natal, South Africa

Introduction

In South Africa, there is only one accounting body, The South African Institute of Chartered Accountants (SAICA), that manages the designation Chartered Accountant (South Africa) – CA (SA). To become a CA (SA), one must complete university studies (Bachelors degree in accounting and Certificate in theory of accounting), a training contract, qualifying examinations (part I and part II) and register with SAICA in order to use the designation CA (SA). Chartered accountants work in the public sector, private sector and in government.

The official SAICA statistics indicate that, in the apartheid era in South Africa, Whites dominated the accounting industry, almost exclusively constituting the profession (Table 1). The under-representation of black CAs in the profession is a direct result of race-based exclusion in the profession prior to democracy (Khumalo 2009). In the post-apartheid era, the accountancy profession in South Africa is becoming more diverse, with previously disadvantaged races now having access to the prestigious chartered accountancy career. While the elimination of discrimination and the provision of equal opportunities are essential steps forward in the social and economic progress of nations, strong opposition to discriminatory practices in South Africa has only become evident in the past last two decades (Perumal 1994; Hammond *et al.* 2008).

	White		Asian		Coloured		African		Other		Total	
	n	%	n	%	n	%	n	%	n	%	n	%
1930s	88	100.0	0	0.0	0	0.0	0	0.0	0	0.0	88	100.0
1940s	325	100.0	0	0.0	0	0.0	0	0.0	0	0.0	325	100.0
1950s	793	99.9	0	0.0	0	0.0	0	0.0	1	0.1	794	100.0
1960s	1312	99.5	2	0.2	2	0.2	0	0.0	2	0.2	1318	100.0
1970s	1909	97.3	45	2.3	4	0.2	1	0.1	2	0.1	1961	100.0
1980s	3389	93.7	168	4.6	35	1.0	18	0.5	6	0.2	3616	100.0
1990s	7383	87.9	602	7.2	147	1.8	249	3.0	19	0.2	8400	100.0
2000s	9638	73.6	1711	13.1	502	3.8	1228	9.4	23	0.2	13102	100.0
Total	24837		2528		690		1496		53		29604	

Table 1. New Admissions to the South African Institute of Chartered Accountants (SAICA) by Decade (Source: SAICA Help Desk, Tyron Lewis, August 5, 2009).

Increasing the number of black accountants and auditors is a national imperative and all stakeholders are working to address this issue. The efforts to balance the scales of race and gender have started to bear fruit. The number of black candidates taking the CA qualifying examinations has increased dramatically in the recent past, and the pass rate of black candidates in the professional qualifying examinations, increased from 41% in 2007 to 73% in 2008 (Mulder 2008).

The current statistics reveal (Mulder 2008):

- Out of 28 483 CAs, a best ever 7 569 (26%) are women and 4 145 (14%) are Black;
- In the 20 to 25 age group, 44% of CAs are Black;
- In the 20 to 25 age group, females make up 52% of the group total;
- A record high 47% of CA trainees are currently black, while 50% of the total are women;
- In 2008, 17% of first-time qualifying examination candidates were African, 5% Coloured, 14% Asian and the remaining 64% White; and
- 33% CAs have a disability.

While the numbers may be viewed with optimism for transformation of the profession, the country's demographics are a stark reminder that the profession still has a long way to go (Khumalo 2009).

Problem Statement and Objectives

In the diverse and competitive South African environment, previously excluded racial groups in the chartered accountancy (CA) profession appear to be riding the wave of exclusion. South Africa has a shortage of black chartered accountants. This situation has arisen due to a combination of political, socio-economic and related educational reasons during the four decades of apartheid rule. In recent years, numerous academic ventures have commenced in an attempt to increase the number of black chartered accountants (Weil & Wegner 1997). The accountancy profession developed a CA Charter complying with the Broad-Based Black Economic Empowerment

(B-BBEE) Act with the aim of increasing the number of black people in the CA profession to more closely reflect the country's population demographics. These efforts are beginning to translate into a more diverse CA workforce, albeit very slowly. The goals of accounting firms will not be achieved if these personnel are not effectively managed. Managers in accounting firms need to develop diversity management skills to be effective in their job because this will result in improved productivity, reduced absenteeism, decreased staff turnover and increased employee job satisfaction (Swanepoel 2000). Managers in accounting firms are appointed to their positions without formal qualifications in management or training in diversity management. The purpose of this study is to assess accounting firms' managers' and trainees' perceptions of diversity management in the accounting profession, against the background of the changing demographic profile of the profession.

Diversity

The accounting firms' managers in South Africa are faced with a challenge of adapting to a workforce that is increasing in diversity. Diversity is the presence of people with subjective identities based on unique primary (inborn) and secondary (learnt) attributes in one social system (Cilliers 2007). These identities influence behaviour on the individual, group and organizational levels, leading people to behave in terms of power relations, subgroup affiliations and inter-group dynamics. Three categories of diversity have been described, namely, functional diversity which refers to differences based on organizational functions and tasks, business diversity which refers to products and services offered and workforce diversity which implies different types of employees with different types of attributes (Uys 2003a). Demographic diversity reflects the degree of mix of characteristics of the people who make up an organisation's workforce while cultural diversity refers to the full mix of the cultures and subcultures to which members of the workforce belong (Hellriegel *et al.* 2007).

There are several important primary and secondary dimensions of diversity. The primary dimensions of diversity include inborn differences or differences that can hardly change (unchangeable) and have an ongoing impact throughout one's life. These dimensions are age, ethnicity, gender,

physical abilities/qualities, race and sexual orientation. These dimensions are the core elements through which people shape their view of the world and are closely related to culture (Smit *et al.* 1997). The assumption is that the greater number of primary differences between people, the more difficult it is to establish trust and mutual respect. This leads to ‘culture clashes’ which could have devastating effects on human relations in the organization (Cilliers 2007). The secondary (changeable) dimensions of diversity can be acquired or changed throughout one’s lifetime. These dimensions tend to have less impact than those of the core, but nevertheless have some impact on the way persons see the world. These dimensions are education, religious beliefs, military experience, geographical location, income, work background, parental status, communication style, and marital status (Smit *et al.* 1997). These dimensions normally add complexity to the individual’s self-image. The interaction between the primary and secondary dimensions shapes the individual’s values, priorities and perceptions. The assumption is that effective *human* relations among diverse employees in the organization are possible only when the differences are accepted and valued (Cilliers 2007).

Benefits Gained by Managing Diversity

Research results indicate that diversity management initiatives at organizations increased productivity, competitiveness and workplace harmony (Uys 2003a). Follow-up studies of diversity management drives, suggested improvements in the organisation’s culture and fairer treatment of people of colour and women. Other research findings suggested that diversity management resulted in an increased understanding of the diverse needs of groups within the population, that creativity increased, that employees were more committed to the organization and that retention increased and absenteeism decreased (Uys 2003a). Theories and case studies on diversity management support the vision that, if managed well, diversity can help improve organizational effectiveness (Uys 2003a).

The advantages of managing cultural diversity effectively include (Nel *et al.* 2004):

- It stimulates, rather than stifles, individual participation and creativity;

- It increases the flow of ideas;
- It attracts and retains the best skills;
- It improves employer-employee relations;
- It increases the morale of the workforce, rather than create suspicions and hostilities amongst employees;
- It reduces tension, confusion and counter-productivity in the workforce;
- It leads employers to view differences as valuable assets rather than unwanted liabilities; and
- It increases the motivational levels of organisational members.

Results of Failure in Managing Diversity

Failure to manage the potential difficulties associated with diversity can lead to the following problems: high turnover costs, higher absenteeism, lawsuits, failure to compete well for talent and reduced organizational performance (Uys 2003a) Organisations that cannot change will be faced with higher employee turnover and higher recruitment and training costs. Employee conflicts that may result in sabotage or high absenteeism can be expected. Misunderstandings can lead to expensive discrimination litigation (Grobler 2006).

Managing and Valuing Diversity

There are three different methods or paradigms for managing diversity. The discrimination and fairness paradigm focuses on equal opportunity, fair treatment, recruitment of minorities, and strict compliance with the equal employment opportunity laws. Successful diversity management, therefore, is usually measured by how well companies achieve recruitment, promotion, and retention goals for women, people of different racial/ethnic backgrounds, or other underrepresented groups (Williams 2007). There are benefits of the discrimination and fairness paradigm: it does tend to increase demographic diversity in an organisation, and it often succeeds in promoting fair treatment of employees (Thomas & Ely 1996). The limitations of this paradigm is that its colour-blind, gender-blind ideal is to some degree built on the implicit

assumption that ‘we are all the same’ or we aspire to ‘being all the same’. The company operates as if every person were of the same race, gender, and nationality. It is unlikely that leaders, who manage diversity under this paradigm will explore how people’s differences generate a potential diversity of effective ways of working, leading, viewing the market, managing people, and learning (Thomas & Ely 1996).

The access and legitimacy paradigm focuses on the acceptance and celebration of differences to ensure that the diversity within the company matches the diversity found among primary shareholders, such as customers, suppliers, and local communities (Williams 2007). Thomas and Ely (1996) state that the strength for access and legitimacy paradigm is market-based motivation and the potential for competitive advantage that it suggests are often qualities an entire company can understand and, therefore, support. Thomas and Ely further state the limitation of this paradigm that organisations tend to emphasize the role of cultural differences in a company without really analysing those differences to see how they actually affect the work that is done.

The learning and effectiveness paradigm focuses on integrating deep-level diversity-differences, such as attitudes, personality, beliefs and values, into the actual work of the organisation. People feel valued not only on the bases of surface-level diversity (i.e., gender, race/ethnicity), but also for all their knowledge, skills, abilities, and experiences (Williams 2007). This new model for managing diversity transcends both discrimination and fairness and access and legitimacy paradigms. The learning and effectiveness paradigm promotes equal opportunity for all individuals, acknowledges cultural differences among people and recognizes the value in those differences and lets the organisation internalise differences among employees so that it learns and grows because of them (Thomas & Ely 1996).

Valuing diversity (or diversity awareness programmes) have evolved from moral and ethical imperatives to recognize and appreciate culturally diverse people (Uys 2003a). Programmes designed to ‘value diversity’ have made great strides in addressing diversity at the individual and inter-personal levels, but usually do not ascend to organizational level. Consequently, organizational issues and organizational systems are excluded from the process of redress (Uys 2003a). While valuing diversity aims to recognize and tolerate, managing seeks to harness and capitalize on sensitivity to

salient differences to create a more dynamic and competitive organizational culture (Uys 2003a).

Affirmative Action and Diversity Management

The pluralistic, proactive, inclusive, and long-term nature of diversity management contrasts with the group-based, reactive, socially exclusive, relatively short-term nature of Affirmative Action (Human 2005; Hunt 2007; Uys 2003b). Pursuing affirmative action (AA) alone, in the hope that the representation it brings about will contribute to the management of diversity in the organization is an ill-founded assumption which threatens to be more crippling to the organization than enabling. Optimizing the potential of the workforce is essentially a managerial task, best achieved through managing its inherent diversity. Affirmative action for equal employment opportunity is aimed at the elimination of discrimination against those persons previously treated unfairly by the employment policies and practices of a given institution (Perumal 1994). While affirmative action is necessary to correct past imbalances, it cannot be seen as diversity. Affirmative action is government initiated, whereas diversity is totally natural. Affirmative action is imposed by law on people and organisations. The acknowledgement of diversity, on the other hand, is a voluntary act of understanding other people (Bates *et al.* 2006).

Management of diversity enables the manager to move beyond affirmative action. Reasons for the shift in perspective are the frustrations being experienced in managing affirmative action, the growing tendency among employees to utilise differences and the world-wide battle for survival among companies (Greybe & Uys 2001). Managing diversity as a planned, systematic and comprehensive managerial process for developing an organisational environment in which all employees, with similarities and differences, can contribute to the strategic and competitive advantage of the organisation, and where no-one is excluded on the basis of factors unrelated to productivity (Grobler 2006). The goal of managing diversity, on the other hand, is more holistic – treating people as individuals, recognizing that each employee has different needs and will require different kinds of help to succeed (Inyang 2007).

The Challenges of Managing Diversity in the Accountancy Profession

Diversity management faces considerable challenges in the accountancy profession. The absence of benchmarks in the accountancy profession is a major limitation to managing diversity. In addition, the severe capacity and resource constraints in the accountancy sector places diversity management low on the priority list of many managers who do not recognize it as a strategic and urgent need. Accounting firms are large bureaucratic organizations, and change will, predictably, come slowly (Gay & Bamford 2007). The lack of accountability for diversity management within the accountancy profession enables the perpetuation of the status quo. Arguably the greatest challenge facing long-term, sustainable diversity management is the inequalities in education and training of future accountancy professionals. Current disparities in opportunities for education translate into differential access to employment (Inyang 2007). The accountancy sector is directly affected by the failure of the South African education schooling system to produce students who are adequately skilled in mathematics and accounting, and who are eligible for entry into institutions of higher learning. The inherent gender and racial disparities in primary and secondary education cannot be meaningfully corrected at the tertiary education level, and will inevitably manifest in the workforce. Diversity preparedness of accountancy managers and employees is lacking and will need to be addressed through awareness programmes and training. Diversity management would certainly not have been included in the conventional management skills set of many present managers in the system. In addition, many managers in the accountancy profession, particularly accounting firms, have little or no general management education, let alone formal training in diversity management.

In terms of race, the SAICA membership statistics indicates that blacks are still grossly underrepresented in the profession. Black Africans, who comprise 79% of the South African population, constitute a mere 5% of the CA profession. The gender statistics also reflect that the accountancy profession is dominated by males. The chartered accountancy profession has introduced a Charter that is in line with the Broad-Based Black Economic Empowerment (B-BBEE) Act (No. 53 of 2003). The South African

Government defines B-BBEE as an integrated and coherent socio-economic process that directly contributes to the economic transformation of South Africa and brings about significant increases in the numbers of black people represented in the economy (Dti 2003). The vision of the CA Charter is to grow the number of black people in the CA profession to reflect the country's population demographics and to empower and enable them to meaningfully participate in and sustain the growth of the economy, in the process of advancing equal opportunity and equitable income distribution (CA-Charter-Council 2008). The challenge for the CA Charter is to prove equal to the task of reversing the race-based exclusion in the accountancy profession.

A survey of the National Association of Black Accountants' (NABA) membership conducted by Howard University's Center for Accounting Education (CAE) in the United States of America reveals the following (DiversityInc 2006):

- Racial bias continues to impede black's career objectives. Of more than 400 survey respondents, nearly 60 percent feel their race has biased employer decisions. Almost half believe that higher-level work and advancement opportunities are disproportionately given to less-experienced white colleagues.
- Diversifying the workforce can temper these disparities, but hiring black accountants does not guarantee an environment of inclusion. An environment of inclusion requires the participation, more than the presence, of diverse groups.
- There are few visible role models for blacks in the industry.
- Firms are happy to hire blacks with middle- or upper- class backgrounds, because they believe these new employees will more quickly assimilate to the firm culture, but the majority of blacks do not come from such backgrounds, and these students sometimes feel alienated.

There is still the perception of white managers that black staff are not adequately skilled to produce work of equal quality as their white counterparts (Hammond *et al.* 2008). Blacks continue to feel that their

managers give them inferior tasks and allocate them to less important clients than their white counterparts, with many black accountants feeling like they are ‘used as tokens’.

Language has historically been used in the profession as a tool of exclusion. While some black trainees are fluent in both English and Afrikaans, most are not (Hammond *et al.* 2008). Blacks, who are unable to communicate in Afrikaans, may face ‘social closure’ in a firm of predominantly Afrikaans speaking individuals, with detrimental social and professional implications. The white power structure of South African society is also reflected in the fact that the main professional journal, Accountancy SA, is published in English and Afrikaans only. When raised as a complaint in a letter to the editor in 1994, the editorial reply cited the large Afrikaans-speaking membership and the paucity of members of other language groups for the exclusion of the nine other official South African languages (Hammond *et al.* 2008).

Research Methodology

Objective: The primary objective of the study was to evaluate accounting managers’ and trainees’ perceptions of diversity management in the accountancy profession.

Study design and sampling: A prospective, descriptive and analytical, cross-sectional design was employed. The South African Institute of Chartered Accountants provided lists of managers and trainee accountants in accounting firms in KwaZulu-Natal, and respondents were accordingly drawn using systematic sampling. Every fifth (5th) manager (n=115) and every fourth (4th) trainee accountant (n=304) were selected from each list, respectively. This paper presents the preliminary results of the first 44 responses from managers and the first 90 responses from trainees available at the time of this analysis. Two parallel-worded versions of the questionnaires were used to collect data for accounting managers and trainees. Questions on diversity used a 3-point scale to assess attitudes and behaviours of managers and trainees. Ethical clearance was obtained from the Human Research Ethics Committee (HREC) of the University of KwaZulu-Natal.

Statistical analysis: All statistical analysis were two-sided and used the SPSS version 15.0 (SPSS Inc., Chicago, Illinois, USA). For all statistical

comparisons, the 5% significance level was used. Pearson's two-sample chi square tests were used to compare between Managers and Trainees for categorical nominal or ordinal variables.

Results

Table 2. Demographic Profile of Managers and Trainees

Features and descriptions	Managers		Trainees	
	Count	%	Count	%
Gender:				
Male	38	86.4%	44	48.9%
Female	6	13.6%	46	51.1%
Age in years:				
21 – 30	0	.0%	90	100.0%
31 – 40	14	31.8%	0	.0%
41 – 50	16	36.4%	0	.0%
51 – 60	10	22.7%	0	.0%
Above 60	4	9.1%	0	.0%
Race group:				
White	20	45.5%	22	24.4%
Indian/Asian	20	45.5%	22	24.4%
African	4	9.1%	42	46.7%
Coloured	0	.0%	4	4.4%

Of the 44 managers surveyed, 38 (86.4%) were male, with 40 (90.9%) of managers between the ages of 30 and 60 years. White managers constituted 45.5% of managers, Indian/Asian managers constituted 45.5%, while African managers constituted 9.1%. Of the 90 trainees surveyed, 44 (48.9%) were male, with all trainees between the ages of 21 and 30 years. White and Indian /Asian trainees comprised 48.8% of all trainees, African trainees comprised 46.7% and Coloured trainees comprised 4.4%. (Table 2)

Significantly, more managers reported ensuring that diversity is a non-negotiable agenda item at all relevant meetings in their firms than was reported of them by trainees (81.8% vs 39.5%, $p < 0.05$). Only 38.6% of trainees reported knowledge of the CA Charter, in contrast to 86.4% of managers ($p < 0.05$). 20.9% of trainees did not believe that remuneration in

their firm was regardless of sex, race, colour or creed, as compared to 4.5% of managers ($p<0.05$). The majority of both managers (63.6%) and trainees (60.5%) believed that their accounting firm should include a commitment clause regarding diversity in its mission statement. (Table 3)

Both managers and trainees believed that diversity programmes should be led by top management, followed by the Human Resource Department. Transformation managers and specialized diversity committees ranked lower in both groups. (Table 4)

Trainees felt significantly more attached than managers to individuals who were of the same race or spoke the same language as themselves ($p<0.05$). Both managers and trainees felt more attached to individuals who were of the same race or spoke the same language as themselves than to individuals who were of a different race group or spoke a different language as themselves. More managers (40.9%) and trainees (40%) were not attached to individuals who spoke a different language as themselves as compared to managers (31.8%) and trainees (26.6%) who were not attached to individuals from a different race. (Table 5)

Table 3. Behaviours and Perceptions of Managers and Trainees Regarding Diversity Management

	Managers (44)			Trainees (90)			Two-sample Chi-square
Adaptation to questions for trainees shown in parenthesis	Yes %	No %	Not sure %	Yes %	No %	Not sure %	
Do(es) you(r manager) ensure in your accounting firm that the employees represent the demographics of the country?	72.7	22.7	4.5	57.8	26.7	15.6	347
Do(es) you(r manager) address diversity barriers in	86.4	9.1	4.5	50.0	29.5	20.5	.016

your accounting firm in order to have a workforce that is productive and united?							
Does you(r manager) encourage social gathering of diverse employees in your accounting firm?	95.5	4.5	.0	77.8	17.8	4.4	.178
Do(es) you(r manager) ensure that diversity is a non-negotiable agenda item at all relevant meetings in your firm?	81.8	9.1	9.1	39.5	30.2	30.2	.005
Do you have knowledge of the CA Charter?	86.4	9.1	4.5	38.6	54.5	6.8	.001
Do you think the CA Charter is an excellent platform to qualify more Black Chartered Accountants?	59.1	13.6	27.3	32.6	11.6	55.8	.079
Is the remuneration in your firm regardless of sex, race, colour or creed?	81.8	4.5	13.6	46.5	20.9	32.6	.022

Does your accounting firm have an incentive scheme for managers who co-operate in the implementation of the diversity management programme?	38.1	47.6	14.3	9.1	27.3	63.6	.000
Do you believe that your accounting firm should include a commitment clause regarding diversity in its mission statement?	63.6	31.8	4.5	60.5	18.6	20.9	.160
Managing diversity in your firm lead to the following:							
Improve motivation	76.2	4.8	19.0	63.4	9.8	26.8	.576
Loyalty	66.7	19.0	14.3	63.4	12.2	24.4	.563
Commitment	76.2	9.5	14.3	64.3	11.9	23.8	.613
Self-confidence	81.0	4.8	14.3	68.3	9.8	22.0	.561
Enthusiasm	71.4	9.5	19.0	59.5	14.3	26.2	.650
Dignity	90.5	4.8	4.8	65.9	12.2	22.0	.107
Stress decreases	52.4	19.0	28.6	36.6	26.8	36.6	.487

Table 4. Leadership of Diversity Management Programmes

	Managers (44)	Trainees (90)	Total
Who should drive diversity programmes for the accounting firm to achieve business excellence?	Ranking order	Ranking order	Ranking order

Top management	1	1	1
Human Resources Department	2	2	2
Transformation manager	3	4	4
Diversity committee/leadership team/steering committee	4	3	3
Other	5	5	5

Table 5. Race and Language Based Attachments of Managers and Trainees

	Managers (44)			Trainees (90)			Two-sample chi-square
	Not attached %	Attached %	Not sure %	Not attached %	Attached %	Not sure %	
To what extent do you feel attached to the following types of people?							
Those trainee accountants who speak the same language as you	18. 1	59. 1	22. 7	6.6	88. 9	4.4	.047
Those trainee accountants who do not speak the same language as you	40. 9	36. 3	22. 7	40. 0	57. 7	2.2	.021
Those trainee accountants who belong to the same race group as you	27. 3	54. 6	18. 2	6.7	91. 1	2.2	.003
Those trainee accountants who do not belong to the same race group as you	31. 8	50. 0	18. 2	26. 6	64. 5	8.9	.237

Discussion and Recommendations

The results of this study reveal that both accounting managers and trainees perceive diversity management to be an important management issue. While the majority of managers are still white and male, the demographic profile of trainees reflects an increase in racial and gender diversity. The changing profile of the profession is likely to be one of the key imperatives for increased diversity management efforts. The older and white managers may also require diversity management training so that they will be able to respond appropriately to the increasing diversity of their workforce. While the majority of managers expressed commitment to increasing the diversity of the profession, attaining greater representation from historically underrepresented groups, and managing existing workforce diversity, only 59.1% of managers believed that the CA Charter is an excellent platform to promote racial transformation of the profession. The CA Charter currently serves as the guiding policy in the profession in terms of reversing race-based exclusion and improving demographic representation. The less than satisfactory confidence of managers in the Charter reflects a need to review the perceived deficits in the document, the level of knowledge and awareness of its contents among managers, and the degree to which these key stakeholders are consulted on the formulation and implementation of the Charter. In addition, only 63.6% of managers believed their personal commitment to diversity should be extended to include a commitment clause on diversity in the firm's mission statement. In all questions regarding the diversity efforts of managers, fewer trainees than managers believed that managers are involved actively ensuring that diversity remains a key issue in the workplace and that efforts are made to ensure the management of this diversity. Fewer trainees than managers believed that managers address diversity barriers in the accounting firm ($p < 0.05$), or that managers ensure that diversity is a non-negotiable agenda item at all relevant meetings ($p < 0.05$). If accounting firms are to adequately and sensitively respond to the challenge (and opportunity) of workforce diversity, they will have to increase the involvement of all stakeholders, especially trainees who are likely to constitute a significant amount of racial and gender diversity within these organizations. In addition, the incongruity of trainees' and managers' perceptions on the diversity efforts of managers suggests that either managers are over-estimating their efforts or that trainees are not made aware

of the efforts of their managers. These significantly different perceptions between managers and trainees may discount existing diversity efforts and threaten future efforts. Clear goals and diversity performance objectives are necessary to create reasonable expectations for diversity management. The lack of benchmarking in the profession poses a serious challenge to creating acceptable and similar expectations of both managers and trainees. While documents such as the CA Charter provide a broad framework for addressing issues of diversity, there is a desperate need for diversity goals to be benchmarked with targets in similar professions, or with accounting professions in other similarly diverse parts of the world. A minority (38.6%) of trainees had knowledge of the CA Charter which reflects the urgent need to improve diversity training and to improve the awareness of this central piece of guidance to the profession on issues of diversity. This may be done as part of graduate education at the tertiary level or as part of the accounting training programmes within accounting firms. The need for accounting professionals to be formally trained or educated on these issues remains crucial, if significant strides are to be made in reversing some of the imbalances created as a result of the profession's history of social and race-based exclusion. The disagreement between managers and trainees on the perceived equity of remuneration across diversity dimensions ($p < 0.05$), is a cause for concern. Only 46.5% of trainees believed that remuneration in their firms are equitable, and this is likely to fuel perceptions of racism, sexism and other forms of discrimination. Moreover, this perception may serve as a potent de-motivator and impact on job satisfaction. In the absence of data on the actual remuneration of employees in these firms, it is impossible to draw conclusions on the accuracy of these perceptions. Nonetheless, it is the incongruity of the responses between managers and trainees that is alarming and reflects the need for greater transparency within firms on issues such as remuneration. In this way, existing inequities can be rooted out and misperceptions can be avoided. The majority of trainees and managers agree on the benefits of managing diversity to individuals, with dignity and self-confidence being the most highly selected benefits perceived by managers and trainees, respectively. Top management and the human resource department are the preferred leaders of diversity management by managers and trainees. This places significant responsibility on top management and human resource departments to signal their commitment to diversity

management by actively pursuing workforce diversity and strategically positioning its diversity management within the firm's goals and objectives. However, this does absolve the workforce from actively participating in diversity management at both the strategic and operational/implementation level, and does not imply that they be excluded in a top-down approach to diversity management. Inclusion, consultation and transparency remain key elements in optimally responding to workforce diversity within the accounting profession where the culture of exclusion has been so painfully entrenched. The attachment of managers and trainees to individuals who are of the same race or speak the same language as themselves, and the much lower reported attachment to individuals which are racially and linguistically different from themselves, creates the potential for discrimination, exclusion and segregation. While the situation with trainees is slightly better than with managers, 26.6% of trainees report no attachment to individuals of a different race group and 40% of trainees report no attachment to individuals who speak a different language as themselves. Language in the accounting profession has been a powerful tool for exclusion and segregation in the profession, and the perpetuation of this behaviour among the new and more diverse trainees must be actively averted. Language-based attachment promotes both geographic and racial segregation, perpetuates same-language social groupings, alienation of individuals of non-dominant linguistic groups, and limits the professional growth of individuals whose functionality and preference within the firm is reduced by language-based attachments.

Conclusion

The accounting profession in South Africa is experiencing a spurt in its diversity as more black professionals are produced. While the progress of increasing the diversity in the profession has been slow, it is a significant change to the almost exclusively white accounting profession of the apartheid era. A democratic South Africa demands a more diverse professional workforce, and that serious efforts are made to improve the under-representation of previously excluded groups, with a coupled demand to effectively and sensitively manage the increasing diversity of the profession. Incongruities between managers' and trainees' perceptions of managerial diversity efforts and the equity of remuneration call for greater

transparency in existing and future diversity management practices. While the CA Charter remains the guiding professional piece on diversity, poor awareness and the lack of targets/benchmarking may fuel the divided perceptions. The language and race based attachments of both trainees and managers are reminiscent of the divisive and exclusive history of the profession. The perceptions of managers and trainees suggest that while both groups view diversity to be an important issue in contemporary management, there is still much work to be done in the way of changing perceptions, attitudes and behaviours, before diversity can be effectively managed.

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... Perceptions of Diversity Management in KwaZulu-Natal, South Africa

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The Application of a Concept Model to Illustrate the Tragedy of the Commons in the Sugar Cane Supply Chain¹

Shamim Bodhanya

Abstract

The sugar cane supply chain is highly fragmented with large numbers of mutually interacting but independent stakeholders. It is expected that it will be characterised by many examples of the 'tragedy of the commons'. This paper explores the underlying feedback loops in the tragedy of the commons for one small aspect of the supply chain, namely that of transport from growers to the respective mill area. This is by application of the system archetype. Thereafter a system dynamics *concept model* is presented. The purpose of a *concept model* is to explore and understand a phenomenon, and is designed neither for prediction nor optimised decision making. Nevertheless, the model indicates that there are an optimum number of trucks for the system as a whole but this would be invisible to individual growers. The results also indicate that because of the underlying system structure and respective feedback loops the system will be operating sub-optimally. The utility to individual growers drives the system relentlessly towards the tragedy of the commons. Opportunities for extending the work in a number of new directions are identified.

Keywords: tragedy of the commons, systems archetypes, system dynamics model, supply chain, sugar cane

¹ An earlier version of this paper was presented at the FMS Business Management Conference – 2009.

Introduction

It is anticipated that the sugar cane supply chain is characterised by many examples of the ‘tragedy of the commons’. The reason is that it is highly fragmented with large numbers of mutually interacting but independent stakeholders. It is likely that they each act based on their own individual incentives without necessarily taking into account the impact on the collective whole system of which they are part. As a result they tend to optimise their own sub-systems while sub-optimising the whole sugar cane supply chain. In addition, they share common resources often without realising it. These together render the conditions typical of the tragedy of the commons.

In this paper, I explore the application of the tragedy of the commons by, firstly, drawing on the relevant systems archetype and, secondly, by application of a concept system dynamics model to help understand and illustrate the tragedy of the commons.

Although it is likely, given the context of the sugar cane supply chain, that there are many more such examples, in this paper I limit the inquiry to a small aspect of the transport system in the sugar cane supply chain.

What is the Tragedy of the Commons?

The ‘tragedy of the commons’ is a concept formulated by Hardin (1968) to illustrate how individual incentives may lead to systemic collapse in a commons. He presents an example of herdsman in common pasture land. Under frontier conditions, each herdsman gets the full benefit of introducing a new head of cattle into the pasture. However, as the total number of cattle introduced into the pasture starts approaching the carrying capacity (Hardin 1996) of the land, each herdsman also experiences a small negative effect, which reduces the overall utility to that herdsman. The full utility of adding a head of cattle by a particular herdsman accrues to that individual, while the negative utility of overgrazing is shared by all herdsmen. It is therefore rational for each herdsman to add an extra head of cattle, and then to continue doing so incrementally. The problem is that at the level of individual rationality it makes sense for all herdsmen to do the same. The systemic effect is collective ruin. As stated by Hardin (1968: 162), ‘[E]ach

man is locked into a *system* that compels him to increase his herd without limit' (e.a.).

Although Hardin used the case of overpopulation to demonstrate the tragedy of the commons, it applies in any situation where there is a commons, without specific mechanisms to prevent the tragedy. Examples of such mechanisms include private ownership, coercive regulation or self-regulation by the community. A commons is any resource that is freely available for shared use (Dietz, Dolsak, Ostrom & Stern 2002). Some examples include land, oceans, other natural resources and air. More abstract examples include the frequency spectrum, human capability and market share of a firm. The recent energy crisis leading to the need for load shedding in South Africa may also be characterised as stemming from the tragedy of the commons.

The comparison of Hardin's example of herdsmen in pastoral land with sugar cane transport between growers and the respective mill area is striking. A direct transposition of a herdsman with a grower and a head of cattle with a truck in the example illustrate the tragedy of the commons in sugar cane transport.

Tragedy of the Commons - Systems Archetype

The systems archetypes are common patterns of behaviour and underlying systems structure that replicate themselves in a variety of natural, physical and social systems (Senge 2006; Senge, Kleiner, Roberts, Ross & Smith 1994; Wolstenholme 2004). One such archetype, unsurprisingly, is that of the tragedy of the commons. The situation is one where there are several stakeholders who use a common but limited resource. They each accrue benefit from using the resource but this benefit is subject to diminishing returns in the longer term. In extreme situations, this is manifested by short terms gains but long term ruin. The systems archetype operationalises Hardin's tragedy of the commons by explicating the underlying feedback loops (Sternman 2000). This archetype is illustrated in the diagram below:

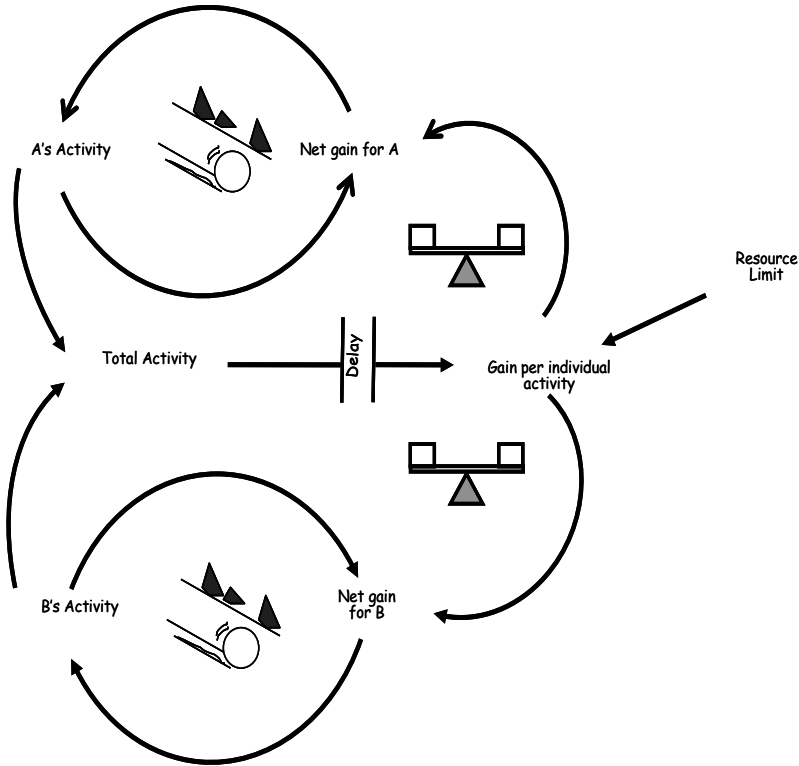


Figure 1: Tragedy of the Commons – Systems Archetype Source (Senge 2006)

The archetype illustrates that an increase in the activity of one party brings in a net gain to that party, which in turn leads to an increase in that party's activity. This is a positive feedback loop. In the diagram this is shown for both Party A and B. There are additional feedback loops that affect the behaviour of the system, however. As the total activity increases it brings the system closer to its resource limit and hence after a time delay, negatively impact the gain made by each individual activity. This total systemic impact may not be apparent to the individuals until it is too late, when the system has exceeded the 'carrying capacity' of the resource and its associated

regeneration rate. This means that the resource has eroded to such an extent that it adversely affects the net gain to each of the individuals, or it has been completely depleted, hence the tragedy. The template above only shows two parties, but it is equally applicable to many parties. The net result is that they ‘collectively conspire’, without knowing that they are doing so, to undermine the very system that supports them and that has been the source of their individual gains.

We may now proceed to apply this archetype to one element of the sugar supply chain, namely transport by growers. This is shown in the diagram below, where I have ‘instantiated’ the tragedy of the commons systems archetype, with the particular transport application.

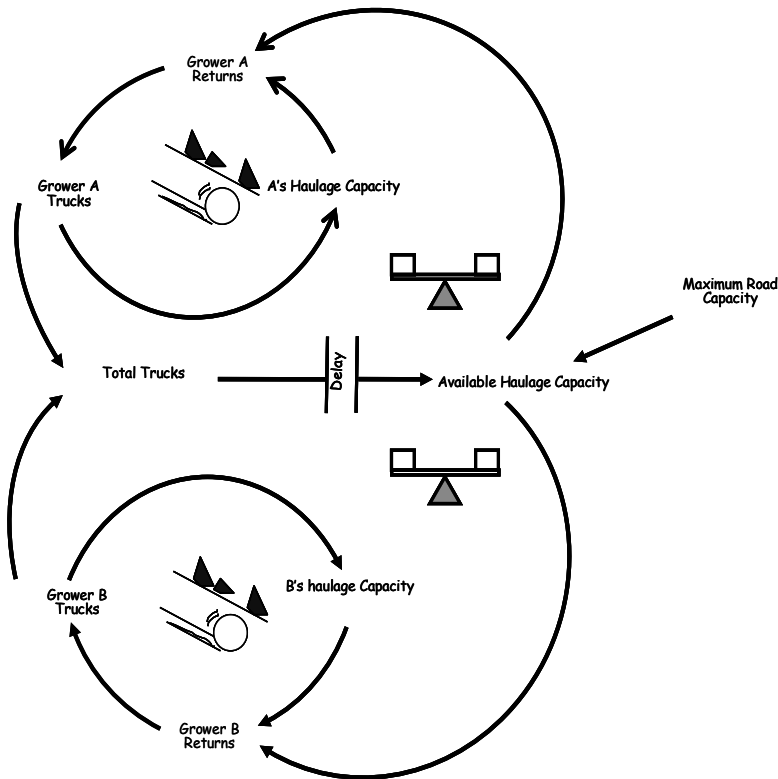


Figure 2: Tragedy of the Commons in Sugar Cane Transport

The higher is the haulage capacity of a grower the higher the returns that it receives. Each grower is therefore incentivised to increase its haulage capacity by investing in new trucks. This stimulates the positive feedback loop. As the total number of trucks on the road increases the available haulage capacity is gradually reduced over time. This triggers a negative feedback loop as it negatively affects the returns of each of the growers. This process continues until the maximum road capacity is reached, which equates to the depletion of a resource. We may view the Available Haulage Capacity as a common resource in this little transport system. Individual stakeholders probably do not even consider it as a resource, as they are focused on the incremental gains out of their activities, little realising that they are depleting this common resource that underpins the system.

A Concept Model to Understand the Tragedy of the Commons

In this section, I extend the systems archetype to a concept system dynamics model. By a *concept model* I am referring to a basic model to explore a concept or a phenomenon. The purpose of such a model is neither prediction nor optimised decision making but rather for contributing to learning about the phenomenon. For this reason, the *concept model* is not a detailed model and may not necessarily be parameterised with actual data, but rather with illustrative data. It may be considered a transitional object that stimulates double loop learning (Morecroft & Sterman 1994). Off course, a *concept model* may also serve as a basis for more comprehensive analysis and be extended into a full model, with real world parameters and subject to rigorous validation. The following system dynamics stock-flow model is formulated as a *concept model* to explore the phenomenon of the tragedy of the commons.

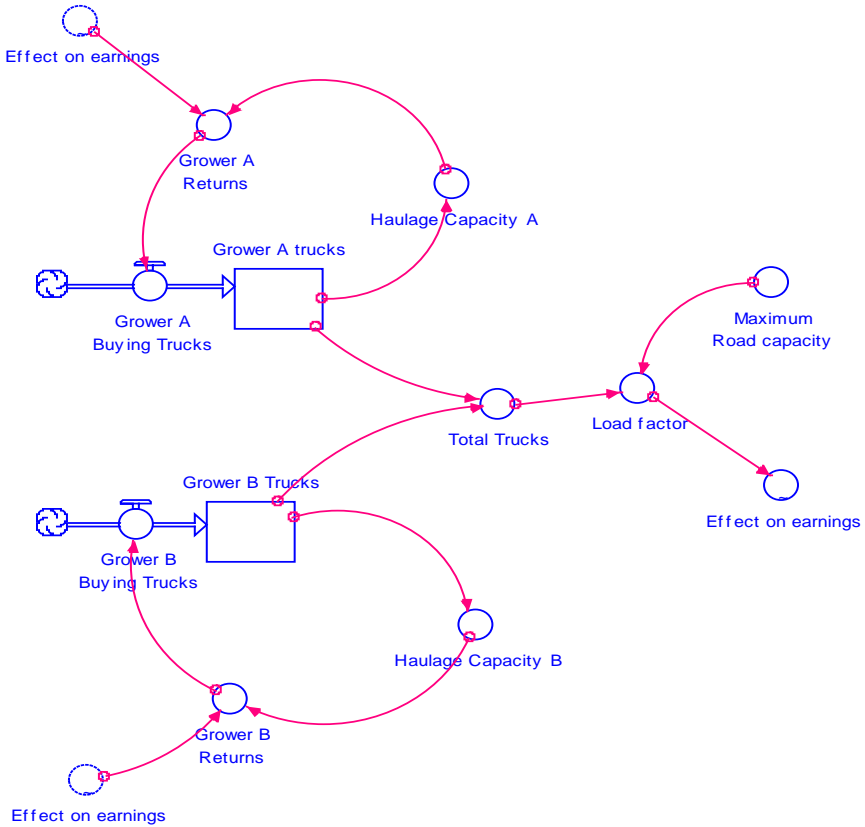


Figure 3: A Concept Systems Dynamics Model to Illustrate the Tragedy of the Commons

The basic conventions of system dynamics modelling is that of asset-stock accumulations (Dierickx & Cool 1989; Warren 2002), referred to as stocks which accumulate or deplete through flows. A stock is represented by a rectangle and the flows are represented as pipes with a ‘tap’ icon. The circles are known as converters, and may be used to represent other model variables such as constants and other model parameters. The single arrows are referred to as connectors and represent relationships between variables in the model. Stocks are variables that accumulate and deplete over time. The values of the inflows and outflows accumulate in stocks.

In the model above, we have two growers each of whom invests in trucks to increase their respective haulage capacities. As the haulage capacity increases the returns to the grower increases. This in turn stimulates the grower to invest in more trucks, thereby creating a positive feedback loop, which is a form of reinforcing behaviour. The model structure for both growers is identical. It is therefore clear that the investment in trucks offers utility to the growers. There is also another set of negative feedback loops that leads to pernicious system behaviour. As each grower invests in trucks, the value of total trucks gradually increases over time to approach the maximum road capacity. This is captured in load factor. The higher the number of trucks relative to the maximum road capacity, the higher is the load factor. The load factor is therefore a measure of the overall system blockage. The impact of such system blockages on individual growers is represented by the converter, effect on earnings. This is a fraction from 0 to 1, which has a reductive effect on returns to grower when its value is less than 1. When the load factor is 0, representing a complete absence of system blockages, the effect on earnings is 1 and therefore has no effect on the returns that accrue to the growers. A load factor of 0 would equate to frontier conditions in Hardin's terms. By contrast as the load factor increases, the effect on earnings begins to reduce the returns to grower. This is the process that models the phenomenon of diminishing returns to increasing investment that underlies the tragedy of the commons.

The model has been run for a period of 80 months. The system behaviour is represented in the graphs below:

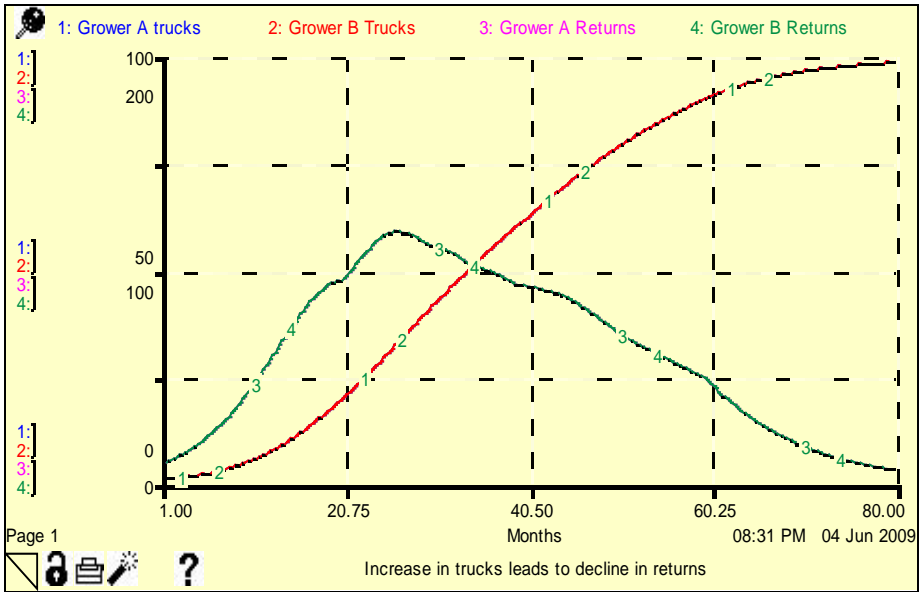


Figure 4: System Behaviour

Figure 4 shows the stock of trucks and the returns for Grower A and Grower B respectively for the 80 month period. Since the model represents the same investment proclivity for both growers, the graphs are identical for both. If Grower A had a more aggressive investment strategy then the graphs would be phase shifted such that Grower A will have achieved a higher stock of trucks and associated investment returns much earlier. This would have been at the expense of Grower B.

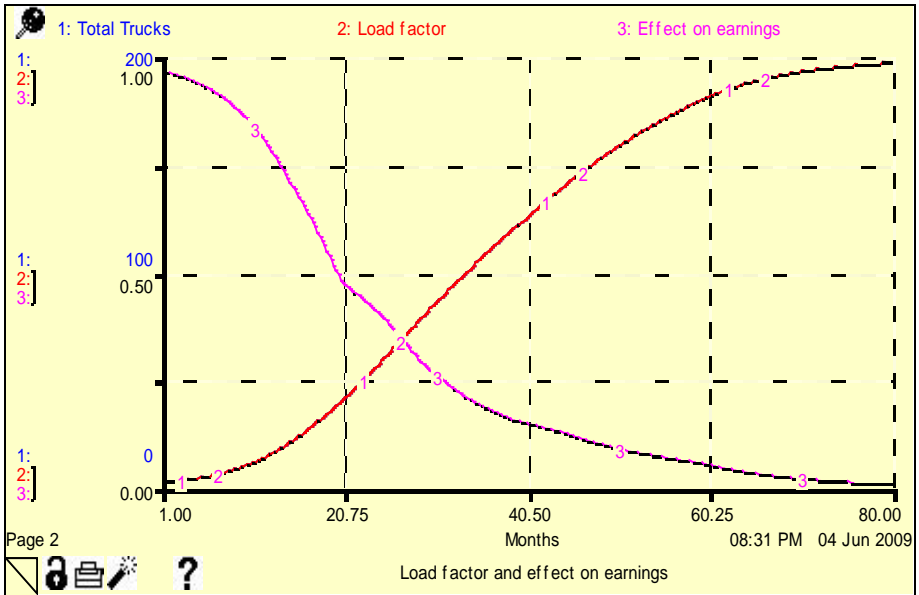


Figure 5: System Behaviour: Load Factor and Effect on Earnings

Figure 5 shows the impact of an increase on the stock of total trucks on load factor, and the concomitant effect on earnings. Total trucks follow typical s-shaped growth. Early on when there are high returns there is a sharp increase in investment, but it slows down when the negative utility resulting from system blockages begin to affect the growers adversely.

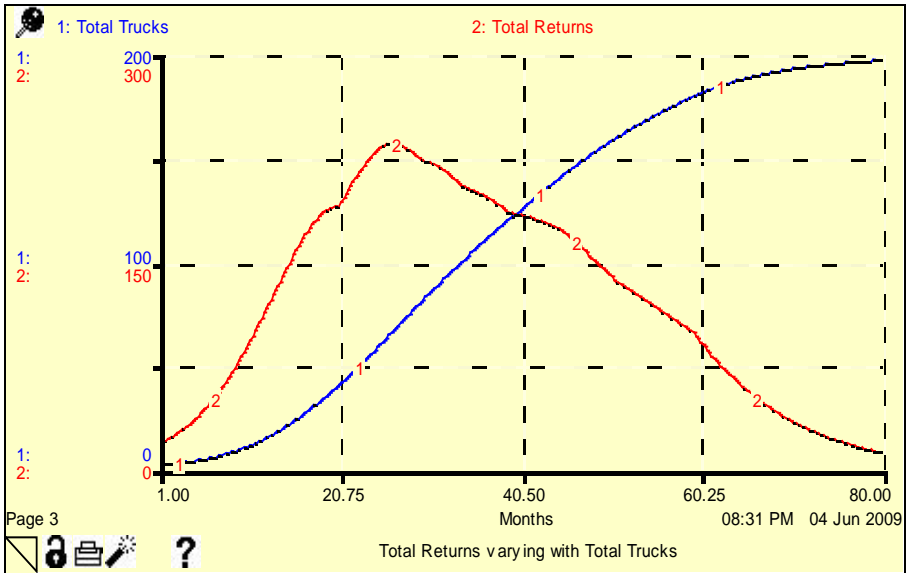


Figure 6: Overshoot and Collapse – The Tragedy

Figure 6 clearly demonstrates the phenomenon of the ‘tragedy of the commons’ which is exemplified in the overshoot and collapse behaviour. The total returns increases sharply at first, driven by the positive feedback loops, as a result of aggressive investment by growers. It peaks at a value of 236 in 26¼ months. Thereafter, any additional investment in trucks brings a net reduction in returns at the system level, when the negative feedback loops become dominant. Individual firms do not realise this and continue to invest in haulage capacity beyond the optimum point. By inspection from the graph, the optimum number of trucks is 64.

The question that has to be addressed is why do growers continue to invest in new haulage capacity? From Figure 4 it is evident that growers merely need to continue investing as long as their individual returns increase, and to cease investment in new trucks as soon as there is a decrease in their returns. The model above represents only two growers, whereas there are actually a large number of growers and other stakeholders in the sugar cane supply chain. A slightly different formulation of the model is presented below.

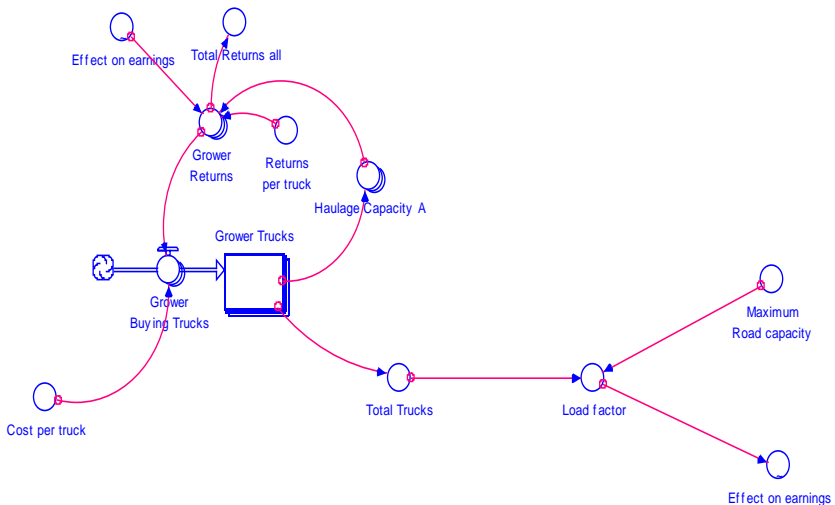


Figure 7: A Systems Dynamics Model to Illustrate the Tragedy of the Commons Using Array Formulation

This formulation still represents two growers only but uses arrays so that a larger number of growers may be included, if desired, using the same basic model architecture without having to explicitly represent grower components graphically for each extra grower. Two additional converters are included to explicitly model the cost per truck and returns per truck. The results of this model are identical to that as shown in Figures 4, 5 and 6. This basic model formulation is now extended and presented below:

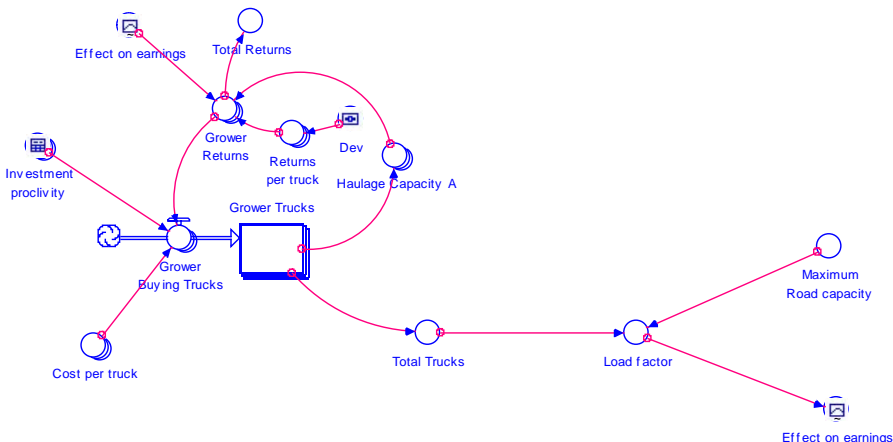


Figure 8: A Systems Dynamics Model to Illustrate the Tragedy of the Commons Showing Individual Investment Proclivities

This formulation depicts 10 growers. A new converter, investment proclivity, has been included to represent the fact that different growers have different investment proclivities and strategies. The results are shown in Figures 9, 10 and 11 below.

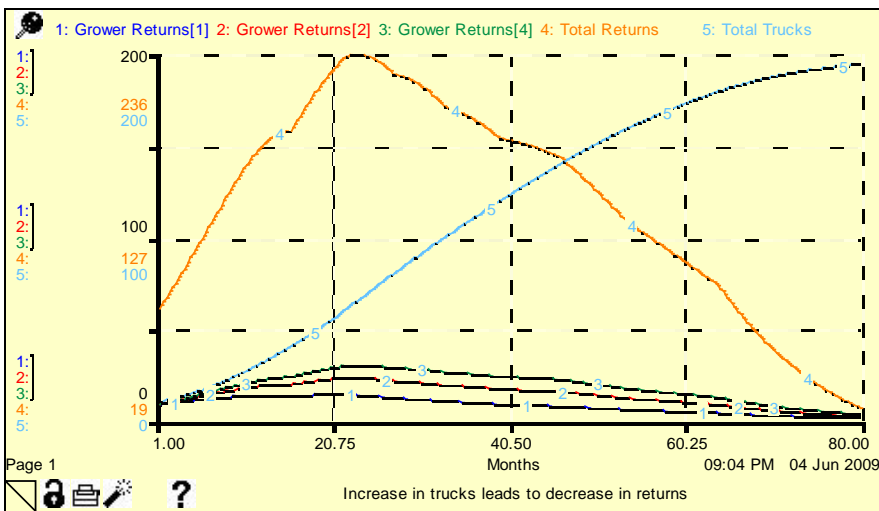


Figure 9: System Behaviour

Figure 9 depicts grower returns for growers 1, 2 and 4 as well as total returns and total trucks. Separate graphs based on the underlying model may be generated to show returns for all 10 growers if required. A comparison between Figure 4 and Figure 9 indicates that the total returns are spread across a larger number of growers. In the case of two growers, it is much easier to detect when the returns to growers are decreasing relative to that when there are 10 growers. In other words, the peak for each individual grower is also much smaller with 10 growers than with 2 growers. As a result, the negative utility of adding an extra truck is likely to be indiscernible to the individual grower, but when accumulated at a system level has disastrous consequences. These system level results are shown in Figures 10 and 11 and are analogous to the results shown in Figures 5 and 6.

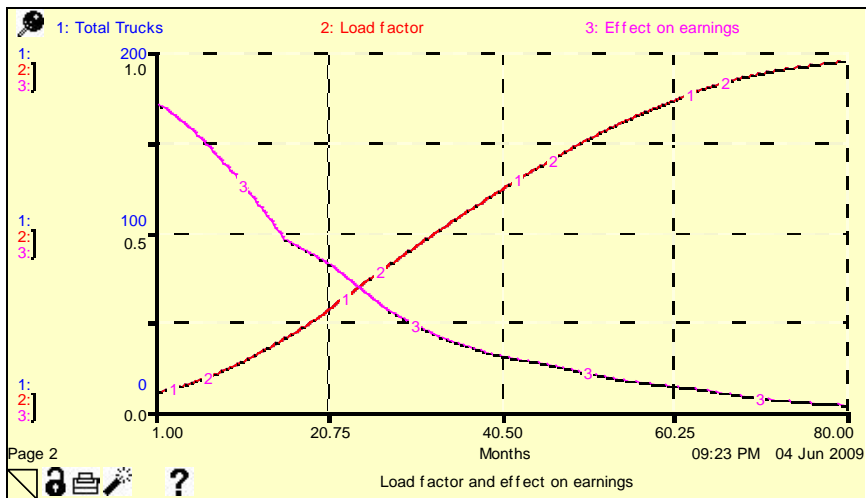


Figure 10: System Behaviour: Load Factor and Effect on Earnings

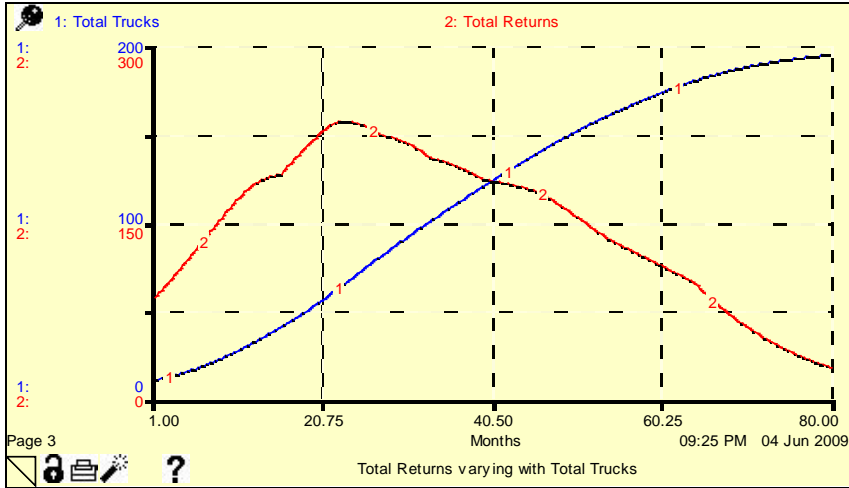


Figure 11: Overshoot and Collapse – The Tragedy

The returns to growers are affected by a number of factors other than just the number of trucks that have been deployed. This will include weather, quality of the sugar cane, burn-to-crush delay, sucrose content and so forth. For the purposes of illustration only, this may be modelled by including a small random component. The returns to grower is no longer a constant value but is now formulated using the normal distribution with a mean of 10, and a standard deviation of 1.2. The results are shown in Figure 12 below.

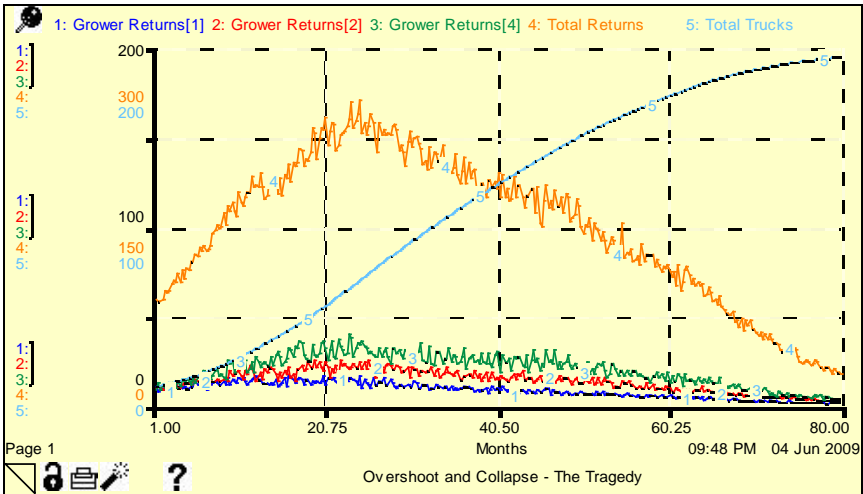


Figure 12: Overshoot and Collapse – The Tragedy of the Commons

The tragedy of the commons is vividly displayed in Figure 12, as it is now clear that the point at which to stop investing in trucks is completely indiscernible to individual growers.

It must be noted that the load factor is a model artifact that is invisible to individual growers. The striking conclusion from the model is that while the optimum number of trucks (which is unknown to individual growers) is 64, the sugar cane supply chain may indeed have a very high over-capacity of trucks much closer to the resource limit, which reduces their overall returns drastically, because of system blockage. This is even without taking into account the cost of maintaining large fleets etc.

Conclusion

Since the sugar cane supply chain is highly fragmented with large numbers of mutually interacting but independent stakeholders, it is speculated that it will be characterised by many examples of the 'tragedy of the commons'. Stakeholders act based on their own individual incentives without necessarily taking into account the impact on the collective whole system of which they are part. As a result they tend to optimise their own sub-systems while sub-

optimising the whole sugar cane supply chain. In addition, they share common resources often without realising it. These together render the conditions typical of the tragedy of the commons.

The application of a system archetype and a 'toy' model was used to explore the tragedy of the commons in one small component of the sugar cane supply chain, namely that of transport from individual growers to the respective mill area. The purpose of the *concept model* is to explore and understand a phenomenon, and not for prediction or optimised decision making. Nevertheless, the model indicates that there are an optimum number of trucks for the system as a whole but this would be invisible to individual growers. The results also indicate that because of the underlying system structure and respective feedback loops the system will be operating sub-optimally. The utility to individual growers drives the system relentlessly towards the tragedy of the commons.

The work here may be extended in several directions. There ought to be effort expended in discovering other examples of the tragedy of the commons in different parts of the sugar cane supply chain. There are a whole suite of other systems archetypes, such as eroding goals, success to the successful, growth and underinvestment, escalation and so forth that are also applicable. These will offer unique insights and understanding of the supply chain. Further experimentation could be carried out on the model to identify leverage points and to explore different forms of intervention to improve the situation at a system level. One example would be to identify some kind of measurement for actual load factor as it varies. This then acts as an information signal that is fed back to individual growers who may then change their behaviour. The *concept model* may be extended into a full, rigorous and validated model. Other *concept models* could be developed exploring other facets of the sugar cane supply chain.

Finally, the work conducted here could be extended and used as a means of educating the various stakeholders in the supply chain of the unknown, but pernicious impact of their individual behaviours that could lead to collective loss. There could also be the application of group model building with stakeholders in the supply chain (Anderson & Richardson 1997; Anderson, Richmond & Vennix 1997; Vennix 1996; 1999). This would hopefully act as a stimulus to intervene such that some of the supply chain problems are ameliorated.

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Mechanisms to Ameliorate Negative Impacts of Globalisation on Human Resources, Industrial Democracy and Humanity

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Abstract

Capitalist globalisation has produced certain negative consequences for human resources, industrial democracy and humanity, in general. Globalisation is a powerful force that cannot be denied, however, conversely, it has also threatened life, in a broader sense. Globalisation was perceived by globalisers as a worldwide remedy for worldwide problems, but is viewed with great pessimism amongst proletariat (workers). Current globalisation has an enormous negative impact on human resources, industrial democracy and humanity, at large. Hence, the aim of this paper is to proffer mechanisms, which can ameliorate negative impacts of globalisation on human resources, industrial democracy and humanity. It is the author's belief that if current postulates are considered, globalisation might present a different picture, which could have positive effects on human resources, industrial democracy and humanity, in general.

Keywords: Globalisation, Ameliorating Mechanisms, Human Resources, Industrial Democracy, Humanism, Labour standard

Introduction

Following the end of other alternatives, capitalist globalisation seems to have produced some calamitous consequences for human resources, industrial democracy and humanity in general. Globalisation is presently a fundamental force that cannot be denied, as it affords obvious benefits to a large number of people, however, conversely, it threatens life, in a broader sense. Society

currently manifests diverse ills, and it is postulated that protracted civil disturbance and revolutions could isolate governments from their subjects (Slabbert 2005:738). Various definitions have been offered to contextualize globalization. For instance, Giddens considers globalisation as a consequence of the tendencies that are inherent in modernity, and defines globalisation as,

... the intensification of worldwide social relations, which link distance localities in such a way that local happenings are shaped by events occurring many miles away and vice versa (Giddens 1990:64).

Sklair (2002:8) is of the opinion that globalisation is a particular way of organising social life across existing state borders. It has also been viewed as,

... the process of interaction and integration among the people, companies, and governments of different nations, a process driven by international trade and investment and aided by information technology. This process has effects on the environment, on culture, on political systems, on economic development and prosperity, and on human, physical well-being in societies around the world (Globalisation 101.org 2002:1).

Held (1996:340) concurred with the above view and asserted that,

... globalisation is neither a singular condition nor a linear process. Rather, it is best thought of as a multi-dimensional phenomenon involving diverse domains of activity and interaction, including the economic, political, technological, military, legal, cultural, and environmental. Each of these spheres involves different patterns, relationships and activities and each with its distinctive forms of logic and implication for other domains.

Thus, globalisation has been endorsed as a worldwide remedy for worldwide problems.

However, globalisation as a worldwide remedy, is perceived from the viewpoint of globalisers, but is viewed with pessimism amongst proletariat (workers). According to Ukpere (2007:454),

Globalisation, as extreme internationalism and globalisation as capitalist globalism, have produced the worst nightmare for human resources and industrial democracy.

COSATU (1997:1-2) has stated:

In the name of globalisation and international competitiveness, there is a new ideological attack on workers rights, trade unions, and labour standards. Increasing investments are shifted to countries where no unions are allowed.

While expressing his resentment towards globalisation, the commander of the Zapatistas National Liberation Front of Mexico, Subcommandante Marcos (1996:1), has opined:

In the name of globalisation, a new world order has begun, but now it is against humanity, as in all world wars, what is at stake, is a new division. This new division of world class consists of increasing the power of the powerful and the misery of the miserable.

Ukpere and Slabbert (2007:356) have argued that the negative impact of globalisation on human resources, overwhelm the positive aspects.

The Bottlenecks of Current Globalisation

Negative impacts of globalisation on human resources have been clearly delineated as a growing downward spiral on wages and working conditions; job destruction and losses; a race to the bottom in labour standards; effects of corporate mergers on workers; problems of unemployment; effects of flexibility and casualisation on labour; less training for workers; more expenditure on advertisements and less on workers; expanded global inequality; an increasing rate of poverty; restricted labour mobility; workers'

exploitation and abuse in the EPZs; abusive labour relationships and employee killings; industrial actions and violent protests; an increase in crimes; congested jails and forced labour; child labour; footloose speculative capital; the effects of technology on workers; erosion of labour unions' powers and demotion of industrial democracy (for details see Ukpere 2007; Ukpere & Slabbert 2007).

Industrial democracy, also known as workers' participation in management, which was one way of introducing democratic principles and industrial humanism into the work place, seems to have been demoted in the present economic era (Uriarte 1999; Klein 2001). Industrial democracy, which stressed involvement of workers in the decision-making process in such a way that workers feel a sense of pride in and belonging to their organisations (Tripathi 2001:492), is presently considered a threat to trade and profit maximisation by transnational corporations (TNCs) and globalising institutions. Workers' participation in the form of co-partnership, labour directors, work committees, collective bargaining and the power to unionise, have become irrelevant to most TNCs.

Certain criteria should be met before a nation or organisation can achieve industrial democracy, which include a need for labour representatives, collective bargaining mechanisms, friendly industrial atmosphere, authority and responsibility, permanent adult workers, respect for workers' democratic rights, good industrial relations, an understanding management team, good consultation avenues, idea sharing, good remuneration to workers, industrial partnerships, job security, good working conditions, management by exception (MBE), management by objective (MBO) and motivational incentives (Sharma 2000; Bendix 2004). Other major prerequisites are profit sharing, labour directors, joint decision making bodies and labour shareholders (Tripathi 2001; Kumar 2000). However, regrettably, these enumerated ingredients of industrial democracy have been demoted owing to a weakening of labour unions by automation, flexible employment patterns, lapsed labour laws, rising unemployment, less consultation, autocratic management styles, greed for abnormal profit, use of children and women labour, in addition to the use of forced labour (Ukpere & Slabbert 2008:43). These multifaceted, but circular variables within the global economy, could be responsible for the dwindling state of workers' quality of working life (QWL).

The major TNCs seem to have turned a blind eye to the ‘Human relations approach’ and have embraced ‘Technological Taylorism’, which promises to rout more havoc than previous Taylorism. Meanwhile, any threat of workers’ actions by unions in one part of the globe is reciprocated by threats of relocation and outsourcing by most TNCs (Martin and Schumann 1997; Klein 2001). No wonder that since the advent of globalisation, a continuous weakened labour union, much work flexibility, an increase in the number of temporary workers, increasingly less bargaining power to workers, retrenchment and unemployment have deepened (Went 2000; Ukpere & Slabbert 2007). The consequence is a decrease in real wage, wealth concentration and a decline of labour wage shares in national income (Uriarte 1999:5-6). This situation has also been exacerbated by increasing innovations in technologies.

Technological innovations within the global economy have increased the pace of outsourcing, re-engineering and retrenchments. Collectively, these trends have increased the level of global unemployment, which adversely affects current and potential workers. Moreover, technology has brought about virtual corporation (Prasad 2004:112). The current virtual corporation promises a reduction of labour force as more and more purchases can be made electronically (Ukpere & Slabbert 2007b:6). In addition, most corporations are presently empowered to send their data processing to any part of the world that could do the work more cheaply (Martin & Schumann, 1997; BBC News, 8 March, 2006). This is similar to the ‘race to the bottom,’ which is detrimental to global workers as they under-bid themselves (Matthews 1998; Bhagwati 2004). Furthermore, the virtual corporation does not promote industrial democracy as it deals with invisible workers, nor does it promote unionism, which is an essential ingredient for industrial democracy. An absence of worker representatives and, indeed, industrial democracy, has laid a solid foundation for workers’ exploitation (Ukpere 2007:455). No wonder that since the era of globalisation, workers have experienced the worst exploitation in the form of depleted wages, temporary employment, increasing hours of work, particularly in the EPZs, an uncongenial working atmosphere and a poor quality of work life (Martin & Schumann 1997; Bloch 1998). A former belief that an employee is the most vital resource within the organisation who should be developed through education and training, have become passé because it would be unwise to

train a person who would be retrenched sooner or later as market forces dictate, since profit is all that matters within a global economy, no matter how it is achieved (Klein 2001; Ukpere & Slabbert 2007). This current state of affairs has triggered opposition voices against the current logic. Sklair (2002:1) has observed:

However, by the beginning of the twenty-first century, in the aftermath of the battle of Seattle and many other challenges to capitalist hegemony, it is difficult to deny the centrality of the struggle between the forces for and against capitalist globalisation.

Ameliorating Mechanisms

The divide between the capitalists and workers have distended owing to the exploitation of the latter. These exploitations, in varying degrees, have expanded the level of inequality in societies, and have intensified the divide between the haves and the have-nots, the poorest poor and the richest rich, as well as capitalist globalisers and the proletariat (Bataoel 2003:1; Martin & Schumann 1997:23; Sklair 2002:48). The current development has resulted in ill-feelings within societies as major global cities have become a centre for recurring protests and street battles, which should be a warning sign that urgent solutions are desirable, if society should be rescued from the wreckages of an atrocious economic system, otherwise a global catastrophe could be pre-ordained within a few years. Based on this concern, therefore, the present author has charted out some tangible, but not exclusive, suggestions towards building of a more inclusive and fairer globalisation that could ameliorate the plight of global workers, while promoting industrial democracy for the benefit of humanity. These suggestions are outlined below.

1. A Global Commitment towards the Enshrinement of Industrial Humanism in the Workplace

There is an urgent need for a global commitment towards the enshrinement of industrial humanism in the workplace. A global industrial humanism would focus on the rights and dignity of the human person within the

workplace. More than that, industrial humanism would point to the fact that just like the capitalists, workers are also human beings striving for development, growth and self-actualisation, and not machines that simply respond to external pressures. Therefore, there should be a need for a global realisation that, just like organisations, humans, including workers, have an innate inclination towards psychological growth and self fulfilment. Unlike Taylorism, industrial humanism should direct focus on the positive aspects of the conscious mental activity of human elements within the organisations.

Therefore, organisations should assist worker to become their authentic selves, have positive views about themselves and find meaning in the work they do. It should eradicate the impersonal, mechanistic life of alienation and marginalisation of workers in the workplace. Employers should focus on the human person, as a whole, and give consideration to the feelings, thinking and perceptions of workers. Management should consider the impacts of their decisions on the feelings, emotions and esteem of their workers. Hence, there is the need for management to realise that workers have the ability to take responsibility and, that, if provided with the right opportunities, such as challenging work, and participation in decision making, through, for example, power sharing, profit sharing and labour directors, they will be effective and satisfied workers. The problems in the workplace should be solved in a humanistic way. In fact, the South African spirit of 'Ubuntu' should be inculcated into the global workplace. In that sense, both workers and employers should cater for one another and avoid any kind of 'industrial madness'. Under such circumstances, the role of women in society should be respected in the workplace- maternity leave should be granted to them during pregnancy, crèches should be provided for their children after birth. In addition, their young children should be assisted to go to school, which would reduce the menace of child labour and child crimes. The commitments to observe industrial humanism could be enforced through the ILO conventions whereby member states can be requested to inculcate it into their industrial relations system.

2. Extension of the General Democratic Principles to the Workplace on a Global Level

In respect of industrial humanism, there is a need to extend the general,

democratic principles to the workplace on a global level. A majority of the civilised world cannot profess democracy when authoritarian regimes of managers rule the global workplace. Democracy, which refers to a government of the people for the people and by the people, should extend to every nook and cranny of society, including the workplace. In that case, management cannot take decisions affecting the organisation and workers without a general consensus. Workers should be consulted on issues affecting them. Management should no longer take decisions on outsourcing, automation, re-engineering and retrenchment, without the consent and sanction of workers. The decisions on the working conditions of workers and the organisation of the working environment, should be democratically structured and oriented on a global scale. Thus, countries that profess democracy, should be informed that limited democracy is not a democracy at all. Real democracy implies the recognition of the fundamental rights of the human person, including the right to gainful employment or work. Therefore, the USA as a nation, spreading democracy around the globe, should also be called upon, as an example, by inculcating democratic values into its workplaces, as increasing job losses, unemployment, inequality and insecurity are, indeed, threats to democracy and true democratic spirit.

3. A Global Commitment to Adhere to Core ILO Labour Standards

In addition to the extension of democracy, there is a need for a global commitment to adhere to some important ILO labour standards, such as those core labour standards that are contained in ILO Conventions No. 87 and 98, which revolve around the freedom of association and collective bargaining, freedom from forced labour, non-discrimination and the abolition of child labour. The need to adhere to these standards is morally justified on the grounds that they are basic human rights. This does not suggest that other labour standards, such as minimum wages, employment guarantee and health and safety measures, are not equally important, however, the implementation of core standards helps to fulfil other standards. For example, freedom of association would help to produce an effective union that can bargain properly on behalf of its members with regard to issues concerning wages and working conditions. Collective bargaining would assist workers'

representatives to put down on paper issues regarding employment contracts, including the tenure of employees and health measures in place in the workplace. Freedom from forced labour addresses issues of slave and bonded labour. Therefore, granting slaves and bonded labourer their freedom in recognition of their human rights is also important. Freedom from discrimination will ensure that nobody is discriminated against owing to his/her gender, colour, race, religion, culture, taste or belief within the workplace, because they are fundamental human rights, which harmonises with the general spirit of humanism. Abolition of child labour will promise hope for future generations as more children will return to school. The maintenance of labour standards would assist to reduce industrial disharmony by providing an institutionalised way of minimizing disruption, improving co-operation between employers and employees and, thereby, create a favourable atmosphere for investment, which would generate employment and greater growth in the economy.

It was argued by some southern countries that adherence to some of the core labour standards would reduce their 'comparative advantages' over the advanced nations in terms of labour supply, productivity and export. However, the present author does not sympathise with this argument. Human rights cannot be sacrificed for productivity and export and should be respected at all times. Moreover, it is important to remark here that most exports from south to north are produced by a small number of NICs, while the vast majority of developing countries export only a meagre of the total. Hence, the implementation of core labour standards will not broadly affect developing countries' comparative advantage in production and trade. Nevertheless, there is a need for expansion in a number of core Conventions, which would make them inclusive and relevant to the needs of the global working population.

4. A Global Agenda to Improve the Quality of Work Life for Workers

Attuned with a commitment to adhere to some core labour standards, should be a global agenda to improve the quality of work life (QWL) for workers. The study has shown that, since the advent of globalisation, there has been a downward spiral on the QWL of global workers, particularly in the EPZs.

Most of the jobs in those zones have reflected abusive working relationships, casualisation of employment, poor working conditions, depleted wages, long working hours and less worker participation in decisions. There are also signs that these poor working practices have also crept into the advanced countries, as there is a tendency to sacrifice civilisation for competition. Hence, in order to address this issue, the need for government monitoring of the QWL of workers on a global scale, is, indeed, necessary. The significant predictors of QWL, that governments should consider in their monitoring, should include the degree to which management treat employees with respect and display confidence in their abilities; variety in daily work routine; amount of challenge in work; the degree to which present work leads to good future work opportunity; self esteem; extent to which life outside work affects life at work; and the extent to which work contributes to society. In addition, opportunities should be provided for employees' psychological and material growth. Their jobs should be enriched to make the jobs more pleasurable through job rotation and multi-skilling, which would meet with the changing circumstances in a dynamic world.

5. Adoption of the Human Relations Approach of Management in the Global Workplace

In agreement with good QWL, there is a necessity to adopt the human relations approach of management in the global workplace. Every organisation should have an industrial psychologist to assist workers with their emotional problems. This measure is in full recognition of the fact that workers are human beings with emotions, have blood flowing in them, and have feelings. The presence of a psychologist alone can give workers some level of job satisfaction, as long as they can see someone in a professional capacity to speak to when they feel that they are weighed down. Apart from a psychologist, the workplace should be properly laid-out with good ventilation and lighting, which implies that the presence of a good operation or project engineer is required in the workplace. More than that, there is a need for global managers to permit the existence of informal groups in the organisation, as this could motivate workers more than the former structures because group influences are contagious. Moreover, managers should try, as much as possible, to be concerned, friendly and attentive towards workers.

This attitude positively affects productivity and boosts further investment, which keeps everyone happy. Also, workers should be communicated with about the rationality of any decisions taken by management in due course. The participation of workers, in most decisions, will reduce further questioning. Any conflict or dispute should be resolved through dialogue, which would promote industrial harmony. The rationale of adopting human relations in the workplace is that it would integrate all partners in the workplace so that they are motivated to work together productively, co-operatively and with economic, psychological and social satisfaction. The end-game of this measure would be productivity increase, expanded investments and a reduction in the level of unemployment.

6. Utilisation of Industrial Democracy as a Motivational Imperative in the Workplace

In addition to the other suggestions, global organisations should endeavour to give room to industrial democracy in the workplace. Industrial democracy can only thrive in the presence of effective unionism and collective bargaining. Unions can help to tackle those external and internal issues concerning workers. Moreover, workers should be given a voice in day-to-day decisions, which affect them in the workplace because association of workers with management provides them with a sense of importance and involvement and self-expression, while they would consider themselves as an indispensable constituent of the organisation. This would help to create a feeling of belonging and motivate them to give all to the organisation. More than that, workers should be freed to have additional-say in planning their personal career paths, and in the way their work is performed. This measure would help to give them a sense of ownership in their jobs and helps them tackle the problems arising from job performance. There is a need to empower workers through industrial democracy so that instead of running away from responsibility, they will begin to contribute to organisational growth. Indeed, workers need empowerment because empowerment gives workers a feeling of control over their future, and this has important implications for their feelings of self-worth, motivation, mental health and participation in the organisation. Thus, having a sense of control of their future, particularly their work destiny, is important for their psychological

state and level of motivation. This would lead to greater productivity, investment and growth. Therefore, it is important that global managers take into consideration this often ignored motivational imperative, namely industrial democracy when dealing with global workers.

7. A Global Government Policy and Commitment towards Job Creation and Security

Still on the list is a global government policy and commitment towards job creation and security. In other words, there should be a government policy which creates decent and permanent jobs. Therefore, any policy that is contrary to this objective, should be discouraged or curtailed. The implication of this is that those business practices of casualisation and flexibilisation of employment relations without security and benefits, should be properly documented, monitored and, as much as possible, be minimised. The goal of the government and private sectors should be focussed on an expansion of employment opportunities. Instead of full privatisation, the government should enter into a joint venture with the private sector. This will ensure that more jobs are not destroyed. Moreover, instead of selling government enterprises to rich politicians and philanthropists that have embezzled the nation, workers can be requested to purchase the business, which will be sold. This will give higher responsibility to workers and they will endeavour to turn the inefficient business into an efficient one without the discharge of many workers. In fact, this is one way of job creation, retention and security. Moreover, instead of retrenching workers, government should create jobs for them by encouraging and supporting them to venture into small-scale industries and cooperative societies. Thus, if the removal of state monopolies on communication and energy, as well as the opening up of previously protected sectors of the market, has a devastating effect on the labour market, then any call for liberalisation and openness should be suspended until there is a substantial reduction in unemployment.

8. Regulation of Technologies that Destroy Jobs Faster

In line with government policy to create lasting employment, there should be some kind of regulation of technologies that destroy jobs faster and bring

misery to workers. The rationale for technology creation and promotion should be to serve human interests. As such, technologies, which dehumanise human beings and render them obsolete, should not be promoted. Technologies should be created to enhance the working person's potentialities. It should be created to serve humans and not otherwise because it is greatly unjust for the creator to serve the created. One possible way to regulate some of these technologies should be through higher taxation on energies and resources that are used for the manufacturing of these technologies, so that the cost and prices of technologies can push up. Under such circumstances, human labour would be more highly valued, and energy-intensive automation would be less profitable. Moreover, governments of the world should try to regulate other activities, which technology has promoted to the detriment of workers. Activities such as outsourcing, re-engineering and retrenchment, which are all by-products of the technological revolution, should be regulated so that workers are not adversely affected. More than that, before the introduction of technology into the workplace, management should see to it that there is already a place in the organisation to accommodate workers who are displaced by technology in a higher position. In addition to that, men like Bill Gates, who has benefited immensely from technology production and promotion, should also be called upon to contribute, in a philanthropic way, in assisting to ameliorate the plight of workers who are so adversely affected by what they have created and promoted. It could also be part of the general social responsibility of business to workers as community members.

9. Complementary and Comprehensive Ideological Order

The regulation of technologies, commitment to create jobs and adoption of core labour standards would be futile in the absence of a complementary and comprehensive ideological order. Socialism has failed and capitalism has failed woefully. Therefore, the only hope left to resurrect socialism and resuscitate capitalism, is a complementary and comprehensive ideological order. In that sense, capitalism should be ready to marry socialism, and socialism should be ready to work with capitalism. In fact, there is a need to complement the positive aspects of both ideologies. This is not to postulate the mixed economic system of the 1960s and 1970s because even then, there

was a competitive, but not complementary, relationship between both ideologies. Thus, the difference between the previous ideological set-up and the current one, which the present author is referring to, is that instead of competitive ideological orders, there should be a complementary and comprehensive one.

In a nutshell, there could be other, better global alternatives to the current single capitalist triumphant orthodoxy. This particular view is reinforced by the recurring protests and confrontations around the world. The first large public protest against the current logic came in Seattle 1999 November at the WTO Ministerial Conference. This was followed by street protests in Bangkok in February (during the UNCTAD conference), in Washington in April (during the World Bank-IMF Spring meeting), and in Melbourne (during the Asian Summit of the World Economic Forum), in Prague (during the World Bank-IMF annual meeting) and in Cancun, at Doha, to name a few. These popular protests across the world are basic reflections of the majority's yearning for an alternative ideological-cum-global-order. Hence, as opposed to Francis Fukuyama's assertion, history has not actually ended and there are many symptoms that capitalism is not after all, the 'last man standing'. There could still be the possibility of a complementary relationship between capitalism and socialism (effective state), so that a higher human, social and economic order is realised (Ukpere & Slabbert, 2008b:421). This is actually what Slabbert (1996:49) meant by 'capisocism'.

10. The Power of the State should Increase

The suggestions mentioned above cannot be realised in the absence of an effective state, which would be strong enough to regulate and coordinate the activities of the economy and nation. No matter how small a state is, it should be in-charge of all policies within its territorial boundaries. There should be no excuse that the state could not act because of the enormous powers of the TNCs. Therefore, the powers of the TNCs should be made smaller in comparison to the state as the custodian of society. More than that, the state should be free to carry its daily functions and should not be stampeded into rash decisions by the influences of big private business. It also shows that the public's interest should not be sacrificed for self interest.

An effective state alone can make policies that are favourable to the majority of the populace. The state should be a powerful participator in the labour relations system of the country. Hence, the state cannot be a passive onlooker of industrial disharmony, because humans, in search of peace and progress, have surrendered their sovereign identity to the state. The state is, indeed, a fine product of human civilisation. It is the authoritative supreme power- the actual sovereign, which has to formulate and execute the will of the people. In this regard, there is a need for a ‘developmental state’- a state, which is democratic and interventionist in nature with the capability of regulating the operations of the market forces. In other words, the state should not be a passive onlooker of the propagandist slogans of capitalist triumphalism, but should play a catalytic, facilitating role, encouraging and complementing the activities of private businesses and individuals. This would be the best remedy towards a sustainable human, social and economic development in the current post Cold War era, particularly in developing nations (Ukpere & Slabbert 2008).

11. Debt Cancellation and more Developmental Aids to the Poor Nations of the World

There is a need for a global agreement to cancel the debts of poor nations. The efforts of jubilee 2000 towards this direction is quite commendable, however, additional efforts should be made to ensure that all debts owed by poor nations to the advanced nations, are stroked off once and for all. Debt payment and servicing has kept most of these Third World nations backward from venturing into developmental projects that could enhance the living standards of their people. More than that, debt payment and servicing have disenabled most poor nations’ governments from providing social services, including decent jobs for their people. It should be remembered that most of these so-called debts arose from the advanced countries’ irresponsible lending to Third World dictators who have used this money for self-aggrandisement, and the arduous debts inherited from the colonial masters.

Therefore, it is unreasonable that the poor people in these countries should face the brunt of these irresponsible lending and mounting debts that refuses to finish or stop. Thus, it is high time that the world is free and cleansed from debt and debt crises. Indeed, if globalisation means a new

economic world order, it would then be reasonable that everyone or nations should be freed to start anew. This would minimise the already unevenness in globalisation. Furthermore, not only should debt be cancelled, but the developed countries should assist the developing countries with trade and developmental aids. This would boost investment and employment in the developing countries, making it difficult for the TNCs to hover around poor nations looking for the next cheap shore to exploit. It is high time to realise that most of the jobs created by the TNCs in the poor nations, are merely artificial jobs that could evaporate at any moment. Therefore, the best job should be those that are created by the people, for the people and of the people. However, these dreams could only be realised if the debt of poor countries are cancelled, in addition to a balance in trade and developmental assistance.

12. A Global Commitment to Alleviate and Eradicate Poverty

In congruence with debt cancellation, there should be a global commitment to alleviate and eradicate poverty. Jeffrey Sachs, in his book, 'The End of Poverty' (2005), has already reminded the world that it is possible to eradicate poverty. Therefore, every hand should be on deck to ensure that this vision is realised. Poverty cannot be eradicated if millions within the global populace are without a decent job. Poverty cannot be eradicated if a majority of the world's workers earn less than the \$1 per day poverty line. In that case, the solution to alleviate poverty lies in the creation of decent jobs, in addition to good remuneration. Hence, instead of depleting the wages of workers as has been witnessed in the global economy, there should be conscientious efforts to improve the amounts that are paid to workers for their inputs in production. More than that, there is a great need to supply the poorest nations in Sub-Saharan Africa, with high variety yield seeds and fertilisers to cultivate enough food for their hungry population because a hungry person is a listless and angry person, who does not have interest in growth and development, except that their immediate problem (hunger) is solved. Wars in Chad, Ethiopia, Eritrea, Somalia and Sudan, could probably be attributed to hunger. Thus, hunger and poverty are positively correlated. Poverty alleviation should include sending of more children to school, and empowering small scale businesses in the rural areas. This will reduce the

number of workers rushing to the cities to create the worst nightmare of city slums, as witnessed in most global centres.

13. A Progressive Taxation System on a Global Level

The objective of poverty alleviation can only be achieved if a progressive taxation system is instituted around the globe. Even world Monarchs and Presidents need not be excluded from progressive taxation. The rich should be taxed according to their wealth. It is blatantly unfair for the rich to be displaying their wealth and flamboyant lives on televisions to the intimidation and misery of the poor without paying or showing for it. Progressive taxation simply means that the rich should give back more than the poor to the society where they have made their fortune and are still amassing wealth in addition to their riches. The proceeds of taxation can be used to create employment in the economy, thereby reducing the scourge of poverty and the menace of criminalities. For example, if Bill Gates and others, who are as rich as or richer than him, are properly taxed, the proceeds from such taxation could solve the problem of hunger in the whole of sub-Saharan Africa. Progressive taxation does not only apply to individuals. In fact, most of the TNCs in the Third World enjoying tax heavens, should be properly taxed for the poor nations to attend to the developmental requirements of their people. Tax holidays, environmental concessions and permission to TNCs to plunder the economy and workers of the Third World, are a great injustice to the people. Thus, there is need for attitudinal change in Third World governments, and TNCs should pay accordingly for all resources extracted or used in the poor countries. Moreover, all monies moving across the globe, for speculative activities, should be heavily taxed. Tobin Tax initiatives will not be sufficient alone to address this issue. Hence, fund movement that does not create value for the indigenous of the destination country, should as much as possible, be restricted. There should be a certification that at least 50% of the funds moved across the globe, generates employment.

14. Discouragement of Cut-throat Global Competition

Additionally, there is a great need for the global government to discourage

unhealthy or cut-throat global competition that has taken place since the advent of globalisation. In fact, competition is good as long as it brings general development to a wider section of the masses. Competition is good if additional value is given to a product due to it. However, if competition leads to the economic exclusion of a greater number of people in the community, as witnessed since the era of globalisation, then that competition becomes cut-throat, unhealthy, counterproductive and should as much as possible, be discouraged. Competitions should direct towards the positive impact it creates for the society. For example, organisations could be made to compete on the number of jobs they create in the society, and not on the number of jobs they were able to destroy in order to earn a profit. In this regard, a report card could be kept by the world governments and awards could be given to organisations, which were able to enhance the wellbeing of a community by creating additional jobs or adding value to products or services. This would go a long way to promoting goodwill and, of course, profitability of organisations that have done better. Global corporate managers should be made to understand that job destruction does not enhance competitiveness. They should realise that they can still enhance their profitability without killing jobs. As far as the present author is concerned, competition in the global village has turned to a trade war between global corporations, which has also trickled down as a war between organisations and their workers. Thus, as corporations fight external wars with other corporations, they also come back to fight an internal war with their organisational members through retrenchment. This is, indeed, unethical, unhealthy and unwarranted. Therefore, any competition that tore organisations and nations apart, should be discouraged as much as possible. Therefore, competition should be directed towards positive ends.

15. More Democratic Decision Making International Bodies

Furthermore, there is a need for more democratic decision making international bodies. Indeed, multi-lateral organisations should have multi-lateral decision making bodies. Decision making in the UN, WTO, IMF and World Bank, should incorporate the views and aspirations of all member states. No longer should any nation be given special treatment in organisations that represent the world family. There is an urgent need to

encourage the participation of more Third World nations in most of these international bodies. America and Britain should learn not to take unilateral actions on behalf of organisations that are purported to represent the world family. The decisions to enforce any resolution should be sanctioned by the majority of the member states. The activities of American corporate lobbyists in most of these organisations, should be documented and, as much as possible, discouraged. Few corporations should not be allowed to determine the fate of 6 billion people through their influence within the international bodies. They should be told the truth no matter how bitter it may sound. The focus of the international organisations should be to create a better and equal world of opportunity for all. This measure would create a kind of balance equation in the global economy.

16. A Global Affirmative Action

Almost in close relation to equal world of opportunity and poverty eradication, there should be a need for a global affirmative action. Economic empowerment and affirmative action should not only be utilised in South Africa to redress the legacy of apartheid, but should be extended around the globe to address issues that have kept some members of the global communities backward. Needless to mention here that apartheid is not only a South African phenomenon- it is, indeed, everywhere. The segregation between the rich and the poor in societies around the world is, in fact, apartheid of the highest order. The retrenchment of large numbers of workers from civil services and corporations around the world, at the dawn of globalisation, is worse than apartheid. Apartheid is racism, and the world cannot deny the fact that the level of racism is high across the globe.

In the current situation, when Mugabe decided to unleash intolerable conditions for workers and citizens in Zimbabwe, someone should have at least, reminded him that his actions are reminiscent of apartheid of the highest level. Apartheid need not be distinguished by the colour of the skin or by race. It should be told that the oppression of a black man by another black man, is apartheid at the highest level. A situation where few groups have been in power since the independence of that nation, as witnessed in most African countries, and amassing wealth for even their families who have yet to be born. They should learn more about the meaning of apartheid

in the true sense of it. In America, Europe, Africa and Asia, the gap between the rich and the poor has by far distended. All these issues should be attended through a global affirmative action whereby the cases of previously oppressed people should be attended to first, before any other case. This will also address the issues of unemployment, poverty and insecurity.

17. A Global Solidarity of Workers

In mutuality with affirmative action, there is a need for a global solidarity of workers. This calls for unity amongst labour unions and workers around the world. Workers in the north should be empathetic to the plights of their counterparts in the south, and vice versa. Indeed, the call by Karl Marx, more than 100 years ago for an international solidarity of workers, sound louder here today. The weakness of workers' solidarity is the reason why company workforces, in different countries, can be played off against each other by TNCs. Therefore, if worker representatives should end their myopic ways of reasoning, the efficiently organised corporate lobbies would lose their superiority in the international bodies. The great failing of workers around the world has been their neglect to build a united, powerful international front that could counteract the activities of international business. In fact, the more the extension of material inequality threatens social cohesion in societies around the world, the more necessary it becomes for workers all over the world to defend themselves with regard to their fundamental human rights, and to intensify international social solidarity. This measure will provide scope for the opposition of the free market radicalism that has excluded the majority of the economically weak global workers. Hence, global cooperation and networking between workers in different parts of the world could give much greater reach to the promise made to billions of people at the advent of globalisation. Indeed, every hand should be on deck to shape a better destiny for humanity.

18. A more Humane Approach to Global Issues

Finally, but not in the least, is the need for a more humane approach to global issues. This very suggestion covers all other suggestions. There is a need for everyone to realise that every human being emerged from one source, and

will return to that very source. The difference between people of colour is merely a result of biological incident. Otherwise, human beings are from the same source, created according to religious books in the image and likeness of God. That being the case, it is imperative that humans approach one another in a humane way. In that regard, corporations should always reconsider if their decision to retrench lots of workers when the company is still making profits has been done from a humane angle. Also, every person should consider if his action has been done from a humane perspective. Employers should consider if wages paid to workers are sufficient to carry them and their families. The very rich should reconsider if their wealth is worth the billions that are suffering of hunger. Humane approaches to doing things would take away irrationality. If previous governments of America and Britain had adopted a humane approach, they would not have gone to war with Iraq for the sake of one man. Consider the wastage of human resources through the lives that have been lost in that war, from both sides. As far as the present author is concerned, that is the highest level of barbarism. The modern world cannot claim to be civilised when a majority of the people are still exhibiting barbaric tendencies. If humans could adopt humane approaches to solving problems, it is the belief of the author that even terrorism will diminish and die a natural death. Humane approaches call for rationality, consensus and understanding. It also encourages cooperation and mutual sentiment. It radiates the message that everyone should be his brother's keeper. In that case, people cannot be throwing away food in the advanced countries when their brothers and sisters in Africa are dying of kwashiorkor (a medical condition caused by hunger). Humane approaches will make world leaders empathetic to the plight of the poorest of the poor. Mother Theresa showed the world an example in this direction and there is a need for more people to emulate her. It takes charity, mercy and love to undertake this mission.

Conclusion

In conclusion, capitalist globalisation has produced some disastrous consequences for human resources, industrial democracy and humanity, at large. There is indeed a negative relationship between globalisation, human resources and industrial democracy. Certainly, there may be other

suggestions by various authors towards creating a better globalisation. However, if the suggestions postulated above are taken into consideration, globalisation might present a different picture, which could have a positive effect for human resources, industrial democracy and humanity, in general.

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The Quest for Survival in the South African Automotive Industry: A Supply Chain Perspective

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Abstract

The South African automotive industry has been adversely affected by the recent global economic recession and credit crunch. This has had a negative impact on role players within the automotive industry; as such companies within the industry downsized, are operating on a four day week and a number of them closed down.

The aim of this article was to determine supply chain issues experienced by South African original equipment manufacturers (OEMs) from their supply side. As interviews took place prior to the economic crisis and credit crunch, subsequent discussions with role players took place after the occurrence. The results are compared to what was 'then' and what is 'now'. In addition, because of the current global environment, this article explores Maxton & Wormald's message that the automotive industry is at the edge of another potentially great change – the possibility of a 'fourth automotive revolution'.

This study is based on a preliminary study of a descriptive and explorative nature. Interviews were conducted with various managers at both senior and executive level at two leading South African (OEMs). Questions that were asked related to supply chain issues faced in the industry.

The findings from the empirical study suggest that the industry is mature with the role players well established. From a supply chain perspective, the issues that OEMs are facing are categorised into 'Macro' and 'Micro' issues. These include: a lack of local supplier base, the geographic location of suppliers, cost of the South African ports, reduction

of core suppliers, supplier sustainability, interconnectivity with regards to MRPs and delivery commitments. The study further indicates that it appears that the industry is ready for a fourth major change as OEMs struggle globally to maintain their share in this shrinking market and measures are needed to restore confidence among consumers.

This research is original in terms of that it explores the possibility that the automotive industry not just in South Africa but globally is ready for a model change, namely the 'Fourth Automotive Revolution'. Furthermore, there is limited published research on the South African automotive industry particularly addressing supply chain issues¹.

Keywords: Original Equipment Manufacturers (OEMs), four major automotive revolutions, Porter's Value Chain, supply chain management, global economic crisis and credit crunch

Introduction

Maxton and Wormald (2004:xiii) state that the automotive industry is both an important and complex one, as businesses within the sector are closely linked to the manufacture of a wide range of components and the extraction of raw materials. As such, the industry ranks significantly in business and despite the global economic crisis and credit crunch, remains vitally important.

The South African automotive industry is experiencing many challenges because of numerous pressures. These pressures include among others: saturation of demand and intense competition; more demanding customers with increased preferences, reducing profit margins and increasing fixed costs; and developments in information and communication technologies (Buzzavo 2008:105; Ambe & Badenhorst-Weiss 2010:2110).

In this article the state of the literature with regard to categories of businesses, the four automotive revolutions, a brief overview of the South African automotive industry, the scope of supply chain management and

¹ An earlier version of this paper was presented at the Business Management 2009 Conference at the University of KwaZulu-Natal, Westville Campus.

Porter's value chain will initially be reviewed. The research methodology stipulating the research undertaken, the findings, analysis of the findings, summary, recommendations, caveats and suggestions for further research will then be dealt with.

Literature Review

The global automotive industry consists of four distinct categories, namely:

1. **original equipment manufacturers (OEM)** or automotive assemblers. This category comprises manufacturers of passenger and commercial vehicles.
2. **original equipment suppliers (OES)**. This category comprises both automotive parts and accessory sales through the OEMs.
3. the **automotive component manufacturers (ACMs)**. ACMs supply components to OEMs, OESs and the independent aftermarket and retailers.
4. the **automotive retail aftermarket**, which comprises of automotive parts and accessory sales, the larger retail groups, the independent retailers and repair shops (adapted from Barnes & Morris 2008:34).

The automotive industry consists of supply and physical distribution management. The industry supply chain spans from the producers of raw materials through the assembly of motor cars (Ambe & Badenhorst Weiss 2010:2111).

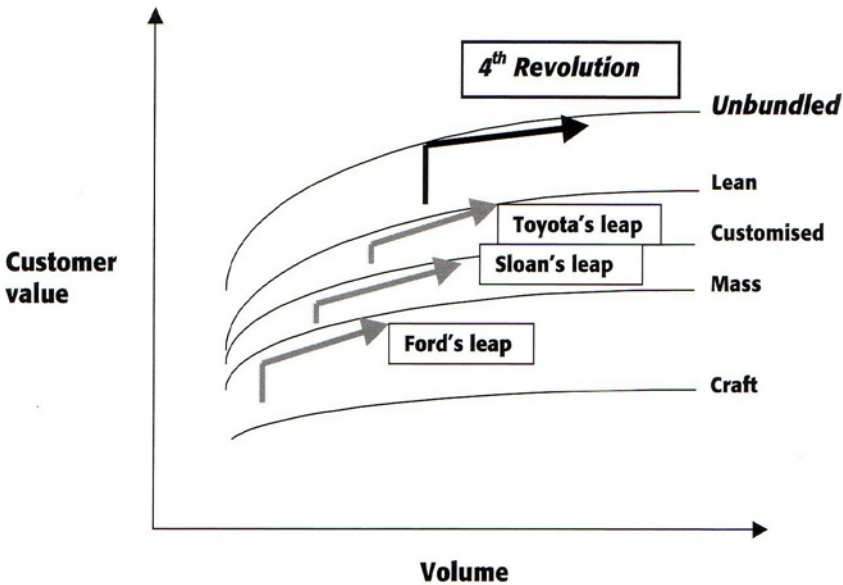
Structural Changes in the Automotive Industry

Maxton and Wormald, (2004:257) indicate that in the last century, since the automotive industry began, there have been three major changes. Each of these changes was a revolution in that it allowed for a leap forward in productivity and cost and in each instance, the manufacturer that brought about the change benefited enormously from it. This is because each change, shifted the rules of the game, upset the competitive equilibrium and overtook the manufacturer – who initiated the change – ahead of their less enlightened and innovative competitors. These flows are indicated in figure 1.

As can be seen from figure 1, the first major change was initiated through the work of Henry Ford. He overtook all his craft-based competitors by applying mass production techniques with the outcome being the total standardisation of the product. The second change initiated by Sloan moved past Ford's model by reintroducing a controlled level of customization, with an emphasis on divisionalisation. Then the third step of the revolution came about when Toyota overtook their competitors by introducing a focus on customized mass production, using lean production processes.

The fourth major change which Maxton and Wormald (2004:257) propose is that businesses take an entirely different look at their businesses in that these will have to be redefined along new and more economically attractive lines. The industry needs to unbundle and reconstitute itself in order to achieve the optimal balance between economies of scale and variety at each stage of the supply chain (from raw materials through the OEM to the distributor to the service garage and ultimately recycling).

Figure 1: The Major Automotive Revolutions



Source: Maxton and Wormald (2004:257)

As indicated by Philips (2009:6) the current state of the global automotive industry is undergoing a shift, as changes are required by the main role players to survive. It is acknowledged that this change is not only required in the way business is conducted but also in their product offering – the kinds of products offered to global markets.

Overview of the South African Automotive Industry

The automotive industry is often described as one of the most global of all industries. Its products are spread around the world and are dominated by a small number of companies with global recognition (Humphrey & Memodovic 2003:2). Morris, Donnelly and Donnelly (2004:129) acknowledge that the automotive industry experienced great structural and other changes in the last 20 years. The influences of globalisation, the implementation of lean production and the development of modularisation had great influences on the relationships between original equipment manufacturers (OEMs) and their suppliers, particularly those in the first tier, known as automotive component manufacturers (ACMs).

South Africa has a number of original equipment manufacturers, namely, BMW, Ford, Volkswagen, Daimler-Chrysler and Toyota who all have assembly plants in various parts in the country. Vehicles are assembled for both the local and international market (Tera 2003:1). In addition, South Africa has a vibrant automotive component manufacturing industry which supplies these original equipment manufacturers (OEM's) (Trade & Investment South Africa (TISA 2003:27).

The South African automotive industry was adversely affected by the recent global economic recession and credit crunch. Car sales dropped significantly, for example in February 2009 only 29 471 motor cars were purchased compared to the previous year 2008 where 46 285 motor cars were purchased in February (NAAMSA 2009). This impacted negatively on role players within the automotive industry and as such companies within this industry downsized, some operated on a four day week and others closed down.

As is evidenced from table 1, the number of employees employed in the total automotive industry in South Africa in 2008 was 324 500. The majority of employees in this industry are employed in the Motor Trade, Distribution and Servicing sector.

Table 1: Employees in the Domestic Automotive Industry, June 2003-2008

SECTOR	2003 (‘000)	2004 (‘000)	2005 (‘000)	2006 (‘000)	2007 (‘000)	2008 (‘000)
Automotive Assemblers (OEMs)	31.6	31.8	34.3	37.9	38.4	36.0
Component Manufacturers (ACMs)	75.0	75.0	78.0	78.0	81.0	81.5
Tyre Industry	6.0	7.2	6.8	6.5	6.9	7.0
Motor Trade, Distribution & Servicing	191.0	194.0	198.0	198.0	200.0	200.0

Source: Adapted from Automotive Yearbook 2009, Section 9:1 and 9.2.

The Scope of Supply Chain Management

Hugo, Badenhorst-Weiss and van Biljon (2004:275) indicate that supply chain management is an integrative approach that considers both the inbound (upstream) and outbound (downstream) flow of materials in business. Distribution management includes the management of downstream processes and activities that deliver the product or service to the end customer.

Grant, Lambert, Stock and Ellram (2006:14) define supply chain management as encompassing the planning and management of all activities involved in procuring, transforming goods and services and all logistics activities. It also includes the collaboration with channel partners, namely suppliers, intermediaries, third-party service providers and customers.

Simchi-Levi, Kaminsky and Simchi-Levi (2000:1) state that supply chain management is a series of approaches used to efficiently integrate suppliers, manufacturers, warehouses and stores. This will guarantee that goods are manufactured and distributed at the right quantities, to the right place, at the right time and cost, in order to minimise system wide costs while satisfying service level requirements.

In terms of the afore-mentioned definitions of supply chain management, supply chain management in the manufacturing of motor cars includes the integration of activities taking place among a network of facilities that purchase the inputs needed on each level of the supply chain, to

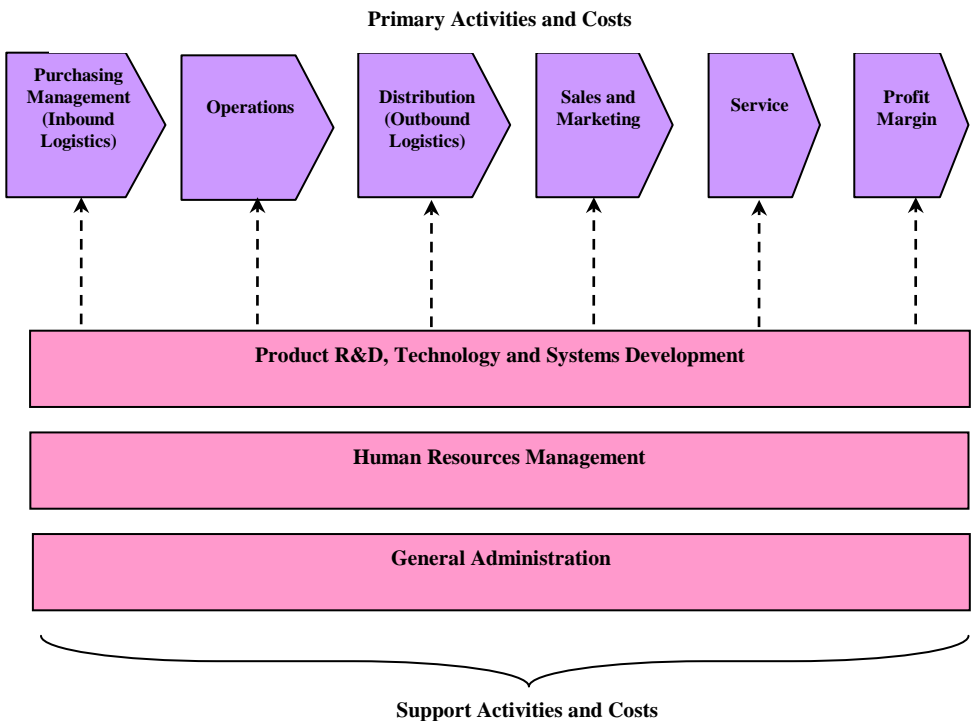
be transformed into finished automotive motor cars, and deliver these to customers through a dealership.

Porter's Value Chain

Michael Porter's value chain analysis disaggregates a business into nine value-creating and strategic activities in either primary and support activities (Grant *et al.* 2006:14) (see figure 2).

Primary activities include the activities in a business of those involved in the physical creation of the product, marketing and transfer to the buyer and after-sale support. The goal of primary activities is to increase profit

Figure 2: Porter's Value Chain



Source: Adapted from Thompson, Gamble and Strickland (2006:96).

margins by creating value that exceeds the cost of these activities. Support activities in a business are seen as non-value creating. However, the goal of these activities is to assist the business as a whole, by providing inputs that allow the primary activities that create competitive advantage to take place on an ongoing basis (Pearce *et al.* 2007:159; Grant *et al.* 2006:14).

In the automotive industry for example, in order to sustain a competitive advantage, inbound logistics, operations and outbound logistics are critical. Barnes (1999:8) emphasises that globally, overproduction in the automotive industry has reached critical proportions. The situation is unlikely to improve in the short term, hence OEMs are under tremendous pressure to improve the competitiveness of their products by way of price, quality, reliability and innovative designs in order to increase sales and thus generate profits. Some mechanisms have been put in place such as lean or just-in-time production, rationalisation of suppliers, consolidating their supply chains, strategic partnerships and merging of operations in order to generate greater economies of scale.

Research Methodology

The study which forms the basis of this article was descriptive and exploratory and qualitative in nature. Data was collected through semi-structured interviews using an interview guide with five staff members at both executive and senior level at two leading OEMs in South Africa.

Research Question

‘Is the automotive industry in view of the supply chain issues identified and subsequent global economic crisis, at the edge of another potentially major change?’

Research Objectives

In order to answer the research question the main objectives of this article are to (1) explore supply chain issues facing OEMs from their supply side; and (2) to determine whether the automotive industry is at the edge of another major change – a fourth revolution.

The secondary objectives of the article are:

1. to give a brief description of the major changes that occurred in the automotive industry;
2. to give an overview of the scope of supply chain management with an emphasis on inbound logistics, operations and outbound logistics;
3. to determine the main supply chain issues faced by OEMs from their supply side; and
4. to determine whether the automotive industry is at the edge of another major change.

Data Collection

Data was collected by way of semi-structured interviews using an interview guide with five staff members at both executive and senior level at two leading OEMs in South Africa. Open ended questions were found to be most suitable for this research study as Saunders, Lewis and Thornhill (2003:293) indicate that these are used widely in in-depth and semi-structured interviews. A limitation of the study is that only two South African OEMs and a limited number of participants (five) were included in the study.

Participants

Initial telephonic contact was made with management at Executive level in order to solicit assistance to conduct the study at two OEMs. Permission was granted by both assembly plants, and after submitting a copy of the interview guide, relevant participants were assigned to assist with the study. In total five participants were interviewed.

Data Analysis

Each interview was recorded and then transcribed in report form, after which it became possible to summarise, compare and consolidate the findings of each participant. The results are of a descriptive and qualitative nature and are dealt with under the analysis and interpretation of the findings.

Validity and Reliability

According to Saunders *et al.* (2003:101) in terms of validity, the concern is whether the 'findings are really about what they appear to be about'. Cavana, Delahaye & Sekaran (2000:212) note that numerous types of validity tests are utilised to test the goodness of measures. Validity tests can be classified under four broad headings, namely face validity, content validity; criterion related validity and construct validity. In this research study, both *face validity* and *content validity tests* were tested.

Reliability was another important aspect to consider in this study. Cavana *et al.* (2000:210) observe that the reliability of a measure indicates the stability and consistency with which the instrument measures the concept that helps assess the 'goodness' of a measure.

In order to achieve this, participants were contacted to clarify certain information that was not clear to the researcher to ensure that the findings were accurate and indicated what the participant really meant. Furthermore, certain issues identified by the participants called for the researcher to carry out further research with the aim of getting a clearer understanding of the facts. This meant that informal discussions with role players in the industry had to be conducted, which made sure that the data was both valid and reliable.

Limitations

The study has the following limitations:

- only two South African OEMs were included in the study;
- a limited number of participants were interviewed; and
- the main issues and not all identified issues are dealt with in this study.

Way Forward

An exploratory study could be undertaken at a later stage to include all role players to determine the way forward in the industry. The study could focus on how role players could address current issues in the industry – particularly as indicated by Fujimura (2009:17) when vehicle sales recover, it is predicted that buyers will be more selective.

Analysis and Interpretation of the Findings

The aim of the empirical research was to determine from the participants what they perceived to be the main supply chain issues they face from the supply side. Their responses are dealt with accordingly. The findings are categorised in two sections, namely issues identified from a macro and micro viewpoint. Only key issues are dealt with. These are outlined in the next section.

Issues Identified from a Macro Perspective

Lack of Local Core Supplier Base

There are deficiencies within the local supplier base and therefore OEMs need to import too many of their parts requirements. These deficiencies relate to the component manufacturers' lack of technology, global supply capability and cost competitiveness. The problem herein is that parts are imported, used to manufacture motor cars and then a significant percentage of locally manufactured cars are exported. The result thereof is additional cost.

The findings indicate that when dealing with international suppliers some problems besides that of additional cost are (1) communication (language); (2) an increase in transit time; (3) dealing with corrupt port authorities in certain countries; and (4) the poor interior road infrastructure of certain countries, which means that OEMs have to allow for increased packaging in order to protect parts which translates into increased costs.

Geographic Location of Suppliers

Core suppliers to OEMs within South Africa are spread across the country – Port Elizabeth, Eastern Cape, Gauteng and KwaZulu-Natal. Ideally suppliers should be located around OEMs' assembly plants (a supplier park concept) as it would be easier to manage the supply chains of OEMs. However, OEMs cannot expect their core suppliers to set up small plants all over South Africa adjacent to the OEM's as this would affect their viability. As a result, in terms of the logistics supply chain OEMs have to increase their stock holdings which impacts on overall costs. A longer supply chain also impacts on time compression, costs and the JIT process.

South Africa's Ports

South Africa's ports are considered to be the most expensive in the world – high port costs and cargo dues are levied to all vessels which berth in the ports of South Africa. This was confirmed in an international port benchmarking study undertaken by the Automotive Industry Development Centre and the Technical Action Group Logistics. Demont (2007:v) notes that the results of the research conducted by this task group revealed that (1) South Africa's SAPO and NPA container tariffs are exceeded only by the North American Port Authority; and (2) South Africa is the only country where ports still charge cargo dues, adding additional cost to imported goods. These issues impact on a company's competitiveness and increase the costs to import and export goods.

Broad Based Black Economic Empowerment (BBBEE)

BBBEE is a core requirement of the South African business environment and both OEMs who partook of this study support the initiative. Simply put, the BBBEE philosophy states that '*if you want to sell you must comply with the BBBEE requirements, but also you must buy from those who comply with the BBBEE requirements*'. However, even though this concept is not easy to achieve it is vital if a stable social environment is to be created in South Africa.

A key element is the BBBEE rating of suppliers according to the BEE scorecard. OEMs' suppliers are struggling to meet their BEE requirements. The main challenge appears to be that no company can achieve the BEE scorecard overnight. Achieving BBBEE targets as per the laid down codes will be particularly difficult for OEMs globalising their supplier base which is in conflict with the BBBEE legislation.

Load Shedding

Both OEMs did not experience load-shedding as they had been exempted from the load shedding process. However, this did not extend to their suppliers who experienced load shedding. This impacted negatively on their core suppliers as they had to change shipping patterns and had to build in safety stocks because load shedding schedules were unreliable.

Issues Identified from a Micro Perspective

Reduction of Supplier Database

The global trend is the consolidation of one's supplier data base. In terms of core suppliers, it was found that both OEMs already reduced their core supplier database. However it was indicated that local independent suppliers to OEMs are declining and as more and more OEMs consolidate their supplier database, local suppliers' sales to OEMs will deteriorate.

Supplier Sustainability

Maxton & Wormald (2004:227) observe that financial viability of a supplier is vital to automotive manufacturers. An OEM being let down by a bankrupted supplier can bring the production system to a standstill. Both OEMs acknowledged that the sustainability of a core supplier is important in that (1) the core supplier is a viable business; and (2) the business will survive into the future. Should a supplier become insolvent this would in the short-term impact on the production of motor cars whilst an alternate supplier is found.

Interconnectivity with Regard to MRPs

OEMs and their core suppliers run off completely different ERP systems. The development of a common platform (Collaborative Xchange) for the MRP interface between the OEMs and their core suppliers is used. Collaborative Xchange is an interpretation database that interprets all the different OEMs' ERP systems/data into supplier recognised releases. In terms of material supply, all releases, advanced shipping notices, data, requirements and packaging through all the various MRPs that OEMs use are submitted by OEMs through this common platform. This is a challenge as: (1) a number of suppliers do not understand the releases; and (2) the suppliers need to share the release data with their Tier 2, 3 and 4 suppliers via this platform.

Delivery Commitments

Another issue identified by participants was that of suppliers not meeting delivery commitments. Some of the causes identified by participants among

others were suppliers not shipping to releases, delays in shipping and in rail transport, delays in off-loading of vessels, port delays, and road delays.

Subsequent Global Economic Crisis

As indicated, interviews took place prior to the global economic crisis. Subsequent informal discussions were held with players in the automotive component industry during the economic crisis and the issues identified prior to the economic crisis are compared what they are now – during the economic crisis.

This concludes the section on the supply chain issues experienced by OEMs from their supply side. The next section deals with the impact of the global economic crisis and credit crunch on the automotive industry.

Impact of the Global Economic Crisis and Credit Crunch on the Automotive Industry

The global economic crisis has severely impacted the automotive industry not just globally, but also in South Africa. As indicated by Davie (2009:15) the industry experienced a severe slump in new vehicle sales both globally and locally. Subsequently South African OEMs were forced to reduce working weeks to four days, work shorter shifts and retrench staff (Robertson 2009:17). The author cites some examples which are as follows: Volkswagen who because of an expected decline in sales overseas closed down production in the last week of February and the company offered voluntary retrenchment packages. Toyota expected exports to decline by 25% to 30% from last year and considered the possibility of working shorter shifts. Ford operated on a four-day week since the end of January 2009. General Motors offered voluntary retrenchments packages to 1000 employees. Mercedes-Benz offered an employee restructuring programme for salaried staff and operated on four-day week from May 2009 onwards.

In South Africa car sales declined significantly not only because of the global economic crisis but also because it has become more difficult for potential buyers to secure loans (Tlelima Online 2009: para 4).

This slump in new vehicle sales has had a knock on effect on core suppliers to OEMs and in turn their sales volumes declined. Subsequent informal discussions took place with participants in the automotive

component industry to determine how they had been affected by the crisis, in relation to the identified issues by OEMs. These are dealt with hereunder.

Issues Identified from a Macro Perspective

Lack of Local Core Supplier Base

Automotive component manufacturers supply components to OEMs, OESs and the independent aftermarket and retailers. However not all component manufacturers supply all four markets. There are those who only supply OEMs, for example catalytic converters and harnesses and those who supply OEMs and the aftermarket, for example spark plugs and filters. Those manufacturers who purely supply OEMs have been the worst affected as in line with motor car sales, sales volumes decreased significantly, customers cancelled orders and hold excess stock which is slow moving. This resulted in some of these manufacturers working a four-day week, retrenching staff and in some instances closing down. The manufacturers who supply the OEMs and aftermarket also experienced a decrease in sales volumes, but not to the extent of pure OEM suppliers.

As motor car sales slumped globally, international component manufacturers were also affected. Because these manufacturers are set up for high production runs, they were not achieving economies of scale which negatively impacts on costs. Therefore from the South African OEMs' perspective as they are also not sourcing the volumes of components as previously, the question then arises whether it is still viable for them to purchase from international suppliers taking into consideration logistics costs.

Geographic Location of Suppliers

Solutions to the above noted issue are complex as this has to do with how the industry developed historically. The supply and the manufacturing volumes in South Africa prior to the crisis were small, and one cannot expect local component manufacturers to set up small plants all over the country. As indicated sales volumes decreased which had a knock-on effect on component manufacturers and certainly at this time the creation of a supplier parks around OEMs' plants is not a viable option.

South African Ports

As indicated by Bondareff (Online 2009: para 6), the shipping industry was adversely affected by the recent economic crisis - companies laid up container ships and retrenched workers around the world. Bulk carriers were also affected as exports of dry bulk goods declined. This is confirmed by Sexton (Online 2009: para 5) in that the global economic crisis resulted in severe declines in containerised trade volumes globally. Tlelima (Online 2009: para 4) further highlights that the US credit crunch adversely impacted on Africa's export and import industries. For example, the continent relies heavily on exports of its raw materials such as oil and coal and most countries that purchase Africa's exports were unable to access credit. This caused a sharp decline in exports.

OEMs in South Africa were also adversely affected by the recent economic crisis and their exports motor cars and therefore imports of components declined. Therefore in terms of the automotive industry less freight is going through the South African Ports.

The findings further indicated that compared to Asia and Europe, in addition to costs, South African ports are inefficient both in terms of congestion at the ports and a poor work ethic.

Issues Identified from a Micro Perspective

Supplier Sustainability

Prior to the crisis, supplier sustainability was identified as an issue. Subsequently, OEMs car sales declined and this resulted in the cancelation of orders with their component suppliers. These suppliers were left with extra stock, which is essentially slow moving. In addition, because of a decline in sales volumes component manufacturers are struggling to survive. As a direct result, a component manufacturer who was financially stable and a viable business prior to the economic crisis may not be so now and this may pose a threat to the OEM.

Delivery Commitments

The findings indicate that volumes are contracted a year in advance so on-time delivery and availability now are not an issue. In addition, participants

indicated that because volumes declined, transport costs increased because they are not achieving economies of scale and transport.

In conclusion, this section of the study dealt with the findings of the empirical research prior to the global economic crisis, a brief discussion of the global economic crisis and credit crunch in South Africa and the impact of thereof on the automotive industry. The next section deals with the generalisations from the study and attempts to answer the problem question.

Generalisations from the Study

Because of the global economic crisis and credit crunch, this article explores Maxton & Wormald's message that the industry is at the edge of another potentially great change. More precisely, a fourth major change in the automotive industry. As indicated in the previous section, the impact of the current global economic crisis on the global automotive industry was significant and all major automakers were affected. OEMs globally struggle to maintain their share in this shrinking market and measures are needed to restore confidence among consumers.

Through the discussion of the supply chain issues and the effect of the global economic crisis and credit crunch, the assumption is made that it appears that in order to survive role players in the automotive industry may have to change their current strategies – what worked in the past may not work in the future. This anticipated change could be any change, but the anticipated fourth major change as indicated by Maxton and Wormald (2004:257) could be the one from a logical and financial perspective.

Conclusion

As indicated in the abstract, the South African automotive industry was adversely affected by the recent global economic recession and credit crunch. This impacted negatively on role players in the industry. Companies within the industry downsized, operated on a four day week and a number of them closed down. The aim of this article was twofold: (1) to determine supply chain issues experienced by South African original equipment manufacturers (OEMs) from their supply side; and (2) to explore Maxton and Wormald's

message that the automotive industry is at the edge of another potentially great change – the possibility of a ‘fourth automotive revolution’.

This article includes an introduction and theoretical background, the research methodology, the limitations of the study and way forward.

The findings from the empirical study suggest that the industry is mature with the role players well established. From a supply chain perspective, the issues that OEMs are facing include a lack of local supplier base, the geographic location of suppliers, cost of the South African ports, reduction of core suppliers, supplier sustainability, interconnectivity with regards to MRPs and delivery commitments.

The limitation of the study is that only two local OEMs were included in the study and five participants interviewed.

To answer the research question:

Is the automotive industry in view of the supply chain issues identified and subsequent global economic crisis, at the edge of another potentially major change?

Through the discussion of the supply chain issues and the effect of the global economic crisis and credit crunch, the assumption is made that in order to survive role players in the automotive industry may have to change their current strategies. It is clear that what has worked in the past may not work in the future and therefore the indications are that the industry is at the edge of a major change.

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The Quest for Survival in the South African Automotive Industry ...

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The Relationship between Emotional Intelligence and Transformational Leadership in Information Systems Managers: An Exploratory Study

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Abstract

In these volatile economic times, it is often the quality of leadership in organisations that determines their success or failure. Emotional Intelligence (EI) has been topical in the last few years, especially its importance as a skill in business leaders. Various EI research has revealed that a high level of EI is vital for successful leadership. In the Information Systems (IS) field, many professionals may be technically brilliant but often lack the EI required to move into successful leadership positions. These EI skills are essential for successful leadership in all spheres of business and therefore the IS field should be no different. It is also well documented that transformational leaders motivate employees to achieve more than expected and beyond their self-interests for the good of the group. This type of leadership is particularly relevant in the current economic climate. This exploratory research aims to investigate whether a relationship exists between IS managers' EI traits and their transformational leadership abilities and whether this could influence an IS professional's progression from a technical role into a successful IS leadership role. Sixteen South African IS managers completed research questionnaires which comprised an Emotional Intelligence test, a Leadership test and a researcher-designed questionnaire. The hypotheses were H⁰ - There is no correlation between IS managers' EI and their transformational leadership abilities and H¹ - There is a positive correlation between IS

managers' EI and their transformational leadership abilities. The two variables under investigation were Emotional Intelligence (independent variable) and transformational leadership (dependent variable). Correlation analysis was performed on the data and revealed significant positive correlations between various pairs of EI and transformational leadership variables. Because EI is not 'fixed' like IQ, it can be improved through training and practice and, as such, IS businesses may encourage their IS managers/potential IS managers to work on the improvement of their EI competencies in order to become better leaders. This research was done on a small sample and in a small geographic area and is therefore not generalisable. A similar research project conducted on a much larger sample and a broader geographic area would be worthwhile.

Keywords: Emotional Intelligence (EI or EQ), transformational leadership

Problem statement, Objectives and Research Questions

This exploratory research aims to investigate the relationship between IS managers' EI and their transformational leadership abilities.

The questions which the research aimed to answer were:

- Is there a relationship between IS managers' EI traits and their transformational leadership abilities?
- Is there a correlation between IS managers' EI and variables such as gender, age, education, salary, job type and number of years IS experience?
- Is there a correlation between IS managers' transformational leadership abilities and variables such as gender, age, education, salary, job type and number of years IS experience?
- Are there implications of the research for IS professionals wanting to progress into, or already in, IS leadership positions?

Literature Survey

Introduction

EI is the ability to monitor one's own and others' feelings and emotions and to differentiate amongst them and to use this information to guide one's thoughts and actions. The five main components of EI are self-awareness, self-regulation, motivation, empathy and social skill (Goleman 1995).

EI has been very topical in the last few years, especially its importance as a skill in business leaders. Various EI research studies have been conducted and have shown that a high EI is vital for successful leadership (Goleman 1995; Darnell 2005; Salovey & Mayer 1990; Murensky 2000; Rankin 2005/2006). In the IS field, many professionals may be technically brilliant but often lack the EI required to move into successful leadership positions. These EI or people skills are essential for successful leadership in all spheres of business and therefore the IS field should be no different.

Emotional Intelligence

EI and its relationship with leadership are very topical at the moment. In essence, EI refers to 'people skills' such as self-awareness, self-control, motivation, decision making, handling stress, empathy, assertiveness, insight, conflict resolution and social skills. The term emotional intelligence was coined by Israeli psychologist Bar-On in 1985. The concept was only popularised ten years later in 1995 when psychologist Goleman wrote his book *Emotional Intelligence: Why it can matter more than IQ* (Goleman 1995). The book became an instant best-seller and looked at the relationship between success and being able to motivate oneself and persist in the face of frustrations, to control impulse and delay gratification, to regulate one's moods and keep distress from swamping the ability to think, to empathise and to hope.

EI has been defined as

the ability to monitor one's own and other's feelings and emotions, to discriminate among them and to use this information to guide one's thinking and actions (Salovey & Mayer 1990).

In 1997, they updated this approach with the four-branch model:

Emotional intelligence is the ability to perceive emotions, to access and generate emotions so as to assist thought, to understand emotions and emotional knowledge, and to reflectively regulate emotions so as to promote emotional and intellectual growth (Mayer & Salovey 1997).

Goleman (1995) cites an interesting example of how important EI is in the workplace. At Bell Labs, which is the world-famous scientific think-tank near Princeton University, a study was done of star performers. The staff at Bell Labs are all highly intelligent (high IQ) engineers and scientists. Within this organisation, some people emerged as stars, while others were only average in their performance. Many of the projects at Bell Labs are too complex for one individual to do alone, often requiring ad-hoc teams to solve a problem. The stars were studied and compared with others to try and determine what made the difference. IQ, personality tests and other tests showed no major differences between the groups. However, 'after detailed interviews, differences emerged in the internal and interpersonal strategies stars used to get their work done' (Goleman 1995). The most important strategy was rapport with a network of key people. These stars put time into nurturing good relationships with people whose services they may need as part of an ad-hoc team to solve a problem. When they need help, these networks of people are willing to oblige quickly. Not so for the non-stars, who may also try to get help from colleagues in an emergency, but don't get the same level of co-operation as the stars. What made the difference between the stars and the others was not their IQ, but their EI because they were better able to motivate themselves and better able to set up informal networks of colleagues that they could call on when needed.

Leadership

Leadership is the art of persuading people as opposed to dominating them (Goleman 1995). According to Bass and Avolio (2000) in their Multifactor Leadership Theory, there are three broad leadership styles, namely transactional, transformational and laissez-faire. Transactional leaders motivate employees by offering rewards for acceptable performance and as a

result achieve expected deliverables (Bass 1997; Bass & Avolio 1990). Transformational leaders, on the other hand, motivate employees to achieve beyond what was thought possible and beyond their self-interests for the good of the group (Sivanathan & Fekken 2002). Laissez-faire leadership is hands-off where no attempt is made to motivate others or to recognise or satisfy individual needs. These leaders avoid decision-making, dodge responsibility and do not reward employees or give feedback, either positive or negative (Bass & Avolio 1997). There are however, instances or situations where a laissez-faire leadership style is appropriate. Transformational style is largely associated with leadership success (Gardener & Stough 2002). Bass (1990) suggests that the attributes which enable a leader to exercise transformational leadership include vision and the ability to inspire others to that vision, even if going against popular opinion.

Emotional Intelligence and Leadership

Goleman (1998a) found in research done on leaders that the most effective leaders all had a high degree of EI. He states that a person can have a high IQ, the best training, an analytical mind and many good ideas, but without a high EI he will not make a great leader. Goleman refers to research done by McClelland (1998) where he studied a global food and beverage company and found that where senior managers had a critical mass of EI competencies, their divisions exceeded annual earnings goals by 20%. By contrast, managers without that critical mass of EI underperformed by about 20%. Research has also shown that a person's EI is not fixed (like IQ), but EI can be developed and improved with the right approach (Goleman 1998a).

Cooper and Sawaf (1997) state that leaders need the capacity to create excitement. This confirms Goleman's (1995) belief that EI includes the ability to motivate oneself and others and that charisma is an important quality for successful leadership. Research done by Stuart and Paquet (2001) focused on EI as a determinant of leadership potential. The research was done in a large South African financial institution and compared the EI scores of a group of employees who displayed leadership potential with a group that did not display leadership potential. The results showed that factors such as optimism and self-actualisation were significantly higher for the leader group. The research concluded that there is a link between the

fundamentals of transformational leadership theory and EI. Boyatzis (1982) studied over 2000 supervisors, middle managers and executives in 12 American organisations and found that 14 out of the 16 competencies that set star performers apart from the rest were emotional competencies.

Bailie and Ekermans (2006) conducted EI research on 111 middle managers from a life assurance company in South Africa. The EI test results were compared with archived leadership assessment material. The results showed significant relationships between various EI dimensions and leadership qualities such as customer focus, building working relationships, developing others, gaining commitment, problem solving and stress tolerance. These results point to the fact that, given the correlation between EI and leadership, it may be wise for organisations to screen for EI when hiring managers or when promoting staff into managerial positions.

Emotional Intelligence and Information Systems

Not much research has been done on EI and professionals in the IS field specifically. However, one study did find that the more customer facing an IS professional was, the higher their EI (O'Sullivan 1998).

Smith (2002) emphasises EI as an important skill for IS students. Goleman and Dalziel (1999) stated that an effective project manager needs to be strong in six or more of the 20 EI competencies. The most important eight competencies are self-awareness, self-control, achievement drive, initiative and optimism, empathy, leadership, team capabilities and conflict management. These eight competencies always appear in project manager competency models. Smith (2002) states that a high EI leads to increased productivity in individuals, projects and teams. Given the project and team-based nature of many IS projects, Smith (2002) suggests that these eight competencies should be integrated into final year IS curricula so that students can develop their EI skills.

Peterson et al (2003) suggest that in order to succeed, today's IS professional requires multidisciplinary awareness and the ability to deliver the value of technical skills to clients, to work as members of a team and to solve problems. Peterson et al (2003) state that in order to prepare IS students for the realities of the working world, 'value-delivery' should be taught along with technical skills. They identify

value-delivery skills as encompassing EI skills, namely personal competence, such as self-awareness, self-regulation and self-motivation; and social competence, such as social awareness and social skills (Peterson *et al.* 2003).

Raccoon (2006) emphasises the importance of leadership and EI competencies for IS software engineers.

Research Methodology

Introduction

The research aims to investigate the relationship between Information Systems (IS) managers' Emotional Intelligence (EI) and their leadership abilities. The research is applied and quantitative. The research is also exploratory in nature.

Correlation research was done in order to determine whether there was a relationship between the two variables under investigation, namely:

- Emotional Intelligence = independent variable and
- Leadership ability = dependent variable

By investigating the relationship between EI and leadership abilities of IS managers, the research will indicate whether a high level of EI competencies could influence an IS professional's progression from a technical role into a successful IS leadership role.

Data Collection

Participants

The participants in this study were sixteen IS managers/ project managers/ team leaders from both private and public organisations in Pietermaritzburg, Durban and Cape Town and their staff/ peers/ superiors. This population was very specific and small and the researcher had to initially seek out a sample that fitted the criteria. Non-probability judgment sampling was used for the first phase and accounted for half the sample. The remainder of the sample

was obtained by non-probability snowball sampling, whereby participants identified by judgment sampling were asked to recommend other IS managers who might be willing to take part in the research. It would have been preferable that the IS manager participants had qualifications in the IS field and had progressed from a technical role into a more managerial role, but this was not always the case. A gender-balanced and race-balanced sample would also have been preferred, but this was not possible due to the IS management field being white-male-dominated.

Measuring Instruments

The research instruments were a researcher-designed questionnaire, an EI questionnaire and a leadership questionnaire. More detail on each of these questionnaires follows.

Researcher-designed Questionnaire for Managers

The questionnaire determined facts such as the length of time the person had been in the IS field, their qualifications, their current position and length of time in current position, their previous position and tenure therein and whether the post was with their current employer. Demographic information such as age group, gender, race and salary were also obtained.

TEIQue-Long Form Emotional Intelligence Questionnaire

The TEIQue LF is a self-report inventory that covers the sampling domain of trait EI comprehensively. It comprises 153 items, measuring 15 distinct facets, 4 factors, and global trait EI (Petrides & Furnham 2003). The 15 distinct facets of Trait Emotional Intelligence are:

Facets	High scorers perceive themselves as...
Adaptability	flexible and willing to adapt to new conditions.
Assertiveness	forthright, frank, and willing to stand up for their rights.
Emotion perception (self and others)	clear about their own and other people's feelings.
Emotion expression	capable of communicating their feelings to others.

Emotion management (others)	capable of influencing other people's feelings.
Emotion regulation	capable of controlling their emotions.
Impulsiveness (low)	reflective and less likely to give in to their urges.
Relationships	capable of having fulfilling personal relationships.
Self-esteem	successful and self-confident.
Self-motivation	driven and unlikely to give up in the face of adversity.

Social awareness	accomplished networkers with excellent social skills.
Stress management	capable of withstanding pressure and regulating stress.
Trait empathy	capable of taking someone else's perspective.
Trait happiness	cheerful and satisfied with their lives.
Trait optimism	confident and likely to 'look on the bright side of life'.

Trait Emotional Intelligence Research Program (2006)

Multi-Leadership Questionnaire (MLQ)

The MLQ measured respondents' leadership abilities. The MLQ is scored according to 9 categories, broken down by the three main leadership styles, namely transformational leadership, transactional leadership and passive / avoidant behaviour. The three main leadership styles are listed below as described in the MLQ Manual and Sampler Set (Avolio & Bass 2007).

Transformational Leadership

Transformational leadership is a process of influencing in which leaders change their associates' awareness of what is important, and move them to see themselves and the opportunities and challenges of their environment in a new way. Transformational leaders are proactive: they seek to optimise individual, group and organizational development and innovation, not just achieve performance 'at expectations'. They convince their associates to strive for higher

levels of potential as well as higher levels of ethical standards (Avolio & Bass 2007).

Transactional Leadership

Transactional leaders display behaviours associated with constructive and corrective transactions. The constructive style is labelled contingent reward and the corrective style is labelled management-by-exception. Transactional leadership defines expectations and promotes performance to achieve these levels. Contingent reward and management-by-exception are two core behaviours associated with ‘management’ functions in organizations. Full range leaders do this and more (Avolio & Bass 2007).

Passive / Avoidant Behaviour or Laissez-faire

Another form of management-by-exception leadership is more passive and ‘reactive’; it does not respond to situations and problems systematically. Passive leaders avoid specifying agreements, clarifying expectations, and providing goals and standards to be achieved by followers. This style has a negative effect on desired outcomes—opposite to what is intended by the leader-manager. In this regard it is similar to laissez-faire styles—or ‘no leadership’; both types of behaviour have negative impacts on followers and associates. Accordingly, both styles can be grouped together as ‘passive-avoidant leadership’ (Avolio & Bass 2007).

Each test included provision for up to 25 raters (staff/peers/superiors) to be nominated. The researcher required only two to three per participant, but some invited up to 15 raters which resulted in an even more accurate assessment of their leadership abilities.

Data Analysis

Correlation analysis was performed using SPSS statistical software to determine whether there was enough evidence to infer that the two variables,

namely EI and leadership were related. Results revealed positive relationships between many of the EI and MLQ Items which are significant at the 5% ($p < 0.05$) level.

Statistical Analysis

Tests of Correlation

The correlations between variables were investigated with the use of Pearson's correlation coefficient for the comparison of EI and MLQ data. For the researcher-designed questionnaire variable correlations with both EI and MLQ data, Spearman's correlation coefficient was used.

Selected Pearson's Correlation Coefficients for Selected Leadership (MLQ) and EI Items

Table 1 below was reduced to show only those variables that had significant positive correlations (significant at the 5% ($p < 0.05$) level or less.

Table 1: Selected Pearson's Correlation Coefficients for Selected Leadership (MLQ) and EI Items

		MLQ Inspires Others	MLQ Acts with Integrity	MLQ Extra Effort	MLQ Effective ness	MLQ Satisfact ion
EI Happiness	Pearson Correla- tion	.516(*)	.187	.208	.398	.050
	Sig. (2- tailed)	.041	.489	.440	.127	.855
	Sum Sq & Cros- prod	5.361	1.954	2.355	3.920	.526
	Covarian- ce	.357	.130	.157	.261	.035
	N	16	16	16	16	16
EI	Pearson	.552(*)	.515(*)	.597(*)	.625(**)	.529(*)

		MLQ Inspires Others	MLQ Acts with Integrity	MLQ Extra Effort	MLQ Effective ness	MLQ Satisfact ion
Empathy	Correla- tion					
	Sig. (2- tailed)	.027	.041	.015	.010	.035
	Sum Sq & Cros- prod	3.219	3.025	3.798	3.455	3.147
	Covaria- nce	.215	.202	.253	.230	.210
	N	16	16	16	16	16
EI Social Awareness	Pearson Correla- tion	.541(*)	.141	.382	.227	.067
	Sig. (2- tailed)	.030	.603	.145	.397	.807
	Sum Sq & Cros- prod	3.751	.980	2.881	1.492	.470
	Covarian- ce	.250	.065	.192	.099	.031
	N	16	16	16	16	16
EI Low Impulsive- ness	Pearson Correla- tion	.491	.388	.506(*)	.315	.306
	Sig. (2- tailed)	.053	.137	.046	.235	.248

		MLQ Inspires Others	MLQ Acts with Integrity	MLQ Extra Effort	MLQ Effective ness	MLQ Satisfact ion
	Sum Sq & Cros- prod	3.144	2.501	3.531	1.913	2.002
	Covarian- ce	.210	.167	.235	.128	.133
	N	16	16	16	16	16
EI Stress Manage- ment	Pearson Correla- tion	.535(*)	.156	.262	.303	.115
	Sig. (2- tailed)	.033	.563	.326	.255	.670
	Sum Sq & Cros- prod	3.709	1.090	1.980	1.987	.816
	Covarian- ce	.247	.073	.132	.132	.054
	N	16	16	16	16	16
EI Emotion Manage- ment	Pearson Correla- tion	.668(**)	.276	.486	.502(*)	.178
	Sig. (2- tailed)	.005	.300	.056	.047	.510
	Sum Sq & Cros- prod	4.095	1.704	3.245	2.916	1.111
	Covaria- nce	.273	.114	.216	.194	.074
	N	16	16	16	16	16

		MLQ Inspires Others	MLQ Acts with Integrity	MLQ Extra Effort	MLQ Effective ness	MLQ Satisfact ion
EI Assertive- ness	Pearson Correla- tion	.569(*)	.340	.469	.410	.142
	Sig. (2- tailed)	.021	.197	.067	.115	.599
	Sum Sq & Cros- prod	3.626	2.183	3.255	2.475	.926
	Covarian- ce	.242	.146	.217	.165	.062
	N	16	16	16	16	16

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

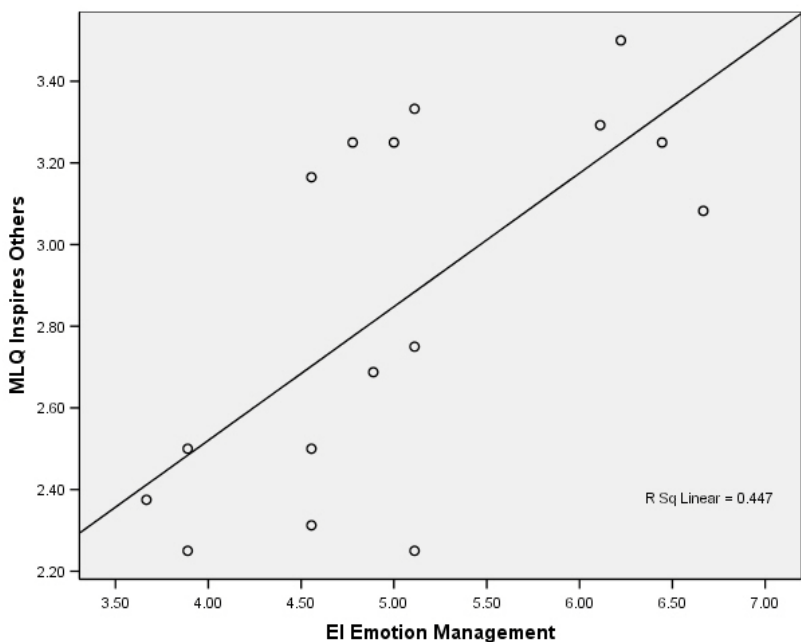
Table 2: Means and Standard Deviations for Selected EI and MLQ Variables

	Mean	Std. Deviation	N
MLQ Inspires Others	2.8592	.44714	16
MLQ Acts with Integrity	2.7456	.44987	16
MLQ Extra Effort	2.8104	.48719	16
MLQ Effectiveness	3.3130	.42377	16
MLQ Satisfaction	3.2384	.45624	16
EI Happiness	5.6875	1.55054	16
EI Empathy	5.2361	.87006	16
EI Social Awareness	5.1080	1.03291	16
EI Low Impulsiveness	5.3333	.95495	16
EI Stress Management	5.2063	1.03310	16
EI Emotion Management	5.0347	.91329	16
EI Assertiveness	5.1181	.95017	16

Table 2 above shows the means and standard deviations for selected EI and MLQ variables.

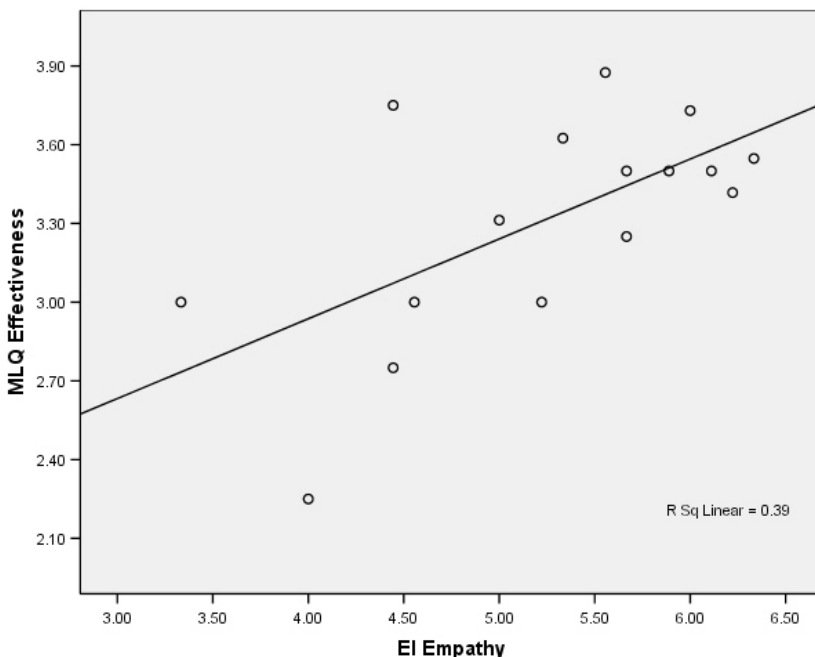
As can be seen from Table 1, the analysis revealed significant positive correlations between:

- MLQ Inspires Others and six EI Items: EI Happiness, EI Empathy, EI Social Awareness, EI Stress Management, EI Emotion Management (see Graph 1) and EI Assertiveness. Clearly managers possessing all of the above EI subscales would be highly likely to Inspire Others, this being one of the transformational leadership categories.



Graph 1: Scatter Graph Showing Relationship between MLQ Inspires Others and EI Emotion Management

- EI Empathy and five MLQ items: MLQ Inspires Others, MLQ Acts with Integrity, MLQ Extra Effort, MLQ Effectiveness (see Graph 2) and MLQ Satisfaction. Clearly, the Empathy EI subscale is an important one as managers strong in Empathy were also strong in two of the six transformational leadership categories (MLQ Inspires Others and MLQ Acts with Integrity). In addition, these managers were strong in all three of the Outcomes of Leadership categories (MLQ Extra Effort, MLQ Effectiveness and MLQ Satisfaction) which would indicate that they are very effective leaders and also perceived to be so by their colleagues.



Graph 2: Scatter Graph Showing Relationship between MLQ Effectiveness and EI Empathy

- EI Low Impulsiveness and MLQ Extra Effort ($p = 0.046$). This is an interesting one, perhaps an indication that a manager who thinks before acting, is calm and is not impulsive is more likely to encourage others to want to exceed expectations.

• EI Emotion Management and MLQ Effectiveness ($p = 0.047$). Emotion Management is the ability to influence other people's emotional states, for example calming them down, motivating them or making them feel better. It is therefore not surprising that managers strong in Emotional Management are also high in MLQ Effectiveness, which indicates effectiveness in meeting other's job-related needs, sticking up for staff, meeting organisational requirements and leading a group that is effective. Staff would want to please a manager who understands them, motivates them and has their best interests at heart.

Selected Spearman's Correlation Coefficients for Selected EI and Researcher-designed Questionnaire Items

			EI Low Impulsive-ness	EI Emotion Perception
Spearman's rho	Manage Staff Well	Correlation Coefficient	.545(*)	.049
		Sig. (2-tailed)	.029	.856
		N	16	16
	IST/CS Degree/Diploma	Correlation Coefficient	.506(*)	-.192
		Sig. (2-tailed)	.046	.476
		N	16	16
	No. of Years in IS	Correlation Coefficient	-.031	-.646(**)
		Sig. (2-tailed)	.910	.007
		N	16	16

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

Table 3: Selected Spearman's Correlation Coefficients for Selected EI and Researcher-designed Questionnaire Items

Table 3 reveals significant positive correlations between the following pairs of items:

- EI Low Impulsiveness with Manage Staff Well ($p = 0.029$). This correlation confirms the EI Low Impulsiveness and MLQ Extra Effort correlation described above. Managers who are not impulsive seem better able to manage their staff and get the best out of them.

- EI Low Impulsiveness with IST/computer science (CS) Degree/Diploma ($p = 0.046$). Only two respondents did not hold degrees or diplomas of any kind, while three had qualifications in fields other than IST/CS such as Engineering, History and Town Planning. It is tempting to state that this correlation would indicate that those who are less impulsive are more likely to follow through with the completion of a qualification in IST/CS, but this is probably an anomaly that may be explained by some other factor.

Selected Spearman's Correlation Coefficients for Selected Leadership (MLQ) and Researcher-designed Questionnaire Items

			MLQ Inspires Others	MLQ Reward s Achieve ments	MLQ Builds Trust
Spear- man's rho	Age	Correlation Coefficient	-.268	.032	-.047
		Sig. (2-tailed)	.315	.906	.862
		N	16	16	16
	Project Mgt Course	Correlation Coefficient	.017	.506(*)	.541(*)
		Sig. (2-tailed)	.949	.046	.030
		N	16	16	16

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

Table 4: Selected Spearman's Correlation Coefficients for Selected Leadership (MLQ) and Researcher-designed Questionnaire Items

Table 4 reveals significant positive correlations between the following pairs of items:

- MLQ Rewards Achievements with Project Management Course. This is an unexpected correlation. One could assume that those who have completed a Project Management course are more likely to have learnt how to better manage staff by rewarding achievements. High scores in Rewards Achievements would indicate a tendency towards Transactional Leadership which is a large part of how a Project Manager would be required to operate thus ensuring that a project is completed on time, within budget and according to specification.

- MLQ Builds Trust with Project Management Course ($p = 0.03$). Builds Trust falls within the transformational leadership genre. Managers who build trust have earned the respect of their staff, go beyond self-interest for the good of the group and display power and confidence. Irrespective of whether these traits were learned before or on a project management course, the fact remains that there appears to be a strong relationship between these two variables.

Answers to Research Questions

As described above, the analysis of the data reveals that there are strong positive correlations between various EI variables (such as Happiness, Empathy, Social Awareness, Stress Management, Emotion Management, Assertiveness, Low Impulsiveness and Emotion Management) and transformational leadership variables such as Inspires Others, Acts with Integrity, Extra Effort, Effectiveness and Satisfaction with Leadership. This begs the question as to whether strong correlations between EI and transformational leadership abilities is the reason why these managers are managers or whether they have had to develop these abilities, in addition to their technical skills, in order to be successful leaders within the IS environment.

Conclusion

The relatively small sample and limited geographic areas comprising only Pietermaritzburg, Durban and Cape Town are limitations. The results are therefore not generalisable and are limited to the individuals surveyed. Two

other limitations were gender and race. Fifteen of the sixteen IS managers were white and only three respondents were female.

The EI testing done was subjective as managers rated themselves. A more accurate measure of EI would probably be obtained with the use of 360 degree EI testing where managers, staff, superiors, peers and clients complete EI evaluations per manager. Although all managers were asked to recommend raters for the MLQ leadership test, about a quarter did not and in some instances less than half of these raters actually completed the questionnaires on the managers. For this reason, the results for the MLQ leadership questionnaire probably yielded biased management results.

It may be suggested that organisations looking to promote IS people into management positions should be tested for leadership and EI in order to determine their suitability for a management post. Alternatively, these tests could be used to identify where existing or potential managers have weaknesses in either of these areas and provide training or coaching in order to attempt to remedy any weaknesses.

Future research, similar to this current research, could be conducted on a broader geographical scale and using a much larger sample. It would also be relevant to conduct the research on a more gender- and race-balanced sample as these two factors may have noticeable differences on leadership and EI correlations. The use of 360 degree EI and leadership instruments, with minimum rater numbers strictly enforced, would probably yield a more accurate assessment of managers' strengths in these areas.

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Service-learning: Business School Students Working for the Common Good

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Abstract

Although service-learning pedagogy is widely applied internationally, and has been shown to effectively incorporate the experiential element of adult learning, its application to business education in South Africa has been limited to less than a handful of studies. However, it is one of the most effective management development tools reported in the literature.

The objective of this study was to evaluate the student learning and community organisation benefits from introducing service-learning into a Master of Business Leadership (MBL) programme in a South African University.

Service-learning creates the opportunity for students to apply the theoretical knowledge of their discipline (marketing and operations management in this study) to real (usually Non-profit or Non-Governmental Organizations) workplaces, in this case special-needs schools in various African countries, to the benefit of the needy organisations. In this exploratory, action research case study, teams of MBL students embedded their theoretical learning through practical implementation of a fund-raising project, as well as showed the development of management and leadership competencies.

The groups collectively raised South African Rands (ZAR) 1 811 128.57 (after expenses and excluding pledges) for the schools. The business school students reported high levels of personal growth, a strong sense of having developed as socially responsible citizens, an appreciation for practical learning methods and improved subject matter learning.

Keywords: Service-learning, MBA, management education, special-needs schools, community service, education, Africa, South Africa

Introduction

A popular definition of service-learning is:

... a credit-bearing educational experience in which students participate in an organised service activity that meets identified community needs, and reflect on the service activity in such a way as to gain further understanding of course content, a broader appreciation of the discipline, and an enhanced sense of civic responsibility (Bringle & Hatcher 1996).

It should be noted that clear educational objectives or outcomes must be met, through the mechanism of providing a desired (by the community organisation) service to a community organisation.

Literature has increasingly reported that the service-learning pedagogy is a powerful and effective mechanism for management learning and development (Lamb, Swinth, Vinton *et al.* 1998; Tucker, McCarthy, Hoxmeier *et al.* 1998; Gujarathi & McQuade 2002; Andrews 2007; Holtzman, Stewart & Barr 2008; Gundlach & Zivnуска 2010). Service-learning provides students with the opportunity to apply and expand their theoretical knowledge in a real workplace environment leading to the development of management competencies (Kenworthy-U'Ren 2000; Carmichael & Rijamampianina 2008; Kenworthy-U'Ren 2008). In line with the expectation that academic scholars not only teach and conduct research but also become personally involved (academic citizenship), and involve their students in service to society, service-learning has the potential to make a real difference to organizations in the not-for-profit sector (Gujarathi & McQuade 2002; Republic of South Africa 2002). Indeed, service-learning can not only integrate the university with its community but also to prepare students for their careers, citizenship, and community involvement (McCarthy & Tucker 2002; Leung, Liu, Wang *et al.* 2007).

Business schools in particular can play an important role in helping community organisations operate with higher efficiency and effectiveness while enhancing the curriculum-related learning experiences of students (Gujarathi & McQuade 2002). Although service-learning is in its infancy in South Africa, particularly in the context of management education, Carmichael and Rijamampianina (2008) found that this teaching method

provides unique opportunities to improve teaching and learning practices in Master of Business Administration (MBA) degrees.

Internationally, literature on the use of service-learning assignments in business schools emerged from the mid 1990s but very little has been reported on from a South African business school perspective (Gujarathi & McQuade 2002; Kenworthy-U'Ren 2008; Carmichael & Rijamampianina 2008). In addition, little empirical data has been collected in terms of the value and impact on students (McCarthy & Tucker 2002; Wittmer 2004).

Problem Statement and Objectives of the Study

The problem under investigation was to evaluate the student learning and community organisation benefits from introducing service-learning into an MBL programme in a South African University.

The purpose of this study was to describe the implementation of service-learning within a South African Business School environment and provide feedback on the learning, value and impact this assignment had on students and on the reciprocal benefits to the communities.

This paper reports on the incorporation of service-learning into two first-year capstone Master of Business Leadership (MBL) courses offered by the University of South Africa's (Unisa) Graduate School of Business Leadership (GSBL).

Literature Survey

Service-learning

Service-learning is a pedagogy whereby students acquire both knowledge and workplace skills by performing curriculum-based services or activities for non-profit or other community organisations (Bringle & Hatcher 1995; 1996). Service-learning thus has the potential to enrich specific learning goals through structured community service opportunities that respond to community-identified needs and opportunities (Kenworthy-U'Ren 2008). As such, service-learning can balance academic rigor with practical relevance within a civic engagement context. Service-learning as a learning instrument can therefore provide students with a broader and richer educational

experience (Godfrey, Illes & Berry 2005; Andrews 2007; Holtzman *et al.* 2008).

Successful service-learning, according to Godfrey *et al.* (2005), consists of four elements, namely reality, reflection, reciprocity and responsibility. Reality is offered as students are exposed to real-world situations where they address real-world needs. Projects challenge students to solve problems with no single 'right' answer but real-world consequences (Kenworthy-U'Ren 2008). Through reflection, students take the application of their skills and translate it into knowledge whilst learning about social issues through reciprocity. Responsibility captures the philosophy about professionalism as business service-learning experiences should send a clear message: 'Because business students have received much (in terms of educational opportunity, skill development, and job opportunities), much can and should be expected of them in strengthening community life' (Godfrey *et al.* 2005:318).

In business schools this can be considered a mutually beneficial arrangement, as students receive credit for their academic achievements and the community organisations receive valuable and relevant business benefits and skills (Holtzman *et al.* 2008). Furthermore students learn the generic management skills encompassed by the South African Qualification Authority's (SAQA) Critical Cross-Field Outcomes (CCFOs) as described previously (Carmichael & Stacey 2006). Other outcomes of service-learning initiatives are, amongst others, a commitment to social change, communication skills and issues relating to social awareness and responsibility (Tucker *et al.* 1998; Roschelle, Turpin & Elias 2000; Leung *et al.* 2007; Holtzman *et al.* 2008). Furthermore, service-learning is closely correlated to leadership development, teamwork, information literacy, problem solving, critical and systems thinking, emotional intelligence, community development and enrichment particularly in diverse contexts (Kolenko, Porter, Wheatley *et al.* 1996; Althaus 1997; Griffith 1999; Chesler & Vasques Scalera 2000; Albert 2002; Black 2002; Manring 2004; Hurt 2007; Carmichael & Rijamampianina 2008).

Despite the advantages of incorporating service-learning into business education programmes, resistance from faculty members is high, and institutionalisation of the pedagogy remains the greatest barrier to success (Furco 2001).

Intellectual and Pedagogical Legitimacy in the South African Educational Landscape

Over 40 years ago, Townsend (1970) emphasised that the only way to learn how to manage is 'on the job', a principle strongly advocated by Mintzberg and various co-authors in more recent times (Gosling & Mintzberg 2003; Mintzberg 2004; Mintzberg & Sacks 2004). In addition, experiential learning is a fact of life in business schools, and is a primary aspect of high quality adult learning (Kolb 1984; Knowles & Holton 2000; Gundlach & Zivnuska 2010), giving a 'definitive edge in the job market' (Clark & White 2010:115). Business school students at Unisa, for example, undertake practical assignments as 30% of their course mark. These are usually carried out within the business sector employing them. Over time, it can be seen that many of the basic principles of adult learning have not changed, and that adults learn best when opportunities for exploration, experimentation, reflection, active implementation and collaboration are present (Kolb 1984; Honey & Mumford 1992; Bringle & Hatcher 1999; Brock & Cameron 1999; Desai, Damewood & Jones 2001; Kuh 2003; Bender, Daniels, Lazarus *et al.* 2006; Kamath, Agrawal & Krickx 2008). Adults learn by doing, and an action component is essential for real learning to take place (Kenworthy-U'Ren 2000; Erasmus 2005; Clark & White 2010). It has also been reported that experiential learning applied to social entrepreneurship builds other important management skills such as King's (2002) Triple Bottom Line reporting (Gundlach & Zivnuska 2010).

Reflection is core to adult learning (Kolb 1984; Bringle & Hatcher 1999; Knowles & Holton 2000). As such, the development of this relatively new methodology must, by virtue of justifying its theoretical foundations, include reflective activities. Writers on the topic of management education have stated that insufficient practical application is included in MBA education, and have made repeated references to the fact that managers need to reflect, and that management education needs to include reflective activities (Porter & McKibbin 1988; Boyatzis, Cowen & Kolb 1995; Mintzberg 2004; Mintzberg & Sacks 2004).

Service-learning has been implemented in various forms, but, by considering the dates of the literature, it appears to be a relatively recently applied pedagogy. In the United States of America (USA), community

engagement in education began in the 1970s, based on the ideas of Dewey (1938), cited in Bender *et al.* (2006), which is one of the earliest references obtained relating to the practice. In South Africa, service-learning has been identified as a key initiative in the transformation of higher education (McMillan & Saddington 2000; HEQC 2001).

The service-learning methodology focuses on student experiences and application of theory in the real world of work (Lamb *et al.* 1998; Albert 2002; Hurt 2007). This application, together with strategically guided reflection leads students to the discovery of greater meaning from their experiences (Bringle & Hatcher 1999; Bender *et al.* 2006). The nature of service-learning thus dovetails well with the concepts of experiential learning and it can therefore be suggested as an effective adult learning methodology (Butin 2006).

The South African Good Practice Guide (HEQC 2006), recommends that all service-learning courses in South Africa include:

- Relevant and meaningful service to the community. The service must be meaningful, not only to the community, but also to the students and to the institution – the service intervention must be negotiated and agreed with the community so that the criterion of reciprocity is met. The intervention should be meaningful to the community and improve their quality of life, and students must meet the stated course outcomes.
- Enhanced academic learning – course outcome achievements should be enriched through the practical experience by ensuring that there is a close linkage between the course objectives and the service objectives.
- Purposeful civic learning/social responsibility. This type of learning prepares students for their citizenship role – as described in the CCFOs, and includes knowledge, skills, attitudes and values.
- Structured opportunities for reflection. Service-learning theorists regard reflection as crucial in order to transform, clarify, reinforce and expand student learning through relating their experiences to deeper theoretical learning, a greater awareness of personal values and a sense of social responsibility.

Service-learning Experiences in Management Education and MBA degrees

Service-learning assignments not only fit the scope of the business courses but it also help to promote the goals of relevant management education i.e. it can give students a context within which to place the course content which increases the quality and depth of their understanding (Gujarathi & McQuade 2002). Through this action learning approach, MBA/L students more easily acquire foundational (course content) competence, practical competence (skills) and reflexive competence (the ability to apply their learning in different contexts) as required by local legislation. MBA students have indicated a strong preference for more interactive learning environments, so their 'processing' through the educational system should be smoother (Carmichael & Sutherland 2005). This learning takes place within a functional context relevant to the community organisation, which does, through mutual understanding and agreement, benefit from the students' interventions. Should service-learning implementation in MBA / MBL programmes take place widely, it is possible that both social and economic upliftment could result, particularly if graduates implement or participate in corporate social responsibility initiatives back in their workplaces.

Student learning is reciprocated through this pedagogy and Carmichael and Rijamampianina (2008) have demonstrated that students acquire competence in generic management skills as well as experience a high level of personal growth and wisdom, increasing the return on their investment into their education. As a result of the authentic workplace learning, applied competence will be greater and students should perform better in their own workplaces, benefiting themselves and their employers.

In conclusion, Papamarcos (2005:325) found that service-learning represents perhaps the most effective teaching tool available to the contemporary management professor: 'It provides students with exposure to the vast network of interdependencies of business and society as well as expansive real-world management experience that gives traction to theory – preparing them to be workers in the economy and citizens in a democracy'.

Non-profit and Community Organisations in South Africa

The work conducted in this research applies to a broad concept of 'com-

munity'. Soukhanov (1992) defines a community as either a group of people living in one locality, or as society generally. These are the usual recipients (implied or stated) of most Service-Learning interventions. Generally Non-Profit Organisations (NPOs), Non-Governmental Organisations (NGOs) and other Community-Based Organisations (CBOs) interface with government and / or business to support public and societal causes to promote various levels of survival and wellbeing, depending on the degree of success of their operation (Leisinger 2007). They fill important gaps in government efforts, especially in poor communities.

The scope of community organisations under consideration for the purposes of this research is not limited to the non-profit sector. There are many community based organisations, not registered with the Department of Social Services (DSD), but who perform a critical role in society (Rippon 2002). These organisations, as well as more formalised NPOs, fund their operations from a number of sources, including donations, (a portion of which is tax deductible to the donor), grants, gifts, endowments, membership fees, fund-raising activities, or the sale of goods or services, such as may be found in charity shops, counselling services, research, education and training or medical / convalescent support and care. Fund raising was a core objective of the service-learning intervention conducted in this study. In the South African (perhaps common to African nations and other developing countries) context, it is likely to be of value to be flexible when defining who service-learning beneficiaries should be, rather than adhering strictly to the more specific formalised non-profit sector described in the Western literature.

Service-learning: Working towards the Common Good

Being enrolled for a Master's level degree assumes that students understand the importance of a good education. Ironically the prospect of a good education is not shared by all as many children cannot aspire to building a similar bright future, due to learning disabilities. According to Abosi (2007), the increase in the number of children with learning disabilities in schools in Africa has become a major issue and concern. Although there are no statistical records available in most African countries on the number of children with learning disabilities, it is believed that about eight percent of the students in school are experiencing learning difficulties in the classroom. In order to address this, some of these children receive special education.

Special education refers to a range of educational and social services provided by the public school system and other educational institutions to individuals with disabilities who are between three and 21 years of age (Dalton 2002). The problems of special-needs schools are two-fold. Firstly, there are not enough of these schools to cater for all the children with special needs. Secondly, the few schools that are available are not adequately funded; hence lack the appropriate facilities to provide quality education to these children (Govender 2009). According to the South African Department of Education there are approximately 88,000 disabled pupils in roughly 400 special schools across South Africa. (SAGoodnews 2008). It is also estimated that a further 288,000 disabled children are not attending school. The sheer complexity and scale of the challenge means that sustainable solutions are beyond the reach of any single actor.

As such, there is a role for all enlightened individuals, local communities, nation states, foundations, corporations and multilateral institutions to each bring their specific resources, skills and experiences to the table and cooperate to compile the 'solution mosaic' to address greater societal challenges (Leisinger 2007). This call for action inspired faculty members at the GSBL to play a role in helping special-need schools to operate with higher efficiency and effectiveness whilst enhancing the course-related learning experience of students.

Research Methodology

The exploratory case study approach taken here was appropriate to the convenience sample under the direct control of the first author. However, although broad generalisations to other MBA and similar qualifications cannot be made, it is hoped that the lessons learned may usefully be applied in similar contexts.

In line with the purpose of service-learning, the students were to implement and be assessed on projects in accordance with their academic curricula, within the context of providing a service of value to a community in need.

Service-learning was incorporated into group assignments of two first-year capstone MBL modules (Operations Management and Marketing Management). Exam admission for these modules requires students to

successfully complete and submit two group assignments and one individual test per module. This article reports on the second assignment completed by the 2009 first year class for the above mentioned modules.

This sample consisted of 405 students comprising 42 groups geographically dispersed over the African continent. Most of the group members resided in South Africa (31 groups), followed by Ethiopia (seven groups), Swaziland (two groups) and lastly students from other African countries (two groups). Thus, it can be noted that 61 per cent of the students were resident within South Africa and the remainder in other African countries.

Although not analysed as part of the study, it may be of interest to researchers wishing to undertake similar projects, that the student demographics showed that 66.4 per cent were male and 33.6 per cent female. Most had been working full time for an average of 10 years. Twelve per cent were in top management positions, 69 per cent in middle management and 18 per cent were professionals. Race composition was 7.7 % Asian students, 81 % black, 3.7 % coloured and 7.7 % white.

The community organisations selected for both assignments were special-needs schools. Groups were required to approach a special-needs school within the geographical area of their residence and obtain permission to use the school as a case-study for their assignments. The operations management assignment required students to conduct a detailed situational analysis of the school's internal and external environment. In doing so students had to compare local realities against expectations from all stakeholders. It was also expected that groups would identify internal operational challenges, best practices and external opportunities and threats in order to identify areas for potential improvement. Finally, students were required to recommend operational improvements required by the selected schools and provide recommendations for implementing changes. The operations management assignment was used as the foundation for the marketing management assignment.

As the students had a clear mandate in terms of the selected school's needs, the marketing assignment required them to plan and execute a charity event to raise money. This money would be used to implement the recommendations from the operations assignment. Students were required to demonstrate that they followed the principles of marketing planning and

needed to use analytical, planning and creative skills for the successful implementation of their elected projects. On completion of the project students reflected on how these assignments differed from other assignments and how they had changed their personal philosophy towards the community, learning and self-being.

Assessment of the assignments constituted one of the measures of success for the service-learning interventions, and had to include the theoretical foundation used to develop a sound marketing plan (50 marks). This plan had to include a thorough situation analysis and clear target markets based on stakeholder needs and expectations. In addition it had to state the event objectives and the marketing mix strategy for the planned event. The second part of the assessment (50 marks) considered the execution of the event and success was measured by the sustainability of the event (for example answering the question of whether the school could use the event again next year to raise funds), the funds raised, community involvement, media coverage and feedback from the schools. Finally, students were required to reflect on their learning experience, both curricular and personal. Both assignments adhered to the pedagogical foundations of service-learning.

The key numerical measure of success was the amount of money raised for the schools, and the measures used for student subject-matter learning were the content analysed (Cooper & Schindler 2008) assignments and reflections as well as the mark allocated to the assignments against the criteria stated earlier. Such triangulation of the findings is appropriate for case study research, which is, in contemporary literature, typically regarded as following a mixed methods approach (Creswell 2009).

Results and Discussion

All assignments were submitted to content analysis in order to make inferences about the content (Cooper & Schindler 2008), and were allocated a course mark. In total 38 special-need schools participated in the student projects.

Geographically, most schools were located in South Africa. Provincially, these were distributed as follows: 16 schools were located in Gauteng, three in Limpopo, two schools each in North West Province,

Mpumalanga, and KwaZulu Natal as well as one school in the Western Cape and one in the Free State. Schools located outside the South African borders include one school located in Uganda, one school in Namibia, two schools in Swaziland and seven schools in Ethiopia.

Four groups elected to implement their projects at a later stage due to time constraints and the results of these projects are therefore not included here. All groups did, however, adhere to the theoretical planning principles and closely followed the assignment guidelines. It was possible to conclude that the intended academic learning was realised and that the specified academic outcomes were achieved.

The charity events took various formats and were customised to cater to the needs of the local community and potential donors. Most events (15) focused on some form of entertainment, including sport days (corporate soccer tournaments, golf days, athletics and motor cycle events) and music (jazz, rock and variety concerts). Corporate sponsorship drives (nine projects) were also popular and projects classified in this category focused on developing awareness and fundraising proposals presented to local corporates. In most cases, projects in this category developed promotional material such as information brochures, sponsorship proposals, websites and press releases to promote the schools. The third category of projects involved fundraising breakfasts, luncheons or dinners (five projects). Funds were raised by selling tables to corporate and individual donors. During the event the groups mostly arranged a topical speaker and auctioned sponsored items to the guests. Other projects included raffle tickets, selling fruit and vegetables, a youth arts exhibition and arranging car washes.

As success of the project was measured against the sustainability of the event, schools were part of the planning and execution of the projects and where possible donors committed to ongoing support. The combined funds raised totalled ZAR1 811 128.57 (after expenses and excluding future pledges) and the average funds raised per group was ZAR46 661.28. In addition the projects also raised much needed community and corporate awareness about these schools which would contribute to the success of future fundraising initiatives. Most groups (90 per cent) were given access to local radio and/or community newspapers and three groups were able to secure national television coverage in order to promote the schools and fundraising events.

Student Subject Matter Learning

Students acknowledged that the practical nature of the assignment, with the inclusion of the reflection exercise, made their academic learning more exciting and effective, although few were aware of the basic models of adult learning (Kolb1984; Honey & Mumford 1992; Bringle & Hatcher 1999; Brock & Cameron 1999; Knowles & Holton 2000; Desai *et al.* 2001; Kuh 2003; Bender *et al.* 2006; Kamath *et al.* 2008; Clark & White 2010). These findings are well illustrated by the following direct quotes from students:

- I want to extend my thanks for the opportunity of engaging us in such a practical manner to study material.
- I must say that this assignment was by far the most exciting. It was an extremely worthwhile learning experience.
- The assignment lifted our team spirit and we experienced the real meaning of teamwork!

All the schools that benefited from this assignment expressed their gratitude towards the students and the GSBL contributing to the positive experience of the students. In many cases, groups and schools agreed to a continued relationship confirming the relevance of service-learning on both a personal and professional level. Students described their experiences as follows:

- Our team is still getting more contributions. We have also decided to adopt the school for the duration of the MBL.
- There is a need of a broader scope, a higher aim, a higher calling than just passing the course. Our group has made an undertaking to continue the good work with the school and rally the corporate community behind the needs of those that are without.

We have learnt that one does not have to be rich to make a difference. The most important thing is to care about others and initiate activities or similar events that will change their lives. Our valid contribution towards the development of the school has made us proud about ourselves, knowing that we have made such a positive change towards our community. It also made

us realise that changing the world does not end with the assignment but it is something that one should consider as mission of existence. In this economic downturn with scarcity of resources the most vulnerable needs should be prioritised and institutions of higher learning should contribute substantially to make them relevant to the broader society. What purpose will education serve if it fails to respond to the needs of society to empower and engage?

Student Experiences and Personal Growth

Similarly to the findings of Carmichael and Rijamampianina (2008), students perceived and reported that they had experienced high levels of personal growth, in the sense that the assignment had created an increased awareness of, and empathy for the socio-economic context of the countries in which they lived. They also felt fulfilled in contributing positively to communities in need, whilst, importantly, learning about the communities through immersion into the process and communication, although not all students maximised this learning opportunity. This generally created a stronger awareness of the principles of corporate citizenship, which some stated they were intending to use in their workplaces to further Corporate Social Responsibility (CSR) programmes. The following illustrative statements were extracted from the data:

- It has opened the whole new view in us as individuals towards our community and made us realise that the little things that we do may have a greater impact on others than we realise.
- ... our experience was exciting and more practical compared to other assignments. It involved us with the community and we felt worthy that we could do something for others.
- ... this quickly became one of life's treasured pursuits, to make a difference to the community. It was the first time that we were able to ply our MBL skills in the real world. It was both exciting and daunting that members of the community would not only rely on the group, but look to us for inspiration – we carried a portion of their hopes and dreams forward, a responsibility not taken lightly.

- I am proud of our MBL group, myself as an individual and my company too, I hope we can do more practical and worthy assignments like this. One thing I learnt is never to take anything or anyone for granted, everyone is special in their own way.
- I appreciated the opportunity to work with a needy organisation and to add value to them in such a profound way.

When we set out to do this assignment, it was business as usual, crafting a strategy on how the group would execute the assignment within the deadlines. When the time came to approach the school Principal, it dawned on us that we would have to dig deeper into ourselves to achieve the task that lay ahead. It was a humbling experience to embrace the needs of the learners and the challenges they face. The necessity for us to contribute meaningfully to meeting their needs became larger than just making the grade in our assignments.

This humbling experience of realising that ‘disability is not inability’ taught the group that with humility and giving your best at all times despite insurmountable challenges, one can achieve beyond your wildest expectations. It has at a personal level challenged us to introspect and bring us to the realisation of how lucky we are. It has motivated us to give selflessly of ourselves without being asked, be it in kind or otherwise.

Umuntu, Ngumuntu, Ngabantu’ which roughly translated means ‘A person only becomes a human through other people.

Conclusion

Sustainability is not possible unless individuals and groups uplift the society within which they live and leave it better than they found it. Education is a fundamental tool in this endeavour, and synergies can be leveraged to the benefit of so many, if time is taken to seek them out. Too often in programmes like the MBA, MBL and similar, this is forgotten. Students enrol, often with the prime objective being for personal career advancement, promotion or a better salary. Whilst this is clearly not ‘wrong’, pedagogies that include assignments encouraging participants’ involvement in practical social programme can deliver both academic learning and community benefit

(Bringle & Hatcher 1999). In this study, the chosen schools and the communities in which they were situated benefited immediately, the students delivered on their academic assignments and finally, possibly most importantly, were left with a humbling experience that put the value of their studies into perspective. Approached correctly, service-learning can be a life changing experience that can positively shape the future of future business leaders in ensuring that the concept of the triple bottom line (King 2002) is fully understood.

A final student quote sums up the findings from this study:

- The marketing assignment we undertook had a profound bias towards the practical dimensions of education. Most assignments encompass the application and interpretation of theoretical concepts, and as such the exercise remains largely abstract. The marketing assignment required us to operate in the cross section where theory meets practice. This stretched our minds as we realised that our success or failure would be physical – it would be three dimensional! As we engaged in the process of knowledge application, the motivation levels transcended the group from assignment fulfilment to making a social contribution.

It was found that this assignment complied with the recommendations set by The South African Good Practice Guide (HEQC 2006). Raising R1 811 128.57 to assist special schools was reported by the participating schools to be relevant and meaningful. The schools stated their intent to use the funds raised to improve identified operational weaknesses and shortcomings aimed at improving the quality of life for the students.

It was also apparent from student reflection that the criterion of reciprocity was met, as academic learning was enriched and deepened (Holtzman *et al.* 2008) through practical experience. As highlighted in the reflection documents, students became aware of their social responsibility and in many instances decided to continue with their citizenship role. Finally, as per the literature, reflection offered students the opportunity to transform, clarify, reinforce and expand their own learning through relating their experiences to deeper theoretical learning, a greater awareness of personal

values and a sense of social responsibility (Bringle & Hatcher 1999; Bender *et al.* 2006).

Service-learning as pedagogy could therefore be effectively implemented widely in MBA and similar programmes in South Africa, as both the literature and the findings from this study suggest that it is one of the most effective management development tools available to educators. Based on Furco's (2001) recommendations for institutionalising service-learning, one of the first steps in creating this reality in higher education institutions is to build critical mass. Should the pedagogy be implemented in MBA / MBL programmes around the country, this could be built rapidly, and the competitiveness between business schools for better local and international rankings has the potential to add impetus to the efforts.

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The Management of a Community Project – A Case Study

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Abstract

All tiers of Government, including private sponsors and overseas agencies invest huge amounts of money in community projects, in order to address the challenges of poverty alleviation and job creation in South Africa. However, these projects seem to be doomed for failure due to poor management or mismanagement, resulting in the loss of jobs, as well as of the funding. The qualitative approach was utilised for this study, because of the size of the population ($N = 28$). The case study method was the most appropriate for this study. Data collection was carried out by interviewing members of the community project, as well as management and sponsors. Data on similar projects was obtained from a consultant who is a member of a team of project assessors. On-site observation as well as informal interaction with community members clarified attitudes, feelings and perceptions towards the project. The findings of the study indicate that poor management of the project, including the poor communication between sponsors and community members, as well as lack of sound selection practices, resulted in failure.

Keywords: Communication, community project, job creation, management, poverty alleviation, selection.

Introduction

Job creation, and through it, poverty alleviation, has become one of the most important challenges of the 'new' South Africa. Fifteen years into the new political dispensation has seen few improvements to the lives of those who

struggle to survive. Poverty levels, based on consumption expenditure of R800 or less per month per household for the North West Province, are reported to be as high as 37 percent of the population; only the Free State and the Eastern Cape are worse off at a level of 48 percent (StatsSA 2000).

Although the average rate of unemployment for South Africa is given as 21,9 percent (<http://www.statssa.gov.za>, 2009), there are towns and areas where it could be as high (or even higher) than 90 percent.

Not surprising then, that the South African government has come up with different initiatives to combat the problem – the latest being Broad Based Black Economic Empowerment (BBBEE), the Accelerated Shared Growth Initiative for South Africa (ASGISA), the Expanded Public Works Programme (EPWP), and the Joint Initiative on Priority Skills (JIPSA) – the latter being instituted to develop scarce skills which are in short supply in South Africa (www.info.gov.za/key/indicators/lfs.asp). Some of these initiatives have been cascaded down to provincial level, like the North West Province's own North West Provincial Growth and Development Strategy: 2004-2014. According to the document published on this initiative 'job creation and poverty eradication together with the low level of expertise and skills, stand out as the greatest challenges to be resolved'.

Since initiatives like JIPSA offer medium to long term solutions to the problems of poverty alleviation and unemployment, government agencies, private sector initiatives and offshore sponsors often opt for community projects that can address these problems in both the short and longer term. The question however, is: how successful are these community projects?

Problem Statement, Research Questions and Objectives

The short answer to the question of the success or otherwise of community projects, is that we simply do not know, due to a lack of coordination and information on these projects (which makes data collection extremely difficult), but, based on available information, most projects are not successful. The few successes are shouted from the rooftops, while the many failures are swept under the carpet. Of seven projects investigated, only one was successful. The other six, with funding ranging between R130 000 and R28 million, never got off the ground.

In spite of how well-meaning these projects are, most seem to be doomed for failure – one province reportedly wrote off R55 million as ‘wasteful spending’ on community projects in 2008 alone. Sub-problems, contributing to the main problem included poor management of projects as well as poor selection practices.

The main research question was: ‘Why did this project fail?’ Further questions that needed to be asked were:

- Did a lack of sound management practices contribute to failure?
- What was the cause of misunderstandings between the initiators of the project and community members?
- Was the selection of community members based upon the requirements of their jobs?

The objectives of this study were thus to determine the reasons why the project failed, and whether the failure was due to a lack of sound management practices, inclusive of poor communication as well as of the selection of community members based on non-work related criteria.

Literature Review

Many different agencies (apart from government agencies) have emerged to address the challenges of job creation and poverty alleviation. They operate as Industrial Development Zones, Entrepreneurial Development Agencies, business-sponsored projects and Incubation Centres, to name but a few. Although they have the same objectives, their efforts seem to be largely uncoordinated, and often as not go unrecorded. The emphasis of project initiators seems to be on the financing of projects rather than on sustained management.

An exception to the usual uncoordinated approach to projects, is the initiative by the University of the Western Cape’s Foundation for Contemporary Research (FCR), who has taken 30 municipalities under their wing (<http://www.fcr.org.za>). Apart from ensuring that projects are well managed, the FCR also engage in research on municipal projects.

Another encouraging initiative is that of the Impumelelo Innovation Trust Awards, whereby exceptional municipal projects are annually

recognized (<http://www.impulelo.org.za>). However, among the 41 recipients of awards for 2008, only one municipality received an award for a project similar to the one described in this case study.

Most agencies and sponsors, however seem to forget the basic principles of sound management when embarking on initiating projects.

In addition to the people, physical resources, financial resources and knowledge in an organization, there is a further element that is necessary to direct all resources and activities effectively toward goals. That indispensable element is management (Cronje, Du Toit, Marais & Motlatla 2004: 120).

These authors further show that the four most common causes of business failure are lack of managerial competence (40%), lack of leadership (30%), lack of managerial experience (20%), and lastly, no industry experience (10%).

As the physical and financial resources are usually provided by agencies and sponsors, the focus of project initiators, apart from management, should be on people, knowledge and skills. The selection of people (including managers), is of the utmost importance to ensure the success of any project. Swanepoel (2001: 311) defines selection as:

The process of trying to determine which individuals will best match particular jobs in the organizational context, taking into account individual differences, the requirements of the job and the organisation's internal and external environments.

If criteria for selection are based on anything but those indicated in the definition, the project's chances of success are slim.

Bezuidenhout (2010: 31) reported on a selection and screening instrument developed by Terblanche to enable agencies and sponsors to select farming beneficiaries with the best chance of success. Some of the criteria used in the screening and selection procedure are level of education, previous experience, aspirations, managerial skills, record-keeping ability and attitudes.

Projects further stand or fall, depending on communication between agencies and sponsors on the one hand, and those who should benefit by

them on the other. As projects rest on a contractual relationship between initiators and beneficiaries, the terms and conditions should be communicated clearly – preferably in writing. Too often projects are based on an unwritten psychological contract - ‘a person’s beliefs of what is expected of another in a relationship’ (Greenberg & Baron 2003: 405). Apart from the strong potential for misunderstandings, expectancies of participants in a project, has implications for their levels of motivation as well. According to Nel *et al.* (2004: 319-320) expectancy entails the extent to which an individual believes that effort will lead to a reward of value to him/her. The level of motivation of the individual, in turn, then depends upon whether these expectancies will be realized.

Purpose and Importance of the Study

The purpose of the study was to determine the causes of failure of the project studied.

This exploratory case study may show the way for further research into the reasons for failure of most of these community projects. Being exploratory in nature, the study may also provide a framework for further studies on community projects. It may further sensitise agencies to the pitfalls inherent in the initiation, funding and management of projects of this nature, as well as the importance of management, including communication and selection of participants for the project.

Research Approach and Methodology

The research approach followed was qualitative in nature. Babbie and Mouton (2003) describe the qualitative research paradigm as having the following characteristics:

- Human action is always studied from the insiders’ perspective;
- The emphasis, therefore is on methods of observation and analysis that remain close to research subjects;
- Methods include observation, unstructured interviewing, as well as semi-structured interviewing;

- The goal is to describe and to understand (as opposed to the quantitative approach's goal to explain and predict) human behaviour; and
- The qualitative approach includes three design types, namely ethnographic studies, case studies and life histories.

The case study method was selected as the most suitable for this study, because, according to Welman and Kruger (2002)

usually the objective of a case study is to investigate the dynamics of some single bounded system, typical of a social nature, for example ... a community or participants in a project

Case studies are usually descriptive in nature, and new ideas and hypotheses may be generated from painstaking observation. The main disadvantage of single case studies is that no generalizations can be based upon the findings (Terre Blanche, Durrheim & Painter 2006).

The target population consisted of 23 community members, four members of the project management team and one team member of provincial project assessors (N=28).

The purposeful sampling technique was used. Struwig and Stead (2001: 121), state that, because random selection and generalisability are not of primary importance in qualitative research, 'qualitative researchers generally select samples purposefully rather than randomly'. McMillan and Schumacher (2006: 319) describe the reason for taking purposeful samples as 'these samples are chosen because they are likely to be knowledgeable and informative about the phenomena the researcher is investigating'.

The sample consisted of community members purposefully drawn from the four main sections of the farming project (8), all the members of the management team (4), as well as one provincial project assessor. The sample size thus was 13.

A literature search was conducted on key aspects such as poverty levels, unemployment, and governmental and other agencies engaged in various projects with the intention of alleviating poverty and creating jobs. Triangulation was used in the gathering of data, because, according to De Vos (2003: 341), 'by measuring something in more than one way, they (researchers) are more likely to see all aspects of it' (the phenomena studied).

Therefore, the following sources were consulted for the purposes of this study:

- The offices of the Provincial Government, the District Municipality, as well as the private sector organisation involved in the specific community project;
- Both the Chief Director and the Director in charge of the project;
- The supervisor of the project, as well as her deputy;
- Members of the community engaged in the project;
- A member of the provincial project inspection team;
- Documents and statistics; and
- Relevant literature.

An interview schedule, consisting of both forced choice, as well as open-ended questions, and covering the four main sections of the project, was used to interview community members. An unstructured approach was used in interviewing the management team and the assessor, in order to elicit project information of special importance to these respondents.

The supervisor of the project cautioned the researcher that no information of value would be forthcoming from community members. 'We (the supervisor and her deputy) are from Lesotho, but they don't even want to tell us what is wrong'. The co-researcher, being a local, and Setswana-speaking, was then brought on board to conduct the interviews.

On-site visits to the project were also carried out at regular intervals over a three month period in order to observe and to obtain information from the community members in an informal way.

The analysis of the interview data followed the five steps of interpretive data analysis described by Terre Blanche, Durrheim and Painter (2006: 322-326), namely:

- i. Familiarisation and immersion (reading through the data repeatedly to determine what interpretations are possible, and could be supported by the gathered data);
- ii. Inducing themes (inferring classes/themes from the data);
- iii. Coding (classification according to identified themes);
- iv. Elaboration (structuring the data); and
- v. Interpretation and checking (interpreting the data and checking on

the quality of interpretation).

By comparing interviewees' perceptions to factual data (from documents) it was found that some themes were not valid, e.g. interviewees ascribed failure of the project due to a high mortality rate among the chickens, when in fact it proved to be within acceptable levels.

Case Study: Historic Development of the Project

A District Municipality (preferring not to be named), bought a farm from a successful commercial farmer in 2001. The farm included farming land, a small dairy and a dairy herd, a fully equipped broiler house with a capacity for raising 10 000 chickens, as well as 11 tunnels for growing vegetables. The total investment is estimated at R4 million.

Initially 23 jobs were created, with the prospect of increasing the number of jobs, as there were plenty of opportunities to expand all four sections of the project, namely the chickens, the tunnels, the dairy, as well as utilisation of the rest of the farm for, inter alia, maize production. The cost per job for creating the 23 new jobs was R174 000 – well below the average of R250 000 per job suggested by the Industrial Development Corporation (Van Rensburg 2006).

The 23 positions created by initiating the project, were filled from the unemployed of a community situated about eight kilometers from the farm. Some of the newly appointed community members had some farming experience at lower levels, but the majority were inexperienced. Training was conducted on the operational aspects of the different sections of the project (the dairy, the tunnels and the broiler section).

The main idea of the District Municipality was that the community should become an independent and self-sufficient business enterprise in a short period of time. However, this was not communicated in clear terms to the project members.

To tie the community members over until an income was generated from the project, the Municipality paid each member a nominal salary (that this was a temporary measure was also not made clear to community members).

Two inexperienced municipal officials were appointed to oversee the project, while the members elected their own foreman.

Initially the project seemed to take off well. The private sector supplier of day old chickens provided on-the-job training and support, and financed the supply of day old chickens, foodstuffs and medicine. The Municipality financed the initial planting of the tunnels. However, soon some serious problems emerged.

First, the truck used for the transport of supplies and produce was stolen. It was never recovered, and the Municipality refused to replace it (some foul play was suspected). Then the tractor broke down, and was not repaired. This meant that the land could not be tilled, and ruled out the possibility of planting maize on a large scale. The Municipal management felt that the project needed to be managed (and further funded) by the community members themselves, while the latter was of the opinion that the Municipality should take the responsibility for maintenance and input costs. Community members complained that Municipal management still held the reigns, in spite of them stating that the project was owned by the community. They further pointed out that proceeds from the project should be paid to the community, and not kept by the Municipality. The Municipality then agreed to pay the proceeds of the first harvest into project members' own bank account. The members promptly emptied the bank account to pay themselves Christmas bonuses. Hence, in the following year, no finance was available for the replanting of the tunnels. The broiler section continued, because it was given a line of credit from the supplier of day old chickens, chicken feed and medicines.

In the previous season the Municipality incurred costs to the tune of R90 000 for the upkeep and planting of the tunnels. Proceeds from the harvest amounted to R9000 only. Management threatened to withdraw members' 'salaries'. Members responded by taking produce for their own use, including selling off some of the chicken feed.

The dairy herd and milking machinery was then sold, depriving the project members of a regular cash income.

Next, the broiler-raising project started losing money. The supplier of chicken feed sent a truck to deliver chicken feed on a Saturday, but there was nobody to receive it, as project members refused to work over weekends (they did not move to the farm, but preferred to stay on in the settlement situated eight kilometers from the farm). According to the elected foreman, members ignored his instructions, telling him that 'you are one of us; we

E.J. Louw and T.J. Maubane

need not take instructions from you'. The supplier of chickens, seeing the writing on the wall, withdrew its support, causing the collapse of the chicken-producing section.

The whole project was now reduced to a small cabbage patch on open land outside the tunnels. The tunnels, left untended, deteriorated to the extent that a major cash injection was needed to put them back into production.

Municipal management felt that the project members abused their chances, and that they had to draw a line on the expenditure on the project. In spite of the supervisors casting around for a way to save the project (one idea was to appoint a neighbouring farmer as manager/coach), Municipal management was adamant that the project should be closed down.

In a last ditch effort to convince management to salvage the project, the researcher, accompanied by the Executive Director of a Graduate school, during an appointment with the Chief Director, suggested that through management and business training of the project members, and proper management controls, the project could still be successful, but to no avail. The Chief Director felt that it would amount to 'throwing good money after bad'. For all practical purposes the project was dead.

Today, the farm, and all of its promising infrastructure, stands abandoned and in a state of serious neglect – a silent monument to the failure of an initiative which offered so much hope for a community in need of jobs.

Findings - Factors Leading to Project Failure

The community project started off with the best intentions of job creation and poverty alleviation, but good intentions are seldom enough to guarantee the success of a business venture, as indeed any project of this nature amounts to.

If a single reason must be found for the failure of the project, then it must be laid at the door of poor management. The failure of this project may be attributed to the following factors:

- Communication between the main sponsors and community members were flawed; no written contract was entered into by the parties – instead they relied on the psychological contract consisting of uncommunicated expectations;

- No proper planning, including a realistic budget, were in place prior to initiating the project;
- The only comprehensive records kept, were those of the chicken supplier; virtually no information was available from the Municipality;
- Project members were all selected from the ranks of the unemployed, which seemed to be the most important criterion for selection;
- Project members saw themselves as employees of the Municipality, and not as owners of the project, because they were paid a monthly 'salary';
- Training of members focused solely on the technical aspects of farming, and not on the business aspects;
- The members of the management team of the project were unqualified and inexperienced;
- Ill discipline among members, without proper controls, led to malpractices; and
- Chicken farming is a low profit margin/high volume type of farming requiring discipline and a highly scientific approach to production.

Answers to Research Questions

▪ *Why did this project fail?*

The findings listed above indicate the main reasons for the failure of the project.

▪ *Did a lack of sound management practices contribute to failure?*

According to Kotter (in Nelson & Quick 2003: 392) the management process consists of planning and budgeting, organizing and staffing and controlling and problem solving. As there was little evidence that any of these managerial functions were in place, one must conclude that lack of sound management practices did indeed contribute to the failure of the project.

▪ *What was the cause of misunderstandings between the initiators of the project and community members?*

From the findings of the study it is clear that misunderstandings flowed from

reliance on a psychological contract; expectations of both parties were not clearly communicated

▪ ***Was the selection of community members based upon the requirements of their jobs?***

It was found that the only criteria for selection were residence in a nearby settlement, as well as unemployed status

Recommendations

Based upon lessons learnt from the failure of the project studied, the following recommendations can be made:

- Community projects should not be undertaken in isolation; cooperation, coordination, and cross-fertilisation of ideas and experiences are called for;
- A first step should be to compile a central register of similar projects (at least at provincial level); networking, including regular communication between projects, are essential for success;
- When buying a successful operation, the owner should be asked to manage the project, at least until community members can stand on their own feet; the project studied, for example, could further have made use of the expertise of neighbouring successful farmers who could have acted as mentors and consultants;
- An explicit, written contract should be entered into between the initiators of the project and the community members who participate in it, rather than relying on an unwritten psychological contract in which expectations of both parties largely remain undisclosed;
- Apart from technical, operational training, project members should receive business training on an ongoing basis;
- Managers and overseers must be appointed with due regard to competencies required by the project - especially those of management; the screening instrument developed by Terblanche (Bezuidenhout 2010) could be of value in this regard;
- The selection of community members should be based upon criteria other than unemployment status only, e.g. appropriate experience,

aptitude and ability; the criteria developed by Terblanche could be considered;

- Proper planning for the project should be done for the short term, medium term and long term; it must be expected that the project will not become profitable and self-sufficient overnight;
- Implementation of the project must be supported by regular evaluation, quality assurance, feedback and meticulous record-keeping;
- Project members must assume ownership of the project; this should be promoted through sound communication as well as through participation in decision-making; and
- A management board, consisting of all stakeholders should be constituted to consider and ratify/ reject important decisions, e.g. the sale of project assets.

Conclusion

Community projects often are the option of choice for poverty alleviation, job creation as well as for training and development of community members. Failure of these projects is not only a waste of scarce resources that could have been profitably applied elsewhere, but are also expensive in the application and development of human capital – a failed project means job losses, which are in direct opposition to the intention underlying these projects.

Apart from their potential for the alleviation of poverty and of job creation, community projects also have implications for successful land reform. ‘Rural Development and Land Reform minister Gugile Nkwinti has conceded that over 90% of land reform farms have failed when measured by agricultural productivity’ (*Farmers Weekly* 19 March 2010).

Williams, director of The Rural Action Committee in the Mpumalanga Province, also stated that 90 percent of all land reform projects have failed in that province (Zvomuya 2006). There is no reason to believe that the success rate is significantly better in other provinces.

Due to the qualitative approach used for this study, the results cannot be generalized to other projects of a similar nature. However, it did explore possible reasons why projects of this nature often fail.

Emerging from this study, it could prove fruitful to find successful projects, and to determine what factors contributed toward their success.

As in the case studied, we often have only one chance of getting it right. Failure of projects leads to important stakeholders, like sponsors and project members, to lose interest, which in turn leads to a total melt down.

With proper planning and management, agencies initiating community projects, can get it right – the first time.

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The Relationship between Organisational Trust, Job Satisfaction and Intention to Leave: An Exploratory Study

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Abstract

Authors have claimed that one of the key ingredients in ensuring that organisations remain effective and sustainable in the turbulent business environment characterising the 21st century, is through creating and maintaining organisational trust between an organisation's stakeholders. However, little published research within the South African context, is evident in support of this contention. This exploratory study set out to describe the levels of trust in an organisational context and then to determine the relationship between levels of trust, job satisfaction and employees' intention to leave the organisation. Three standardised instruments were used to measure the research variables and data were collected and analysed on the responses of 91 employees in a company producing bread in the Johannesburg area. The findings indicated that levels of organisational trust and job satisfaction were moderate to high while the intention leave the organisation was found to be low. Statistically significant, strong and positive relationships were found between organisational trust and job satisfaction. A relatively weak but statistically significant relationship was found between organisational trust and employees' intention to leave the organisation.

Keywords: organisational trust, job satisfaction, intention to leave the organisation

1. Introduction

Organisations today operate in a highly globalised business environment driven by increased competition, emerging technology and rapid innovation of products/services resulting in renewed emphasis on factors contributing to organisational effectiveness. One vital characteristic in achieving effectiveness is through creating and maintaining organisational trust (Schockley-Zalabak, Ellis & Winograd 2000:7). This includes trust among employees, supervisors, departments and the whole organisation. Schockley-Zalabak *et al.* (2000:9) go so far as to argue that for organisations to survive globally, the ability to create trusting relationships within the organisation is imperative (Schockley-Zalabak *et al.* 2000:9). Organisational trust has been viewed in the literature as a combination of trust toward the supervisor in the organisation and internal organisational trust. Trust in the supervisor entails a positive affect that occurs when an employee believes that he/she has a fair relationship with an honest and competent supervisor that he/she can rely and depend upon in the organisation (Gilbert & Tang 1998:324). On the other hand, internal organisational trust is the overall environment of trust within the organisation, which develops from relationships, structures and systems within the organisation (Bagraim & Hime 2007:44).

Levels of organisational trust have been shown to be linked to favourable organisational outcomes such as employee job satisfaction, and decreased employee turnover levels (Brashear, Boles, Bellenger & Brooks 2003:195; Gilbert & Tang 1998:323). Employee satisfaction is greatly influenced by employee's view of both the management and the organisation (Perry & Mankin 2007:169). Employee job satisfaction is the self-perceived state of gratification or positive emotional feeling that one has about his/her job (Lauren 2005: 205). Past studies have indicated that employees who trust their organisation are more likely to be satisfied in general than those who have low trust towards their organisation. The element of job satisfaction is imperative to both managers and employees. For managers, satisfied workers translates into higher morale thus more productivity since they will be less disruptions caused by absenteeism or turnover; whilst for employees, job satisfaction translates into a healthier and happier individual in and out of the workplace (Meyer & Allen 1997:18).

'Intention to leave' is an employees' voluntary intention to cease employment from the organisation, for reasons other than retirement or

dismissal (Tainio 1977:231). Intention to leave is the most immediate determinant of the actual turnover behaviour, which could have numerous negative implications for the organisation, such as decreased productivity and may erode the morale and stability of the remaining employees. Many studies have attempted to determine the reasons why employees intend to leave their organisations. The prevailing factors that have emerged from these studies have been lack of job satisfaction and lack of organisational trust (Brashear *et al.* 2003: 195).

Organisational trust is clearly a construct worth exploring in terms of identifying factors that may contribute to an organisation's long term effectiveness and sustainability in our current turbulent business environment. Indeed, Brownell (2002:10) goes so far as to claim that

Trust is the backbone of any credible organisation. In order to grow and survive in this fast paced world, organisations should strive to create trust with its employees

However, studies focussing on organisational trust are relatively rare and '... the consequences of organisational trust for organisational performances have so far not received a systematic study' (Hay 2002:40). From a review of published literature in this field, it would seem that this is especially the case when considering the South African context. In response to this need, the current study sets out to explore the relationship between the constructs of organisational trust, job satisfaction, and intention to leave in an organisation operating in the food sector in South Africa. In particular the study aimed to:

- examine the level of internal organisational trust as perceived by the employees.
- determine the employees' level of trust towards their supervisors in the organisation.
- determine the level of general job satisfaction as experienced by the employees.
- determine the level of employees' intention to leave the organisation.

- establish the relationship between the three independent variables namely, organisational trust, job satisfaction and intention to leave.

The literature forming the context within which this study was undertaken is briefly outlined. This is followed by a description of the methodology adopted. The findings are then presented and discussed in relation to the literature reviewed.

2. Literature Review

Huff and Kelley (2003: 82) define trust as,

... the willingness of a party (the trustor) to be vulnerable to the actions of the other party (the trustee) based on the expectation that the trustee will perform a particular action important to the trustor irrespective of the ability to monitor or control that other party.

Within organisations, Houtari and Iivonen argued that trust is determined by the intensity, quality and durability of human interactions and is a function of the interactions between people in different organisational roles and positions and between employees and the organisation with its value system, structure and policies (Houtari & Iivonen 2003:60).

Trust in one's supervisor entails the positive affect that occurs when an employee believes that he or she has a fair exchange relationship with an honest supervisor (Mulki, Jaramillo & Locander 2006:563). A psychological contract is the unwritten contract that lays the foundation of a trust relationship between employees and supervisors. It entails beliefs about what employees think they are entitled to receive or should receive because they perceive that their employers conveyed promises either implicitly or explicitly to provide these things (Grobler, Warnich, Carrell, Elbert & Hatfield 2006:221). Research has shown that employers who understand and maintain this psychological contract with their employees, promote employees' trust in management and the organisation, and foster higher job satisfaction and the intention to remain with the employer (Grobler *et al.* 2006:222).

In line with this, Taylor-Dunlop and Lester argue that ‘Effective leadership begins and ends with trust’ (2000:3). To nurture organisational trust, supervisors must create an environment of trust which should be visible and experienced by every employee (Coetzee 2003:48). Bagraim (2007:43) suggested that, employees’ perceptions of their supervisors’ trust is based on the following characteristics: benevolence, integrity, ability, openness to share information and consistency of behaviour. Supervisors who display these characteristics will be ranked highly on trust by employees. Previous studies have found the importance of supervisors’ behaviours, attitudes and values as being a key determinant of employees’ perceptions of organisational trust. For instance, Perry and Mankin found that ‘when examining trust in the organisation, a critical part of it centers upon supervisors’ (2007:166). Similarly, Kouzes and Posner (2002) indicated that, leadership was identified as the most important characteristic in influencing organisational trust. In line with this, Taylor-Dunlop and Lester cited research showing that managers who establish a high trust relationship, showed more cooperation with one another and the employees, thus reducing tension (2000:4).

Another aspect that will be considered in the current study is the construct ‘internal organisational trust’. Huff defines internal organisational trust as ‘the climate of trust within an organisation, characterized by positive expectations that individuals have about the intent and behaviours of their colleagues in respect to organisational roles, relationships and systems’ (2003:82). Luhmann (1979:302) asserted that the attitude of trust within the organisation occurs in two dimensions, namely, faith in the management and faith in the intentions of peers. Therefore, internal organisational trust is determined by the structural relationships existing within the organisation. Faith in the management is based on the images that employees carry of the organisation regarding the decisions and actions of the executive group, especially as these decisions and actions impact them. Faith in the intentions of peers depends on social interaction between them (Nyhan & Marlowe 1997:618). Earlier studies have found that organisations with high levels of internal trust will be successful, adaptive, innovative and characterised by high employee job satisfaction (Mayer 1995:722). More recently, Lauren (2005:207) reported a strong positive correlation between organisational trust and job satisfaction. Gruneberg (1981:3) refers to job satisfaction as

‘pleasurable or positive emotional state, resulting from the appraisal of one’s job or job experiences’. These experiences include, mentally challenging work, equitable rewards and pay, supportive work environment, supportive co-workers, recognition, supervision, company and management (Robbins 1998:152). These in turn enhance employees’ morale and satisfaction. Furthermore, job satisfaction is an important determinant of an employee’s intention to leave.

According to Seonghee, Misty and Priyanko (2008:1) ‘intention to leave’ is simply referred to as a worker’s intention to leave his or her present organisation. This concept is considered interchangeable with the term ‘turnover intention’. However, intention to leave is distinct from defining actual turnover. Seonghee *et al.* (2008:1) further state that intention to leave refers to the subjective estimation of an individual regarding the probability of leaving an organisation in the near future. Tainio argues that it is a problem in industries or sectors where experience is an essential prerequisite of the industry, due to high replacement costs and where turnover is disruptive and deflates the remaining employees (1977:231). Brashear *et al.* (2003:195) found that high levels of trustworthiness and trusting behaviours are positively related to the degree of mutual trust in the organisation, thus decreasing employees’ rate of turnover.

Departure of experienced employees in the organisation has great consequences to the organisation including potential productivity losses, impairment to the delivery of customer services, reduced client retention with the result that the organisation’s overall productivity is threatened (Hom & Griffeth 1995:13). Therefore, many companies tend to go the extra length to retain their skilled employees. High levels of trust towards the organisation and the supervisor has been shown to weaken the employees’ intention to leave the organisation (Naumann, Widmier & Jackson 2000:230).

This brief review of the literature shows that organisational trust is the backbone of any credible organisation and studies show that low levels of organisational trust experienced by employees does have numerous negative implications for organisations. Despite the importance of organisational trust to an organisation’s effective functioning, little published empirical studies seem to be available within the South African context. The current study aims to make a contribution towards addressing this need.

3. Research Methodology

This section provides a description of the methodology adopted in order to meet the previously mentioned objectives of the study.

3.1 Research Design

The current study was descriptive and quantitative in nature. Given the specific aims of the study, a cross-sectional correlational research design was adopted in order to explore the relationship between the research variables, namely, organisational trust, job satisfaction and intention to leave.

3.2 Sample

The organisation used for this research study operates in the food industry with its primary product being the production of bread. The company has branches throughout the country and for this study data were collected from the branches in the Johannesburg area. A total of 156 salaried permanent staff members are employed by the organisation in this area. A non-randomised convenience sampling technique was utilised as questionnaires were distributed to all available employees on one particular day. A total number of 93 employees completed the questionnaires, of which two were incomplete. As a result, a total number of 91 respondents (N=91) correctly completed the questionnaires (i.e. 58% of the total number of staff members employed in the Johannesburg area). Only 93 employees were available to participate at the time of data collection as some were off site, some were working the night shift and others were attending an all-day training course.

An analysis of the demographic data revealed that 57% (n=52) of the respondents were male. The age of the respondents ranged from 20 years to 69 years, with the average age being 38 years. The racial distribution (30% African, 15% Coloured, 6% Indian and 44% White) reflected considerable cultural diversity in the organisation. The majority of the respondents (53%; n = 48), had attained a Matric education level. The average tenure with the organisation was 7 years, with the minimum being less than a year and the maximum tenure in the organisation recorded at 48 years.

3.3 Measuring Instruments

A questionnaire was administered to the employees to complete on a vol-

untary basis. It consisted of a demographic section, and three standardised measuring instruments to measure organisational trust, job satisfaction and intentions to leave.

Organisational trust was measured using Nyhan and Marlowe's (1997) 12-item Organisational Trust Inventory (OTI). This scale consists of 8 items which measure employees' trust in the immediate supervisor and 4 items which focus on the measurement of the different attitudes of trust that employees feel towards their internal organisation (Nyhan & Marlowe 1997:618). Respondents are required to indicate their responses using a 7-Likert scale ranging from 1= strongly disagree to 7= strongly agree. Nyhan and Marlowe (1997:622) reported high levels of internal consistency in three different groups (i.e Cronbach alphas of 0.96, 0.95 and 0.95). The current study found a Cronbach alpha of 0.96 for the total score on the OTI, while 0.87 was found for the internal organisational trust sub-scale and 0.97 was for the found for supervisor trust sub-scale.

In order to measure job satisfaction, the Overall Job Satisfaction (OJS) scale developed by Warr, Cook and Wall (1979 cited in Cook, Hepworth, Wall & Warr 1981: 32) was adopted. This scale measures both intrinsic and extrinsic aspects contributing to satisfaction levels of employees towards their respective jobs. It consists of 15 items and respondents are required to indicate their responses using a 7-Likert scale, ranging from 1= extremely dissatisfied to 7= extremely satisfied. This scale has been used in numerous studies with satisfactory levels of internal reliability being reported. A Cronbach alpha of 0.95 was found in the current study.

Finally, to measure employees' intention to leave their current employer, a 3-item scale was used (Cammann, Fichman, Jenkins & Klesh 1979 cited in Cook, Hepworth, Wall & Warr 1981:95). The respondents are required to indicate their responses using a 7- point Likert scale, ranging from 1= strongly disagree to 7= strongly agree. A 0.83 coefficient alpha was reported by Cook *et al.* (1981:95). The current study indicated a Cronbach alpha of 0.67.

3.4 Data Analysis

Data were analysed using the computer software package SPSS (Statistical Package for the Social Science) version 15, and included descriptive statistics and Pearson product-moment correlations.

3.5 Ethical considerations

Before proceeding with the data collection phase of this study, ethical clearance was obtained from the UKZN’s ethical clearance committee. Participation was completely voluntary and the anonymity of the participants was protected in the gathering of the data and presentation of the findings.

4. Findings

The results of the data are presented according to the specific aims of the study.

The Level of Internal Organisational Trust as Perceived by the Employees

Table 1: Descriptive Statistics of the Level of Internal Organisational Trust

Internal Organisational Trust	
N	91
	19
Median	20
Mode	21
Standard Deviation	5.70
Minimum	4
Maximum	28

Table 2: Average Responses of the Individual Items for Internal Organisational Trust

Internal organisational trust items	Mean Scores
The organisation will treat me fairly	5.05
High trust levels between supervisors and workers	4.82
High trust levels with co workers	4.70
Highly depend on each other	4.69

Table 3: Item Frequencies of the Internal Organisational Trust Sub-scale of the OTI

Internal organisational trust items.	Strongly Disagree (1)	Disagree (2)	Slightly disagree (3)	Neither agree nor disagree (4)	Slightly agree (5)	Agree (6)	Strongly agree (7)
The organisation will treat me fairly	3	5	7	13	20	27	16
High trust levels between supervisors and workers	5	7	6	15	21	22	15
High trust levels with co-workers	6	7	7	12	28	18	13
Highly depend on each other	6	6	9	15	22	19	14

The above tables reflect the level of internal organisational trust as perceived by the sample of employees from the organisation. From Table 1 it can be seen that the average response obtained was 19, this indicates that, their level of organisational trust is moderate to high considering the maximum and minimum scores of 28 and 4 respectively. The mode score of 21 indicates that most of the respondents are happy with the level of trust in the organisation. Table 2 represents the average results of the individual items of internal trust, according to the scale. Seven and 1 are the highest and the lowest scores respectively. The respondents ranked their organisation between 4.69 and 5.05 for all the internal trust items, indicating their moderate to high levels of internal trust they have in their organisation. These results are further elaborated on in table 3 by reporting the number of respondents per item of the scale. As a result of the above analysis it can be concluded that the level of internal trust is generally perceived to be positive amongst this sample of employees.

Employees’ Level of Trust towards their Supervisors in the Organisation

Table 4: Descriptive Statistics for Levels of Trust in Immediate Supervisors

Trust in Supervisors	
N	91
Mean	46
Median	48
Mode	56
Standard Deviation	10.34
Minimum	8
Maximum	56

Table 5: Mean Scores for the Items Related to the Trust in Supervisors Sub-component of the OTI

Items related to trust in immediate supervisors		Mean Scores
Ability	Technically competent	5.70
	Understanding of the job	6.82
	Do the job without causing any problems	6.67
	Ability to think through the job	5.68
Benevolence	Makes well thought out decisions	6.53
Integrity	Do the job in an acceptable manner	5.85
	I can rely on what my supervisors tells me	6.75
Consistency	Follow through on his/her assignments	5.63

Table 6: Item Frequencies of Responses Related to Trust in Immediate Supervisors

Supervisor’s Trust items.	Strongly Disagree	Disagree	Slightly disagree	Neither agree nor disagree	Slightly agree (5)	Agree (6)	Strongly agree (7)
Technically competent	3	1	5	7	11	32	32

Makes well thought out decisions	1	2	5	5	12	36	30
Follow through on his/her assignments	3	2	3	4	17	39	23
Understanding of his/her job	1	4	2	8	8	33	35
Do the job in an acceptable manner	1	1	5	4	13	36	31
I can rely on what my supervisors tells me	3	3	5	4	11	27	38
Do the job without causing any problems	4	2	2	6	13	35	29
Ability to think through the job	2	2	4	9	12	34	28

Tables 4, 5 and 6 above illustrate the respondents' levels of trust in their immediate supervisors. The mean score when considering all 8 items as a sub-scale was 46. This indicates a high level of trust towards the supervisors given that 8 and 56 are the minimum and maximum scores respectively. Similarly, as can be seen from Table 4, respondents ranked their supervisors highly on all the items. Specifically, the majority of respondents indicated that they are completely satisfied with the ability of their supervisors as well their consistency and benevolence. From the results in Table 6, it is evident that the majority of respondents rated items a 6 or 7 indicating a generally positive level of trust in their supervisors. Therefore it can be concluded that the level of trust towards the supervisors as perceived by this sample of employees in the organisation is generally high.

The Level of Overall Job Satisfaction as Experienced by the Employees

Table 7: Descriptive Statistics for Overall Job Satisfaction

Overall Job Satisfaction	
N	91
Mean	71
Median	74
Mode	66

Standard Deviation	17.9
Minimum	7
Maximum	29
	105

Table 8: Means for the Individual Items of the Overall Job Satisfaction Scale

Overall Job Satisfaction Items	Mean
Physical work condition	4.85
Freedom to choose method of work	5.31
Co-workers	5.15
Recognition for good work	4.47
Supervisor	5.18
Amount of responsibility given	5.29
Rate of pay	3.68
Opportunity to use your ability	4.87
Relations between management and workers	4.74
Chances of promotion	3.81
Management of firm	4.78
Attention paid to suggestions you make	4.63
Job variety	4.84
Job security	5.09
Hours of work	4.91

Table 9: Item Frequencies of Items in the Overall Job Satisfaction Scale

Job satisfaction items	Extremely dissatisfied (1)	Very dissatisfied (2)	Moderately dissatisfied (3)	Not sure (4)	Moderately satisfied (5)	Very satisfied (6)	Extremely satisfied (7)
Physical work condition	2	6	15	6	24	28	10
Freedom to choose method of work	3	2	6	11	19	31	19

Co-workers	3	1	8	7	33	26	13
Recognition for good work	9	8	10	9	25	19	11
Immediate supervisor	5	1	4	17	20	24	20
Amount of responsibility given	3	2	8	5	23	35	15
Rate of pay	19	8	20	8	21	11	4
Opportunity to use your ability	5	3	7	14	25	29	8
Relations between management and workers	4	6	6	17	29	19	10
Chances of promotion	19	5	7	26	14	17	3
Management of firm	4	9	1	17	24	30	6
Attention paid to suggestions you make	6	8	13	16	11	27	10
Job variety	6	6	6	10	23	31	9
Job security	4	3	4	13	24	32	11
Hours of work	8	2	11	7	17	33	13

According to Table 7 above, the average score recorded for job satisfaction was 71, which means that the respondents' level of job satisfaction is satisfactory given the maximum and minimum scores of 29 and 105 respectively. Similarly, the median score 74 indicate that half of the respondents are highly satisfied compared to the remaining half who are not as satisfied with their jobs. These moderate to high scores are evident more clearly in Table 8, which indicates the average responses levels for each item of the job satisfaction scale. For most items, respondents have rated them, on average, with 4's and 5's, indicating a moderately high satisfaction level. However, for items to do with rate of pay, recognition for good work and chances of promotion, respondents indicated that, they are not satisfied with them at all, they were rated 4. Table 9 above indicates the number of

responses for each item of the scale and shows that the level of job satisfaction in the organisation, as perceived by this sample of employees, is moderate to high.

The Level of Employees' Intention to Leave the Organisation

Table 10: Descriptive Statistics for Intention to Leave

Overall intention to leave	
N	91
Mean	10
Standard Deviation	4.23
Median	10
Mode	9
Minimum	3
Maximum	21

Table 11: Means for the Individual Items of the Intention to Leave Scale

Intention to leave actual items	Mean score
I often think of quitting	3
I will definitely return if I have to quit	5
I will search for a job the next year	3

Table 12: Response Frequencies per Item of the Intention to Leave Scale

Intention to leave items	Strongly Disagree (1)	Disagree (2)	Slightly disagree (3)	Neither agree nor disagree (4)	Slightlyly agree (5)	Agree (6)	Strongly agree (7)
Will definitely return, if I quit	18	29	12	14	8	4	6

Often think of quitting	16	16	8	14	18	10	9
Search for a new job next year	18	16	11	14	15	6	11

Table 10 above represents summary of the responses to the study variable ‘intention to leave’. The mean score of 10, given the maximum and minimum scores of 21 and 3 respectively, indicates that employees overall have a low intention to leave the organisation. These results are elaborated on in Table 11 which indicates the average response levels of intention to leave as reported by this sample of employees. From the table, the items ‘often think of quitting’ and ‘search for a new job’ were both rated 3 out of 7 by the respondents, indicating their low intention to leave the organisation. Additionally, respondents indicated their moderate to high intention to return to the organisation should they leave. For the purpose of this research, the item ‘Will definitely return, if I have to quit’ was reverse scored in order to be similar to the other remaining two items. In order to provide a more detailed description of these findings, Table 12 represents the number of responses per rating scale of each item. From these findings, it can be concluded that respondents have low intention to leave the organisation.

The Relationship between Organisational Trust, Job Satisfaction and Intention to Leave

In order to explore the relationship between the three research variables, Pearson product moment correlations were computed. These were computed for the total organisational trust score as well as separately for the sub scales, internal organisational trust, and trust in supervisors. The results are presented in table 13.

Table 13: Correlation Coefficients for Organisational Trust, Job Satisfaction and Intention to Leave

	Job satisfaction	Intention to leave
Organisational Trust.	.716(**) .000	-.196(*) .031
Supervisor’s trust	.648(**) .000	-.205(*) .026

Internal organisational trust	.731(**) .000	-.150 .155
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* *Correlation is significant at the 0.05 level (1-tailed).*

** *Correlation is significant at the 0.01 level (2-tailed).*

From the results reported in table 13, the correlation coefficient of 0.72 indicates a strong and positive relationship between organisational trust and job satisfaction. The Pearson correlation value of -0.20 found between organisational trust and intention to leave indicates that a statistically significant but relatively weak and negative relationship exists between organisational trust and intention to leave.

Focussing specifically on the relationship between levels of trust in immediate supervisors, it can be seen from table 13 that a strong and positive relationship between trust toward the supervisor and job satisfaction is evident. The correlation coefficient of -0.21 indicates a relatively weak yet statistically significant inverse relationship between trust toward the supervisor and intention to leave.

The Pearson correlation value of 0.73 indicates a very strong and positive relationship between internal organisational trust and job satisfaction. However, the Pearson correlation value of -0.15 suggests a statistically non-significant weak and inverse relationship between internal organisational trust and intention to leave.

While not a specific aim of this current study, in order to further explore the data, correlations were computed between the variables intention to leave and job satisfaction. The results are presented in table 14.

Table 14: Pearson Correlation Coefficients for Job Satisfaction and Intention to Leave

	Intention to leave
Job satisfaction	-.313(**) .003

** *Correlation is significant at the 0.01 level (2-tailed).*

Table 14 indicates that a statistically significant moderate inverse relationship is evident between job satisfaction and intention to leave.

The findings and implications of this study are now discussed drawing on relevant literature.

5. Discussion of the Findings

The findings indicate the existence of moderate to high levels of organisational trust in this organisation. As stated earlier, authors in this field assert that organisational trust can be viewed as comprising of two related but separate components, namely, internal organisational trust and trust in immediate supervisors (Nyhan & Marlowe 1997:618). The objective of this current study was not to investigate this contention but the differing trends in the findings related to these components of the OTI seem to provide some support for this approach to viewing organisational trust from this perspective. Focussing specifically on the findings related to trust in the immediate supervisor a number of observations in support of related literature can be made.

According to Taylor-Dunlop and Lester (2000:3) supervisors who strive to align their words and actions in order to maintain the unwritten psychological contract - which is created by the perceived obligations that they have to fulfill toward each other - create a strong trust relationship with their subordinates. Results reported in Table 5 indicate that, on average, the respondents rated their supervisors 6.75 under the item 'I can rely on what my supervisor tells me'. Coetzee (2006:48) further asserts that supervisors who allow their subordinates to make decisions, or who fairly consider them in making decisions about things that impact them, build a trusting relationship with their subordinates. Literature by Bagraim and Hime (2007:43) asserted that to create strong trust with their subordinates, supervisors need to show that they are capable of doing their jobs and that they understand and do their jobs properly. This is the ability characteristic of the supervisor. Therefore, supervisors who display benevolence, integrity, ability, openness and consistency will create high levels of trust with their subordinates (Bagraim & Hime 2007: 43). From the results displayed in Table 5, it can be seen that the respondents have on average ranked their supervisors 6 and 7 on these characteristics. This indicates that supervisors in the organisation have managed to display those characteristics successfully, thus building strong trusting relationships with their subordinates.

As suggested by previous authors, organisational trust can be expected to relate to other factors essential for the effective functioning of organisations in today's competitive business environment (Brashier & Boles 2003:195; Parnell & Crandall 2003:54). The findings in this study confirm this contention although it is acknowledged that causality cannot be implied in the findings of significant correlations between variables.

Focussing firstly on job satisfaction, the Pearson-product moment correlation value reported in Table 13 ($r = 0.72$, $p < 0.01$) indicates a very strong and positive relationship between organisational trust and job satisfaction. This means that according to the respondents, employees who experience higher levels of organisational trust will also experience higher job satisfaction levels and vice versa. Previous studies have indicated that organisational trust is a significant predictor of job satisfaction (Gilbert & Tang 1998:323). Focussing on the two components of organisational trust separately, significant, albeit of slightly different strength, positive correlations were found between supervisor's trust and job satisfaction ($r = 0.65$, $p < 0.01$) and between internal organisational trust and job satisfaction ($r = 0.73$, $p < 0.01$). While causality can not be implied in these relationships, these research findings are in line with other studies showing that employees who trust their organisation will also experience higher job satisfaction at the workplace (Grobler *et al.* 2006:222). Therefore, from the strong correlations found between organisational trust and job satisfaction and support from the literature, one may argue that the existence of strong trusting relationships between management and employees as well between co-workers is positively related to employees overall job satisfaction. Job satisfaction, in turn, is related to productivity levels and therefore has significant implications for an organisation's effective functioning.

The potential implications of these positive findings are highlighted further when considering the relationship between organisational trust and employees' intentions to leave their organisation. A correlation value of $r = -0.20$ ($p < 0.05$) was observed between organisational trust and intention to leave. This indicates a weak but statistically significant inverse relationship between organisational trust and intention to leave. Even though this was not a particularly strong correlation coefficient, this finding is still inline with the observations made by other authors in this field such as Naumann *et al.* (2000:230) who concluded that organisational trust has a negative effect on

intention to leave. Similarly, Brashear *et al.* (2003:195) asserted that high levels of trustworthiness and trusting behaviours displayed by both supervisors and subordinates towards each other create a degree of positive mutual trust in the organisation, thus reducing employees' rate of turnover.

While a weak but statistically significant inverse relationship was observed between supervisor's trust and intention to leave ($r = -0.21$; $p < 0.05$) the relationship between internal organisational trust and intention to leave was not found to be statistically significant. This finding is in line with a study reported by Pienaar, Sieberhagen, Mostert (2007:63) where it was argued that, compared with internal organisational trust, trust towards the supervisor is the higher predictor of employees' intention to stay in the organisation. The findings of the current study once again give some support to viewing the two components of organisational trust together as well as separately.

Gruneberg (1976: 229) argued that employees who enjoy their work and are satisfied with their jobs are least likely to leave the organisation. This contention is supported in the findings that there was a statistically significant inverse relationship between these two variables in the current study ($r = -.31$, $p < 0.01$). On the other hand, Martin (1979: 314) has argued that factors that contribute to job satisfaction - such as low pay, few close friends, lack of autonomy in the workplace etc - do have a strong impact on employees wanting to leave the organisation. However, this was not observed in the present study, even though according to the results reported in Tables 8 and 9, respondents indicated that they were not very happy with the rate of pay, recognition they get for good work etc, on average they still did not have high level of intention to leave the organisation. This may be an indication of the current economic climate and may well be an indication of the importance of seeing the results of studies such as this, within the broader macro-environmental context.

While the findings of this study are clearly limited in their generalisability due to small sample size, they do nevertheless make an initial contribution to the understanding of the nature of the relationships between the three study variables. No published research was evident in South Africa at the time of conducting the empirical research. As such, this research makes a useful exploratory contribution to a key area in the field of people management.

6. Conclusion

This study has highlighted the importance of creating and maintaining organisational trust as one of the competitive advantages that will enable the organisation to compete successfully and survive in its environment. The findings of the relationships between the three study variables reported in the current research are strongly supported by the findings of other researchers who asserted that high levels of trust and trusting behaviours in the organisation positively influence employees' satisfaction level resulting in employees wanting to remain in the organisation. For managers, these findings indicate that it is imperative for them to invest in creating a culture that enhances trusting relationships inside the organisation. This will induce employees to stay in the organisation, and reduce turnover of the employees. Globalisation, workplace diversity, downsizing, internal networks, external alliances and other complex decisions are some of the events affecting the organisations in the 21st (Ridderstrale & Nordstrom 2000: 25). Organisational trust occupies a central role. 'It is trust conceived within and across the organisation that determines the organisation's ability to remain viable in its environment' (Schockley-Zalabak *et al.* 2000:35).

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Consumer Decision-making in the Selection of Shopping Centres around Durban

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Abstract

The purpose of this study was to investigate the factors that influence the consumers' decision-making process in the selection of shopping centres. The development and expansion of shopping centres means that consumers, in most cases, have an increasing choice of shopping destinations that meet their needs for goods, services and entertainment. It is the competitive retail environment that poses serious threats and opportunities for growth and profitability of shopping centres. The empirical research, which was conducted amongst shoppers at the various centres in the greater Durban area, confirms the significance of the various situational influences, namely, the physical surroundings, the social surroundings, time, task definition and antecedent states as they impact on the shopping centres.

The findings of this study reveal that stakeholders of shopping centres should go beyond the tactical aspects of shopping centre operations and adopt a strategic approach to business, in which customers' needs and competitors' actions are monitored in their quest to obtain preference vis a vis their competitors. The findings of this study are of value to stakeholders such as the tenants, property developers, investors, shopping centre managers and retailers who need to acknowledge the impact of the dynamic aspect of the factors that influence the consumers' decision-making process and their implications for shopping centre development and promotion.

Keywords: Factors that influence consumer decision-making, selection of shopping centres, development of shopping centres, shopping centre operations, situational influences on shopping centres, competitive retail

environment, physical surroundings, social surroundings, threats and opportunities for growth of shopping centres.

Introduction

Situational influences are considered to be the predominant factors that affect consumer decision-making in respect of the choice of shopping centres. The key elements of the situational influences are the physical features of the shopping centre which include design and location, the social surroundings which include the ambience and the demographic make-up of the patrons, temporal perspective which includes the time taken to get to the shopping centre, task objectives which includes the purpose for visiting the shopping centre and antecedent states which includes the mood of the shoppers. These key elements of the shopping centre phenomenon have been considered to varying degrees among shopping centre developers, retailers and management, but the extent to which they are significant to the success of the shopping centres has not been adequately researched.

The expansion of shopping centres in the suburban areas of greater Durban suggest that consumers, in most cases, have an increasing choice of shopping destinations that can meet their needs for goods, services and entertainment. Hence, the success of individual shopping centres may depend on their ability to develop a distinctive competitive position that appeals to their target market. With the choices now available to consumers, the issue of the selection and marketing of shopping centres is vital to a variety of stakeholders, especially shopping centre managers, retailers and developers. The 17500 m² Protea Garden shopping centre in Soweto had a 700m² extension with more fashion and fast-food outlets (the South African Council of Shopping Centres 2009/2010). Gateway Shopping Centre, Chatsworth Shopping Centre, Pavilion, Musgrave, Workshop and La Lucia Mall in KwaZulu-Natal emphasize the competitive nature of shopping centres suggesting that the stakeholders should go beyond the tactical aspects of shopping centre operation and adopt a strategic approach to business, where customers' needs and competitors' actions are monitored in the process of achieving preference.

Motivation for the Study

The competitive retail environment poses serious threats and opportunities for growth and profitability of shopping centres. In addition, suburban shopping centres have undergone a transition from competing with the Central Business District (CBD) to one in which they compete directly with shopping centres of the same type in different suburbs. Despite the dramatic impact that shopping centres have had on modern lifestyles and the physical landscape of cities, research on this phenomenon has been relatively limited (Bloch, Ridgeway & Dawson 1994). This study attempts to fill this gap, by suggesting that customer values should receive further attention from stakeholders, retailers, marketers and managers of shopping centres in an attempt to create a differential advantage for each shopping centre.

Problem Statement

Shopping centres have been established at a rapid pace in South Africa with the prospect of more being established to cater for the needs of consumers in a rapidly growing economy (Cloete 2003). The extent to which these shopping centres cater to the needs of consumers needs to be investigated. Hence, an assessment needs to be made of the factors that influence the consumers' decision-making process in the selection of shopping centres.

Sub-Problems

To adequately assess the main problem statement, further sub problems need to be addressed as well, such as:

- the impact of the internal and external environment of shopping centres on consumer decision-making;
- the purpose for which consumers visit shopping centres;
- the extent to which consumers are satisfied with the various shopping centres;
- the extent to which consumers' choice and patronage behaviour impact on the shopping centres' marketing strategies to meet their needs and desires;

- the extent to which patronage of shopping centres is dependent on private transportation;
- the extent to which one-stop shopping centres with efficient services contribute to positive experiences for families; and.
- The extent to which males and females prefer the various facilities within the shopping centres.

Flowing from the main problems and the sub-problems the research objectives are stated hereunder.

Research Objectives

The primary objective is to determine what factors influence the consumers' decision-making process in the selection of shopping centres.

Secondary objectives are to:

- investigate how the internal and external environment impacts on the consumers' choice of shopping centres;
- identify the purpose for which consumers visit the various shopping centres;
- determine the extent to which consumers are satisfied with the various shopping centres;
- assess the extent to which consumers' choice and patronage behaviour impacts on the shopping centres' marketing strategies to meet consumer's needs and desires;
- assess the extent to which private transportation impacts on patronage of shopping centres;
- assess the extent to which one-stop shopping centres with efficient service contribute to positive family experiences;
- and assess the extent to which males and females prefer various facilities within the shopping centre.

Key Research Questions

What factors influence the consumer's decision-making ?

Subsidiary Research Questions

- How does the internal and external environment of shopping centres impact on consumers' choice of shopping centres?
- For what purposes do consumers visit the various shopping centres?
- How satisfied are customers with the various shopping centres?
- What marketing strategies are employed to meet consumer's needs and desires?
- How does private transportation impact on patronage of shopping centres?
- How do one-stop shopping centres contribute to family experiences?
- Do males and females differ in their preferences for the various facilities within the shopping centres?

Literature Survey

The shopping centre industry has experienced unprecedented growth over the last 40 years, and that growth is likely to continue, but with many changes in the size, amenities, and tenant mix of individual shopping centres. According to Alexander and Muhlebach (1999:1), over the years, the shopping centre industry has had to overcome recessions, overbuilding, and major shifts in anchor tenants' economic situations and the space requirements as well as the changes in the characteristics of shoppers. In spite of all these challenges, the industry has grown and prospered, as can be seen from a review of how shopping centres evolved to their current position of prominence. As noted by North and Kotze (2004:30), the advent and expansion of planned shopping centres or malls has been one of the major retail revolutions in South Africa over the past 15 – 20 years. From 1980 onwards, suburban shopping centres grew as populations shifted to the suburbs. Life in the suburbs has created a need for shopping facilities which are a short drive from home. Large shopping centres provide huge assortments for consumers. Combining many stores under one roof creates a synergy that attracts more customers than if the stores had separate locations.

Based on the definition by Levy and Weitz (2004:217), Etzel, Walker and Stanton (2003:425) and Markam (1998:81), a shopping centre consists of a planned grouping of retail stores that lease space in a structure

that is designed, developed, owned, marketed and managed as a single unit. Shopping centres are planned with two purposes in mind, namely, a retailing environment for its tenants and for the shopping and entertainment needs of consumers.

According to Cloete (2003:39,83), most of the large shopping centres in South Africa, including the four largest shopping centres, are in Gauteng. Of the shopping centres larger than 20 000 square metres, there are 62 shopping centres in Gauteng, followed by 19 in Western Cape, 17 in KwaZulu-Natal, 7 in Eastern Cape, 8 in Free State, 4 in North West, 2 in Limpopo and 2 in Mpumalanga. Greater Johannesburg has 9 of the fifteen biggest shopping centres in the country (the South African Council of Shopping Centres 2009/2010). South African shopping centres are in many respects similar to shopping centres in the world; there might be some differences especially with regard to the type of key tenants, types of shopping centres, tenant mix and the marketing mix.

Shopping centres have become a very significant phenomenon in the South African economy. The different sizes, areas and environments of shopping centres are presumed to be well-researched and carefully planned to meet the requirements of consumers to the extent that organized centres for shopping and entertainment are a twenty first century phenomenon. As Terblanche (1998: 4) states, since the early 1970s, there has been a remarkable growth in the development of shopping centres in South Africa. The shopping centre industry in South Africa has grown at a rate of $\pm 8\%$ per annum over a decade, 1989-1999. It has been recorded, in the 2003 Shopping Centre Directory (SAPOA), that there are 850 centres larger than 10 000m² and 1 200 centres larger than 3 000 m² in South Africa. The location of the shopping centre benefits the communities in many ways. No other property development has a greater impact on a community than a shopping centre. In particular, the shopping centre provides substantial revenue, a variety of employment opportunities, the convenience of one-stop shopping and a testing ground for new businesses.

However, attitudes are changing and new centres are springing up in areas that were not even on the radar five years ago. Target areas are the former townships, and projects are under way in Soweto, Mamelodi, Atteridgeville and Umlazi. According to Dardagan (2006), turnovers are soaring for businesses at Durban's upmarket Umlazi Megacity Mall, as

changing shopping habits have set tills ringing in a buying bonanza. The mall opened earlier this year amid glowing predictions about the success, which have proven to be successful.

Skinner (2007), Executive Director of the South African Council of Shopping Centres, makes a cogent point by acknowledging that in a maturing shopping centre industry, fierce competition is beginning to emerge between major centres, especially in the Cape Peninsula, Northern Durban, Eastern Pretoria and Greater Northern Johannesburg. Skinner says that 'There are four major issues emerging for our industry'. Firstly, due to the oversupply of retail space in the above mentioned markets, shopping centres are facing real competition for the first time, and the primary trading areas of the Regional Shopping Centres are beginning to overlap, which requires a more dynamic approach to marketing. The second concern is that, traditionally, marketing budgets have been dictated by owners and managers and not mutually decided by the Shopping Centre team of management and retailers, resulting in general apathy from anchor, national, and small retailers alike. Marketing has been seen as a necessary evil, only aimed at counter-balancing the marketing efforts of their nearest competitor as opposed to growing the shopping centre business and its market penetration. Bearing in mind that shopping centres are multi-million to billion rand businesses, budgets of 3-5% of gross rental income for marketing is hopelessly out of line with comparably sized businesses in other sectors of the economy, as this only represents some 0,5% to 1% of centre sales (Skinner 2007).

The challenge is to create a new mind-set between management staff of shopping centres and their retailers towards marketing that increases the viability of all of their businesses. The third factor is that a sense of partnership is non-existent in the centres. Relationships are strained as the owners, managers and retailers seem to work against each other, with opposing agendas. Shopping centres such as the V&A Waterfront, Cavendish Square, Constantia Village, Sandton City and Hyde Park Corner that have successfully withstood the test of time have successful Merchant's Associations with a strong sense of this partnership ethos (Anon. 2004). The last concern is that customers are becoming more discerning. Whilst they may still be dependent on some shopping centres for their basic needs, the real challenge for the shopping centre industry is meeting customer wants and emotional desires when shopping. Success in meeting or exceeding these

requirements will result in loyalty to the centre (Anon. 2004:1/2). Understanding the underlying factors influencing consumers' choice and patronage behaviour in shopping centre environments can help marketers, managers and stakeholders of shopping centres define the character of shopping centres and create marketing strategies in ways that serve to enhance shopping centres by meeting basic consumers' needs, wants and desires. Research conducted in Mexico by Rajagopal (2008), revealed that the ambiance, assortment of stores, sales promotions and competitive economic gains within the malls attract higher customer traffic to shopping malls.

According to the Business Day (1998:12) the worldwide trend is to create 'shoppertainment'. This trend entails integrating the shopping experience with dining and entertainment – keeping the consumers happy. Customers want to escape from their daily high–pressured stressful lifestyles and enjoy valuable leisure time. The new shopping centres must include an atmosphere of discovery, novelty and excitement, as well as a wider range of stores and more flexible shopping hours. Some of the newest shopping centres that are moving in this direction are the R3 billion Zonk'lizwe shopping resort in Midrand (incorporating 300 000 m² of retail and entertainment space, two hotels and a 16 ha theme park), the R1 billion Gateway complex in Umhlanga on the KwaZulu – Natal and the R560 million redevelopment of Menlyn Park shopping centre in Pretoria.

Research on shopping centres, as situational influences on consumer behaviour and the marketing mix, can generally be described as examining the relationship amongst various shopper characteristics and the features of the retailing or point of purchase situation. Situational influences are studied in terms of flexible/adaptive responses to several situations or events encountered in shopping centres. Research may also indicate which consumer situations present opportunities for new products and services offerings. An inter-relationship among situational factors, behavioural and affective reactions are examined, as is the frequency of event occurrence in shopping centres. Researchers examining situational influences need to specify and develop suitable taxonomic structures for marketers, managers and stakeholders of shopping centres. (Anon. 2004) The answers to the questions are also simple. Does the shopper visit one shopping centre rather than another because of a more pleasant environment, with better garden-

landscapes, parking and better food courts, or because it has a more appropriate selection of shops and merchandise? Or is it merely because it is more convenient or cheaper? Do shoppers simply fall into a few categories? In other words, is it a matter of convenience and price, or price alone, or a leisure experience?

Hence, this study attempts to fill this gap, by suggesting that the consumer's requirements of shopping centres and their evaluation should receive increased attention from marketers, managers and stakeholders of shopping centres.

Consumer dynamics and responses to them by marketers have resulted in various types of shopping centres which are discussed below.

Super Regional Centres

A super regional shopping centre is a larger version of the regional shopping centre. Alexander and Muhlebach (1999:7) state that it encompasses more than 92 900 square metres, has more than 100 shop tenants and is anchored by at least four full-line department stores. A trade population in excess of 300 000 per year is required to support a super regional shopping centre.

Levy and Weitz (2004:223) state that a super regional centre is a shopping centre that is similar to a regional centre, but because of its larger size, it has more anchor tenants and a deeper selection of merchandise. As with super regional centres, the typical configuration is an enclosed mall, frequently with multi levels of stores. Table 1.1 lists the biggest shopping centres in the world. According to the Guinness Book of Records, the world's largest shopping, amusement, and recreation park is the West Edmonton Mall in Alberta, Canada. It has nearly 4.8308 million square metres of covered space, 3.5302 million square metres of selling space, more than 800 stores and services, and 110 restaurants. However, the mall has more than shopping to attract millions of people a year. The mall also provides the Galaxyland Amusement Park, a seven-acre water park, an NHL-size ice arena, submarines, an exact replica of the Santa Maria ship, a dolphin lagoon, aquarium facilities, Fantasyland Hotel, a miniature golf course, 26 movie theatres and IMAX, and a casino.

Some of the largest shopping centres in the world are indicated in Table 1.1

Table 1.1 The World's Largest Shopping Malls

Name	Location	Gross leasable Space(sq.ft)
West Edmonton Mall	Alberta, Canada	5,200,000
Mall of Asia	Manila, Philippines	5,000,000
Mall of America	Bloomington, MN	4,200,000
SM Prime's Megamall	Manila, Philippines	3,500,000
Del Amo Fashion Centre	Torrance, CA	3,000,000
South Coast Plaza	Costa Meso, CA	2,700,000
Seacon Square	Thailand	2,700,000
CrystalCourtWoodfield Mall	Schaumburg, IL	2,700,000
The Plaza and the Court at King of Prussia	King of Prussia, PA	2,500,000
Sawgrass Mills	Sunrise, FL	2,300,000

Source: Levy and Weitz (2004:226).

Regional Shopping Centres

Levy and Weitz (2004:223) define a regional shopping centre as a shopping mall that provides general merchandise (a large percentage of which is apparel) and services in full depth and variety. The regional shopping centre's main attractions are anchor tenants, department and discount stores. According to Etzel *et al.* (2004:425) the largest kind of shopping centre, such as a regional centre, is anchored by one or more department stores and complemented by many smaller retail outlets. Typically, regional shopping centres are enclosed, climate-controlled and gigantic. The biggest regional shopping centre, in the USA the Mall of America in suburban Minneapolis, opened in 1992. Under one roof, this centre combines over 500 retail stores with an amusement park, two lakes, 50 restaurants and more than a dozen movie theatres-adjacent to 17,000 free parking spaces. This 'mega mall' draws over 40 million shoppers and tourists annually. Etzel *et al.* (2004:425) state that many shoppers became too time-conscious to spend much time shopping or socializing at a huge mall. Consequently from the early 1980s to late 1990s, the average amount of time consumers spent in malls on a monthly basis dropped from 12 hours to under 5 hours. The reduction in time

spent at shopping centres presents a challenge to stakeholders, marketers and managers of shopping centres they believe that the reduced period of time reduces the impact of sales in these shopping centres. In order to increase the time spent by consumers at shopping centres, consumer research needs to be conducted on an ongoing basis to determine consumer's needs and wants of products and services that are offered at the shopping centres. Hence, this study will focus on the main regional shopping centres in the Greater Durban Area with respect to consumer patronage and consumer behaviour.

Other centres that have been in existence to cater to the needs of consumers are discussed briefly below.

Community Shopping Centers

These shopping centres typically are 17 000 m². According to Alexander and Muhlebach (1999:7), these centres usually have three or more anchor tenants from among the following: junior department store, discount department store, supermarket, super drug store, variety store and home improvement centre. The small shops are predominantly occupied by retail, service and speciality food tenants. Most community shopping centres are large open-air strips, although some are developed as enclosed malls. A population base of 100 000 - 150 000 people per year is required for their survival.

Neighbourhood Shopping Centres

The typical neighbourhood shopping centre ranges in size from 5500 - 16600. m². The centre usually includes at least one anchor tenant but may have two or more. Alexander and Muhlebach (1999:7) note that a supermarket is the most common anchor; alternatives are drug or home improvement stores. The small shop spaces are occupied by a mix of services, speciality food stores, and business or professional (medical, dental, legal) offices. Beginning in the 1980s, retailers, selling soft goods, have been occupying less space in neighbourhood shopping centres than they did in the 1960s and 1970s. Shop space may be leased to fast food or full-service restaurants, banks and service providers. This type of centre can do well with a trade area population of 5 000 - 40 000 people.

Speciality Shopping Centres

According to Alexander and Muhlebach (1999:8), these centres are also known as theme or festival shopping centres, and they are usually greater than 56 000 m². Often, they are created by the conversion of an existing old building to a new use (adaptive use) although some are new structures, an example being The Workshop in Durban. Many perpetuate an architectural theme suggested by the original use of the building or the location. Speciality centres require a population of more than 150 000 to survive. Such centres are located in tourist-orientated areas that already have a heavy flow of shoppers. Often their main attraction is food outlets, entertainment establishments; smaller shops that are usually one-of-a-kind boutique and speciality stores. Faneuil Hall Marketplace in Boston and Ghirardelli Square in San Francisco are classic examples of such speciality centres. Faneuil Hall was originally a row of three industrial and public market buildings near the waterfront while Ghirardelli Square had been a chocolate factory.

Convenience (Strip) Shopping Centers

Alexander and Muhlebach {1999:6) express the view that this type of shopping centre is usually between 500 and 5500 m² and is designed as one continuous row of shops (thus the term 'strip' centre). The ideal location is on a corner, since a convenience shopping centre can be located anywhere along the street. Most of the tenants are service or food operations. If there is an anchor tenant, it is usually a well-known convenience grocery store such as 7-Eleven. This type of shopping centre may well be developed throughout multiple business districts in a large city and can be successful with a small population base of 1 000-2 500 people.

Outlet or Off-Price Shopping Centers

Factory outlet stores sell manufacturers' surplus merchandise or goods, which may be seconds, irregulars or overruns. Off-price retailers sell first-quality brand name merchandise at low prices. They make special bulk purchases and pass the savings to the customer. Off-price and outlet stores are frequently found in the same shopping centre, which can be an open-air

strip or an enclosed mall. These centres are located away from national or traditional retailers; usually in smaller communities, adjacent to a major freeway but within one or two hours' drive from a major metropolitan area or urban area. A population in excess of 150 000 is generally required for their survival (Alexander & Muhlebach 1999:8).

Power Centers

First developed in 1984, these shopping centres were originally known as promotional centres. According to Alexander and Muhlebach (1999:8), power centres are large strip centres anchored by several large promotional warehouses or speciality stores that dominate their merchandising category. Generally, 75-80 percent of the power centre's area is occupied by anchor tenants. Successful power centres require a population of greater than 150,000 people per year for survival. The success of all of these shopping centres relies substantially on the combination of their marketing mix.

The Shopping Centre Marketing Mix

Wilmshurst and Mackay (2002:109) and Lamb, *et al.* (2004:424) concur that the marketing mix is a unique blend of product, distribution, promotion and pricing strategies within the centre that is designed to produce mutually satisfying exchanges to a target market. Ziethaml and Bitner (2003:26 - 27) suggest an extended marketing mix which recognizes that the people who deliver these offerings are as important as the physical layout and atmosphere within the company.

This definition implies that tangible and intangible elements are inseparable when buying the shopping centre's offerings. The friendliness and dress code of employees of the shopping centre, together with the atmospherics are a vital factor which contributes to the success of the shopping centre and the fulfilment of atmospherics to consumer's satisfaction. These benefits must now be turned into product attributes (Ziethaml & Bitner 2003: 27). The product attributes can be placed into five main categories, namely: a quality level, features or physical characteristics, styling or design, a brand name and packaging. The following major benefits

desired by the consumer in the shopping centre are visibility, accessibility, product and service offerings, entertainment, size of stores, retail mix, critical mass, design and layout, functionality, anchorage, people traffic flows, competitiveness, market research, merchandise profile, tenant mix, packing areas, design and management of services within the shopping centre. Rajagopal (2006) also maintains that the consumer shopping behaviour during leisure is largely driven by the recreational infrastructure as a competitive strategy of retailers whereby individuals experience enjoyment from shopping.

Accessibility is also important at a micro-level-for example, easy walking access from existing shopping areas, public transport stations and car parks. Developers do not, however, always have free choice as to the location, size and form of new shopping centres. At the macro-level, government attitudes towards out-of-town development, the desire of planners to maintain the hierarchy of centres, and the creation of enterprise zones, for example, can have a significant impact on the location of centres. At a macro-level, developers can also be constrained by the availability of land, development control procedures, restrictions on land-use, and requirements to integrate with existing building structures (Guy 1994).

Brassington and Pettitt (2003:546) state that the choice of location is linked to social and demographic changes, such as increase in car ownership, one 'stop' shopping and the rising number of working women with too little time to shop for their families.

According to Barnes (2002:11), shopping centres in South Africa are increasingly utilising the marketing opportunities offered by various kinds of entertainment activities, not only to draw consumers to the centres, but also to build possible long-term relationships. These relationships will become imperative in determining future marketing strategies for shopping centres. Consequently, this empirical study attempts to address these aspects.

Research Methodology

In addition to the literature survey above, an empirical study was undertaken to assess those questions that could not be adequately answered as a result of the secondary study. A structured questionnaire was designed, focussing on eight key variables namely: location, accessibility, visibility, management

and marketing of shopping centres, tenant mix, consumer profiles, shopping centre appearance and the retail mix. The shoppers at shopping centres in the Greater Durban Area represented the sample for a mall intercept survey. A non – probability, quota sample of 475 respondents were drawn from the population in the Greater Durban Area, with filter questions being utilized to ensure respondents complied with the sample frame. The quota sample was drawn from each centre depending on the area and the size of the shopping centre. A minimum of 50 respondents from the smaller shopping centres and a minimum of 75 respondents from the larger shopping centres were chosen.

- The completed questionnaires were then subjected to editing, coding and data capturing, rendering them easier to manage and interpret. The nature of the data, the number of variables and the relationship between the variables were the main considerations in the selection of the appropriate statistical tests, such as descriptive statistics and inferential statistics.

Data Collection

Meaningful results were contextualised within the study from 457 of the sample size of 475 respondents from seven shopping centres in the greater Durban Area. The analyses of respondents were aggregated in order to reflect the general position, attitudes and perceptions of shopping centres in the greater Durban Area

The research findings of the relationships are depicted in tables with interpretations thereof. Shoppers visited a combination of shopping centres for shopping and entertainment needs. Hence, the responses indicated in the tables reflect the combined results of visits to the various shopping centres by the same shoppers.

Data Analysis

An overwhelming majority that is 343 (77.3%) of the respondents visited the shopping centres with family, while 101 (22.7%) of the respondents did not, indicating that shopping has increasingly become a family event, with the shopping centres being frequented mostly over week-ends by families.

Shoppers were accompanied by 3 to 4 members on average when they visited the shopping centre with families. Family shopping is more prevalent at the Pavilion and the Gateway Centres than at the other centres in KwaZulu-Natal. The great range of leisure and entertainment facilities leaves no doubt that these centres are designed for families and friends.

The results also reveal the age dispersion of the respondents from the sample: 146 (32.6%) are between 18 – 24 years, 128 (28.6%) are between 25 – 34 years, 125 (27.9%) are between 35 – 49 years, 40 (8.9%) are between 50 – 59 years and 9 (2%) are 60 plus. The majority (89.1%) of the shoppers are between 18 and 49 (young to middle aged). Senior citizens constitute a small proportion of shoppers at shopping centres.

An overwhelming majority of shoppers have at least matriculated with at least 67.9 % having a post matric qualification. Increasing educational levels which have a commensurate increase in income have a major impact on shoppers' lifestyles. The distribution of income shows that only 81 (19.3%) of the respondents earned an income in excess of R10000. The majority 340 (59.8%) of the respondents earned less than R10000.

The results illustrate that a significant proportion of respondents, that is, 166 (36.3 %) visit the shopping centres once a week. Furthermore, 148 respondents (32.4 %) visit the shopping centres as required. The results indicate that 66.5% of the respondents visit the centres at least fortnightly.

The results also suggest that 192 (42.5 %) of the respondents spend 1 – 2 hours at the shopping centres while a further 145 (32.1 %) of the respondents indicated that 3 – 4 hours were spent at the shopping centres, and 88 (19.5 %) of the respondents indicated that they spent more than 4 hours at shopping centres.

While 58 (13.1%) of the respondents strongly disagreed, that distance from home affects their choice of a shopping centre, the majority of the respondents (55.4%) are of the view that the distance from home influences their decision to shop at shopping centres.

According to the results, 329 (72.8 %) of the respondents use private vehicles to travel to shopping centres, while 90 (19.9 %) of the respondents use the taxis to travel to shopping centres suggesting that patronage at shopping centres is highly dependent upon private vehicle usage.

Furthermore, 60 (14%) of the respondents indicated that location is important while 19.9% of the respondents indicated that location was

moderately important, indicating that at least 88.1% consider the location of the shopping centre to be a significant factor in choosing where to shop.

According to the results, 224 (54.5 %) of the respondents stated that easy accessibility to shopping centres is very important, while 108 (26.3%) of the respondents stated that it is moderately important. Since most shopping centres are not on the designated bus routes, other modes of transport determine their accessibility. The results indicate that improved accessibility to shopping centres should be given careful consideration by owners and stakeholders of the shopping centres concerned.

With the increased importance accorded to persons with disabilities in the South African economy, it is acknowledged that various facilities, especially at shopping centres, need to be made accessible to those with disabilities, since they have the resources, the need and the propensity to visit these shopping centres. The results reveal that 154 (41.6%) of the respondents indicated that the facilities for disabled persons at shopping centres are very important when selecting a shopping centre, while 95 (25.7%) of the respondents indicated that these facilities are least important. The access to public places by disabled persons has become mandatory through legislation, but since some shopping centres were designed many years ago, access by disabled persons is still difficult. The frail and the aged who are becoming an increasingly significant population group would also benefit from better access to the facilities for the disabled and the frail who also prefer to visit the centres for leisure purposes since the security risk is perceived to be higher in other public places.

The results show that 182 (44.5 %) of the respondents indicated that the types and designs of shops within the shopping centres are very important, while 111 (27.1%) of the respondents indicated types and designs are moderately important. Patronage at shopping centres is highly dependent upon the types and designs of shops within the shopping centres, since they contribute to the ambience and these determine the convenience or ease with which shopping can be accomplished. Efficient design and layout present an image of the shopping centre which may suggest an upmarket or sophisticated environment and it also promotes free flow of shoppers without congestion at strategic nodes.

Table 1.2: The Importance of the Types and Designs of Shops within the Shopping Centres

Importance	Pavilion (%)	Musgrave (%)	Gateway (%)	Sanlam centre (%)	La Lucia (%)	Overport city (%)	Chatsworth centre (%)	Total frequency	Total percent
Least	2.7		1.2	1.2	.5		.2	24	5.9
Slightly	1.5		1.7	.5	.5	.7	2.2	29	7.1
Important	5.4	.7	3.4	.7	1.0	1.7	2.4	63	15.4
Moderately	8.8	1.7	5.4	1.0	3.4	1.2	5.6	111	27.1
Very	15.4	3.7	6.8	2.9	7.6	1.2	6.8	182	44.5
Total	33.7	6.1	18.6	6.4	13.0	4.9	17.4	457	100

The results also reveal that 178 (44.8%) of the respondents stated that the shopping centre image is very important. Prices within shopping centres affect the choice of shopping centres as well since 172 (43.8%) of the respondents indicated that price levels within the shopping centres are very important. Shopping centres with a tenant mix which is perceived as having lower prices are frequented more often by the majority who are price conscious. It emerged from the results that 213 (53.5%) of the respondents consider the merchandise/ product range offered by the different shopping centres as being a draw-card to the shopping centre.

The results show that the majority, 318 (77.8%), of the respondents indicated that security and safety is very important and affect their choice of shopping centres. Security within and around the shopping centres is paramount since it reduces the levels of anxiety of shoppers and it creates a safe environment within which to spend their money. Recently, South African consumers have increasingly witnessed armed robberies of major tenants or have been victims of theft within shopping centres, resulting in an increased sense of anxiety for their safety when visiting the shopping centres.

Although shopping centre management have attempted to implement various measures to increase security, consumers still need to be mindful of the generally high risk that exists in the country as a whole.

The results also reveal the influence of consumer traffic/crowding within shopping centres. Surprisingly, a majority, 214 (53.5%), of the respondents indicated that consumer traffic / crowding is very important to their shopping experiences, presumably because they feel safer in numbers and crowding affirms the image and attraction of the shopping centre.

The prevalence of food courts and restaurants at shopping centres is becoming a necessary feature in most shopping centres, since more consumers are regarding dining as a form of leisure or entertainment rather than just an appeasement of their hunger, especially when they are with friends and family. This is also consistent with the new orientation of the shopper who views the shopping centre as a place for leisure and entertainment in addition to shopping for goods and services.

Friendly staff within the shopping centres are important to 241 (60.1%) of the respondents. Since shopping is often perceived as a leisure activity as well, pleasant staff enhance the experience while unpleasant staff contribute to a frustrating shopping experience.

According to the results, the majority 239 (59.8%) of the respondents indicated that one-stop shopping within the shopping centre is very important while 24 (6%) of respondents stated that it is least important. Patronage at shopping centres is highly dependent upon the concept of one-stop shopping. An overwhelming majority of the respondents, that is, 330 (79.3%) stated that the cleanliness of shopping centres is very important.

The general decline within the CBDs as a result of dirty streets from vendor's offerings has prompted many shoppers to choose shopping centres which have a cleaner appearance and which are managed by the private shopping centre management rather than the municipality. Leisure and entertainment facilities within the shopping centres are important to 236 (58.0%) of the respondents. These facilities are often used by older teenage children and the youth in general whose main purpose for visiting the shopping centre is entertainment and dining rather than shopping, in which their parents engage while they are entertained. Increasingly, adults too are visiting the shopping centres primarily for entertainment at specific times of the day or weekends.

Child-care facilities within shopping centres are considered to be very important to 136 (37.3%) of the respondents. Parents find that they can shop better without having to mind their children throughout their shopping since children tend to be disruptive while parents carry out their purchases. Additional facilities such as information kiosks, and centre court promotions within the shopping centres are very important to 373 (40.5%) of the respondents.

In addition to the descriptive statistics above, inferential statistics produced further results worthy of note. Generally, correlation analysis examines the strength of the identified association between variables. Pearson's Correlation Matrix indicates the direction, strength and significance of the bivariate relationship among the variables in the study.

The following table presents values of r that correlate (Question 3), that is , the distance from home to the shopping centre and (Question 10.1 – Question 10.12), that is the shopping centre factors considered to be important when selecting a shopping centre.

Table 1.3: Correlations of Q3 the Distance from Home to the Shopping Centre and Q10 the Shopping Centre Factors Considered to be Important when Selecting a Shopping Centre

	Q3
Q1 0.1: Location Pearson Correlation	.136*
Sig. (2-tailed)	.005
N	424
Q 10.2: Physical Surroundings Pearson Correlation	.070
Sig.(2-tailed)	.161
N	403
Q 10. Accessibility Pearson Correlation	.060
Sig.(2-tailed)	.225
N	407
Q10.4: Facilities for Disabled Persons Person Correlation	.121*
Sig. (2-tailed)	.021
N	366
Q 10.5: Parking facilities Pearson Correlation	.096
Sig.(2-tailed)	.051

N	411
Q10.6: Types and Designs of shops Pearson Correlation	.010
Sig.(2-tailed)	.847
N	404
Q10.7: Atmosphere / Ambience Pearson Correlation	-.015
Sig. (2-tailed)	.772
N	395
Q10.8: Design and Layout of the shopping centre Pearson Correlation	.040
Sig. (2-tailed)	.429
N	395
Q10.9: Shopping centre image Pearson Correlation	.026
Sig. (2-tailed)	.611
N	393
Q10.10: Promotional events Pearson Correlation	.054
Sig. (2-tailed)	.290
N	383
Q 10.11: Pricing Strategies among Retailers Pearson Correlation	-.009
Sig. (2-tailed)	.862
N	389
Q10.12: Merchandise/ Product range Pearson Correlation	.024
Sig. (2-tailed)	.628
N	394

* Correlation is significant at the 0.01 level (2-tailed).

** Correlation is significant at the 0.05 level (2-tailed).

- Since correlation is the measure of the extent to which 2 variables share variation between them, the results of table 1.2 will be explained in this context. Generally, if the correlation coefficient r is greater than 0.8, the relationship between variables is strong, if it is between 0.4 and 0.8 it is moderate and if it is less than 0.4 the relationship is weak.
- The statements described in detail in Table 1.2 (Q10.1, Q10.4) when correlated with statement Q3, have p values of 0.005 and 0.021,

respectively. These p values are less than 0.05; they indicate that Q10.1 and Q10.4 when correlated with Q3 are significant. The positive sign in front of Q10.1 and Q10.4 indicates a positive correlation. However, the Pearson product correlation coefficient r values of 0.136 and 0.121 indicate a weak correlation between Q10.1, Q10.4 and Q3.

- The statements Q10.2, Q10.3, Q10.5, Q10.6, Q10.7, Q10.8, Q10.9, Q10.10, Q10.11, and Q10.12 with Q3 have p values which are above 0.05, which indicates that these statements do not have statistically significant correlations with Q3, which is the distance away from the shopping centre.
- Table 1.4 explores the relationship with the rest of the factors as investigated in the study.

Table 1.4: Correlations of Q3 the Distance from Home to the Shopping Centre and Q10 the Shopping Centre Factors Considered to be Important when Selecting a Shopping Centre

		Q 3
Q 10.13: Security and safety	Pearson Correlation Sig. (2-tailed) N	.024 .625 405
Q 10.14: Consumer traffic / Crowding	Pearson Correlation Sig. (2-tailed) N	.052 .302 394
Q 10.15: Banking Facilities	Pearson Correlation Sig. (2-tailed) N	.052 .302 394
Q 10.16: Food Court	Pearson Correlation Sig. (2-tailed) N	.079 .114 400
Q 10.17: Shopping Centre Newsletter	Pearson Correlation Sig. (2-tailed) N	.080 .119 377
Q 10.18: Friendly staff	Pearson Correlation Sig. (2-tailed) N	.059 .243 396

Q 10.19: Good service	Pearson Correlation Sig. (2-tailed) N	.006 .902 400
Q 10.20 One stop shopping	Pearson Correlation Sig. (2-tailed) N	.006 .902 400
Q 10. 21: Cleanliness	Pearson Correlation Sig. (2-tailed) N	.006 .902 400
Q 10.22: Leisure and Entertainment	Pearson Correlation Sig. (2-tailed) N	.007 .895 401
Q 10.23: Child care facilities	Pearson Correlation Sig. (2-tailed) N	.009 .059 361

The correlation results for Table 1.4 reveal that:

The statements described in detail in Table 1.3 Q10.13 to Q10.23 when correlated with Q3 have p values, which are above 0.05. Since these p values are greater than 0.05 they indicate that Q10.13, Q10.14, Q10.15, Q10.16, Q10.17, Q10.18, Q10.19, Q10.20, Q10.21, Q10.22, Q10.23 with Q3 do not have statistically significant correlations, that is, the existence of these facilities does not necessarily draw people from great distances away.

Table 1.5: Q10 the Shopping Factors Considered to be Important when Selecting a Shopping Centre**Correlations**

	q10.15	q10.16	q10.17	q10.18	q10.19	q10.20	q10.21	q10.22	q10.23
q10.1 Pearson Correlation	.353*	.185*	.061	.349*	.411*	.260*	.291*	.137*	.126*
Sig. (2-tail)	.000	.000	.238	.000	.000	.000	.000	.006	.017
N	398	399	378	397	398	398	405	399	361
q10.2 Pearson Correlation	.314*	.206*	.119*	.329*	.389*	.256*	.336*	.202*	.185*
Sig. (2-tail)	.000	.000	.022	.000	.000	.000	.000	.000	.000
N	393	392	374	390	388	389	397	391	357
q10.3 Pearson Correlation	.279*	.166*	.023	.284*	.373*	.238*	.268*	.211*	.122*
Sig. (2-tail)	.000	.001	.657	.000	.000	.000	.000	.000	.022
N	391	390	373	389	389	391	396	392	356
q10.4 Pearson Correlation	.273*	.272*	.344*	.310*	.275*	.184*	.097	.217*	.535*
Sig. (2-tail)	.000	.000	.000	.000	.000	.001	.064	.000	.000
N	360	359	349	356	359	354	364	358	343
q10.5 Pearson Correlation	.359*	.231*	.058	.411*	.418*	.277*	.280*	.258*	.187*
Sig. (2-tail)	.000	.000	.265	.000	.000	.000	.000	.000	.000
N	393	395	375	392	393	392	401	397	358
q10.6 Pearson Correlation	.204*	.277*	.171*	.178*	.236*	.177*	.244*	.263*	.240*
Sig. (2-tail)	.000	.000	.001	.000	.000	.000	.000	.000	.000
N	394	393	374	390	391	391	394	391	357
q10.7 Pearson Correlation	.199*	.278*	.165*	.318*	.369*	.259*	.271*	.319*	.226*
Sig. (2-tail)	.000	.000	.001	.000	.000	.000	.000	.000	.000
N	389	387	371	383	384	387	390	384	352

q10.8 Pearson Correlatio Sig. (2-tai N	.259* .000 383	.285* .000 383	.144* .006 365	.300* .000 379	.356* .000 382	.275* .000 382	.300* .000 386	.321* .000 382	.273* .000 347
q10.9 Pearson Correlatio Sig. (2-tai N	.298* .000 385	.234* .000 383	.236* .000 367	.312* .000 380	.340* .000 383	.262* .000 384	.275* .000 389	.324* .000 384	.276* .000 351
q10.1 Pearson Correlatio Sig. (2-tai N	.205* .000 379	.343* .000 377	.427* .000 364	.297* .000 373	.259* .000 375	.211* .000 376	.200* .000 381	.352* .000 376	.458* .000 348
q10.1 Pearson Correlatio Sig. (2-tai N	.211* .000 381	.246* .000 380	.191* .000 366	.398* .000 376	.353* .000 379	.236* .000 383	.272* .000 388	.287* .000 379	.306* .000 350
q10.1 Pearson Correlatio Sig. (2-tai N	.319* .000 385	.278* .000 384	.108* .039 369	.352* .000 383	.415* .000 385	.306* .000 388	.315* .000 386	.254* .000 383	.197* .000 351
q10.1 Pearson Correlatio Sig. (2-tai N	.549* .000 391	.365* .000 391	.033 .521 373	.505* .000 388	.616* .000 391	.326* .000 388	.639* .000 397	.354* .000 390	.157* .003 355
q10.1 Pearson Correlatio Sig. (2-tai N	.432* .000 386	.349* .000 387	.121* .020 371	.356* .000 383	.314* .000 386	.266* .000 389	.346* .000 391	.198* .000 387	.184* .001 353

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

The correlation results in Table 1.5 reveal the following:

- The statement Q10.1: Location when correlated with statements: Q10.15 Banking Facilities, Q10.16: Food Court, Q10.17: Shopping Centre Newsletter, Q10.18: Friendly Staffs, Q10.19: Good Service, Q10.20: One Stop Shopping, Q10.21: Cleanliness and Q10.22: Leisure and Entertainment and Q10.23: Child Care Facilities have p values of 0.00. These p values are less than 0.05 which is significant and that Q10.1 is positively correlated with Q10.15, Q10.16, Q10.18, Q10.19, Q10.20, Q10.21, Q10.22, and Q10.23 since the Pearson product correlation coefficient r values are 0.353, 0.185, 0.349, 0.411, 0.260, 0.291, 0.137, 0.126 which indicate moderate and medium correlation between Q10.1 and Q10.15, Q10.16, Q10.18, Q10.19, Q10.20, Q10.21, Q10.22, and Q10.23;
- The statements Q10.17 and Q10.1 have a p value of 0.238. Since the p value is above 0.05, it indicates that Q10.1: Location of the centre is not positively correlated with the Food Court.
- The statement Q10.2: Physical Surroundings when correlated with statements Q10.15: Banking Facilities, Q10.16: Food Court, Q10.17: Shopping Centre Newsletter, Q10.18: Friendly Staffs, Q10.19: Good Service, Q10.20: One Stop Shopping, Q10.21: Cleanliness and Q10.22: Leisure and Entertainment and Q10.23: Child Care Facilities have values of 0.000. The p values are less than 0.05. This finding indicates that these variables have a positive correlation. The Pearson product correlation coefficient r values of 0.314, 0.206, 0.119, 0.329, 0.398, 0.256, 0.336, 0.202, and 0.185 indicate moderate and medium correlations between these variables.
- The statement Q10.3 Accessibility when correlated with statements Q10.15: Banking Facilities (p = 0.0000, Q 10.16: Food Court (p = 0.001), Q10.17: Shopping Centre Newsletter (p = 0.000), Q10.18: Friendly Staffs (p = 0.000), Q10.19: Good Service (p = 0.000), Q10.20: One Stop Shopping (p = 0.000), Q10.21: Cleanliness (p = 0.000), Q10.22: Leisure and Entertainment (p = 0.000) and Q10.23: Child Care Facilities (p = 0.022) have p values less than 0.05 which indicate that

these variables have a positive correlation. The Pearson product correlation coefficient r values are 0.279, 0.166, 0.284, 0.373, 0.238, 0.268, 0.211 and 0.122, respectively, which indicate moderate and medium correlation between these variables.

- The statement Q10.4: Facilities for Disabled Person with statements Q10.15: Banking Facilities, Q10.16: Food Court, Q10.17: Shopping Centre Newsletter, Q10.18: Friendly Staffs, Q10.19: Good Service, Q10.20: One Stop Shopping, Q10.21: Cleanliness, Q10.22: Leisure and Entertainment and Q10.23; Child Care Facilities have p values of 0.000. These p values are less than 0.05; they indicate that these variables have positive correlation. The Pearson product correlation coefficient r values are 0.273, 0.272, 0.344, 0.310, 0.275, 0.184, 0.217, and 0.535 which indicate moderate and medium correlation between these variables.
- The statement Q10.5: Parking Facilities with statements Q10.15: Banking Facilities, Q10.16: Food Court, Q10.17: Shopping Centre Newsletter, Q10.18: Friendly Staffs, Q10.19: Good Service, Q10.20: One Stop Shopping, Q10.21: Cleanliness, Q10.22: Leisure and Entertainment and Q10.23: Child Care Facilities have p values of 0.000. The p values are less than 0.05; they indicate that these variables have a positive correlation. The Pearson product correlation coefficient r values are 0.359, 0.231, 0.411, 0.418, 0.277, 0.280, 0.258, and 0.187 which indicate moderate and medium correlation between these variables.
- The statement Q10.6: Types and Designs of Shops with statements Q10.15; Banking Facilities, Q10.16: Food Court, Q10.17: Shopping Centre Newsletter, Q10.18: Friendly Staffs, Q10.19: Good Service, Q10.20; One Stop Shopping, Q10.21: Cleanliness, Q10.22: Leisure and Entertainment and Q10.23 Child Care Facilities has p value 0.000. The p value is less than 0.05; it indicates these variables have a positive correlation. The Pearson product correlation coefficient r values are 0.204, 0.207, 0.171, 0.178, 0.236, 0.171, 0.244, 0.263, 0.240, which indicate moderate and medium correlation between these variables.

- The statement Q 10.7: Atmosphere/Ambience with statements have Q1 0.15; Banking Facilities, Q 10.16: Food Court, Q 10.17: Shopping Centre Newsletter, Q10.18: Friendly Staffs, Q 10.19: Good Service, Q 10.20: One Stop Shopping, Q10.21: Cleanliness, Q 10.22: Leisure and Entertainment and Q10.23 Child Care Facilities p have values of 0.000. The p values are less than 0.05, they indicate that these variables have a positive correlation. The Pearson product correlation coefficient r values are 0.199, 0.278, 0.165, 0.318, 0.369, 0.259, 0.271, 0.319, and 0.226 which indicate moderate and medium correlation between variables.
- The statement Q10.8: Design and Layout of the shopping Centre with statements Q10.15: Banking Facilities, Q10.16: Food Court, Q10.17: Shopping Centre Newsletter, Q10.18: Friendly Staffs, Q10.19: Good Service, Q10.20: One Stop Shopping, Q10.21: Cleanliness, Q10.22: Leisure and Entertainment and Q10.23; Child Care Facilities have p values of 0.000. The p values are less than 0.05; they indicate that these variables have a positive correlation. The Pearson product correlation coefficient r values are 0.259, 0.285, 0.144, 0.300, 0.356, 0.275, 0.3000.321, 0.273 that indicate moderate and medium correlation between these variables.
- The statement Q10.9: Shopping Centre Image with statements Q10.15: Banking Facilities, Q10.16: Food Court, Q10.17: Shopping Centre Newsletter, Q10.18: Friendly Staffs, Q10.19: Good Service, Q10.20: One Stop Shopping, Q10.21: Cleanliness, Q10.22: Leisure and Entertainment and Q10.23 Child Care Facilities p values of 0.000. The p values are less than 0.05; they indicate these variables have a positive correlation. The Pearson product correlation coefficient r values are 0.298, 0.234, 0.236, 0.312, 0.340, 0.262, 0.275, 0.324, and 0.276 which indicate moderate and medium correlation between these variables.
- The statement Q10.10: Promotional Events with statements Q10.15: Banking Facilities, Q10.16: Food Court, Q10.17: Shopping Centre Newsletter, Q10.18: Friendly Staffs, Q10.19: Good Service, Q10.20; One Stop Shopping, Q10.21: Cleanliness, Q10.22: Leisure and Entertainment

and Q10.23: Child Care Facilities p values of 0.000. The p values are less than 0.05; they indicate these variables have a positive correlation. The Pearson product correlation coefficient r values are 0.205, 0.343, 0.427, 0.297, 0.259, 0.211, 0.200, 0.352, and 0.458 which indicate moderate and medium correlation between these variables.

- The statement Q10.11: Pricing Strategies among Retailers with statements Q10.15: Banking Facilities, Q10.16: Food Court, Q10.17: Shopping Centre Newsletter, Q10.18: Friendly Staffs, Q10.19: Good Service, Q10.20: One Stop Shopping, Q10.21: Cleanliness, Q10.22: Leisure and Entertainment and Q10.23: Child Care Facilities have p values of 0.000. The p values are less than 0.05; indicating that these variables have a positive correlation. The Pearson product correlation coefficient r values are 0.211, 0.246, 0.191, 0.398, 0.353, 0.236, 0.272, 0.287 and 0.306 which indicate moderate and medium correlation between these variables.
- The statement Q10.12: Merchandise/Product Range with statements Q10.15: Banking Facilities, Q10.16: Food Court, Q10.17: Shopping Centre Newsletter, Q10.18: Friendly Staffs, Q10.19: Good Service, Q10.20: One Stop Shopping, Q10.21: Cleanliness, Q10.22: Leisure and Entertainment and Q10.23 Child Care Facilities have p values of 0.000. The p values are less than 0.05; it indicates these variables have a positive correlation. The Pearson product correlation coefficient r values are 0.319, 0.278, 0.108, 0.352, 0.415, 0.306, 0.315, 0.254, and 0.197 which indicate moderate and medium correlation between variables.
- The statement Q10.13: Security and Safety with statements Q10.15: Banking Facilities, Q10.16: Food Court, Q10.17: Shopping Centre Newsletter, Q10.18: Friendly Staffs, Q10.19: Good Service, Q10.20: One Stop Shopping, Q10.21: Cleanliness, Q10.22: Leisure and Entertainment and Q10.23: Child Care Facilities have p values of 0.000. The p value is less than 0.05; it indicates these variables have a positive correlation. The Pearson product correlation coefficient r values are 0.549, 0.365, 0.505, 0.616, 0.326, 0.639, 0.354, and 0.257 which indicate moderate and medium correlation between variables.

- The statement Q 10.14: Consumer traffic/Crowding with statements Q10.15: Banking Facilities, Q 10.16: Food Court, Q 10.17: Shopping Centre Newsletter, Q 10.18: Friendly Staffs, Q 10.19: Good Service, Q 10.20: One Stop Shopping, Q 10.21: Cleanliness, Q 10.22: Leisure and Entertainment and Q 10.23: Child Care Facilities have p values of 0.000. The p values are less than 0.05; they indicate these variables have a positive correlation. The Pearson product correlation coefficient r values are 0.432, 0.349, 0.121, 0.356, 0.314, 0.266, 0.346, 0.198 and 0.184 which indicate moderate and medium correlation between variables.

The purpose of this study was to advance the understanding of consumer behaviour in shopping centres through an identification of how consumers reacted to several situations, particularly physical surroundings, and the impact of these antecedents on consumer behaviour. A fundamental observation is that shopping centres operate in a competitive environment, and are constantly adapting to the dynamics of the marketing environment in order to ensure competitive sustainable advantages.

A detailed study of the consumer decision-making process is reflected in the identification of the five steps which consumers encounter in the decision-making of the selection of shopping centres. These steps, adapted from Hawkins *et al.* (2004:506), are:

1. Problem recognition where situational influences, namely, physical surroundings and their antecedents, affect the consumers' current situation regarding shopping centres;
2. Information search, where consumers search for and acquire information about the facilities, services and product offerings of different shopping centres, with a view to fulfilling the consumption and purchase situations that exist;
3. Evaluation of alternatives where the information collected by consumers is carefully analysed before a final selection of the shopping centre is made for a shopping and entertainment experience;

4. The Purchase Experience where consumers experience the actual shopping centres' facilities, their tenant mix and product offerings and services together with the promotional activities within the shopping centres; and
5. The Post-purchase evaluation where it is believed that after visiting the shopping centre, the consumer might experience some level of satisfaction or dissatisfaction that requires further action. Marketers, managers and stakeholders of shopping centres must be cognizant of the post - purchase behaviour and consider it as an opportunity to reinforce preference for the shopping centre by dealing with it in a favourable manner in order to generate shopping centre loyalty.

The post- purchase evaluation step can be regarded as the beginning of a new decision – making process. Will the consumer consider re-visiting the shopping centre? This consideration is fundamental in ensuring that consumer loyalty is developed by routine visits to a particular shopping centre. According to Arnould *et al.* (2004:660), consumers are adaptive decision- makers. Consumers use many different strategies for making decisions: some simple, some complex, some based primarily on cognitions and others based more on feelings and emotions. Most consumers, rather than making optimal choices, gain some level of satisfaction by making acceptable choices.

Discussion on Critical Questions and Key Findings Based on the Study

The critical question that was addressed in this study was, what factors influence the consumers' decision-making process in the selection of shopping centres. This is substantially answered in the literature survey as well as the empirical study as follows:

- The essential features considered by shoppers when selecting a shopping centre were one-stop shopping (cited by 59.8%), promotional events (30.8%), pricing strategies among retailers (43.8%), product range (53.5%),

consumer traffic (53.5%), cleanliness (79.3%), types and designs of shops (44.5%).

- The finding reveals that location, accessibility, facilities for the disabled and frail, parking, types and designs of shops, shopping centre image, promotional events, price levels, product range, security and safety, consumer traffic, banking facilities, food courts, staff, service level, one-stop shopping, cleanliness, leisure and entertainment and child care facilities are important factors in the consumers' decision-making process in the selection of shopping centres. Clearly, the 7 p's, that is price, promotion product, place, people, processes and physical layout, or the extended marketing mix, has an impact on the patronage of the various shopping centres.

The subsidiary questions restated here were also answered in the empirical study as follows:

- How does the internal and external environment of shopping centres impact on consumers' choice of shopping centres?

A consumer's purchase decision and choice of shopping centres are influenced by numerous individuals as well as environmental factors. Some of the individual predispositions which influence the purchase decisions and choice of shopping centres are personal motivation, perception, levels of education, attitudes and personality. Each of these factors is interdependent and each plays a vital role in the ultimate choice of shopping centres. An understanding of these factors as well as the demographic, cultural, technological, economic and security factors are, therefore, required to predict consumer behaviour more accurately, and to then respond to environmental factors to optimally serve the consumer.

- For what purposes do consumers visit the various shopping centres?

A significant proportion of consumers (42.9%) visit the various shopping centres mainly for shopping, while some consumers (15.9%) visit the various shopping centres for both shopping and entertainment, such as going to the cinema and dining. Therefore, the various shopping centres serve as multiple- purpose- centres for consumers' needs, wants and desires.

- How satisfied are customers with the various shopping centres?

The majority of shoppers are satisfied with the various shopping centres' facilities and product offerings. The provision of fast and efficient service and friendly staff within the shopping centre together with an effective marketing mix or extended marketing mix have resulted in shopping or leisure and entertainment becoming a personally rewarding activity rather than a chore.

- What marketing strategies are employed to meet consumer's needs and desires?

A combination of an optimal marketing mix, shopping centre image and safety and security focussing on the types and designs of shops within the centres, are seemingly the strategies that are used by marketers to meet consumers' needs and desires. It emerged that shopping centres with a tenant mix which is perceived as having lower prices are frequented more often by the majority who are price conscious. It also emerged from the results that 213 (53.5%) of the respondents consider the merchandise/ product range offered by the different shopping centres as being a draw-card to the shopping centre

In addition the shopping centre image contributes to the ambiance and the layout determines the convenience or ease with which shopping can be accomplished. Efficient design and layout present an image of the shopping centre which may suggest an upmarket or sophisticated environment and it may also promote the free flow of shoppers without congestion at strategic nodes.

The results showed that the majority, 318 (77.8%), of the respondents indicated that the security and safety is very important and affects their choice of shopping centres.

- How does private transportation impact on patronage of shopping centres?

The results revealed that patronage of shopping centres was highly dependent on private vehicle usage where consumers predominantly use their own vehicles or use taxis to get to the centres. In South Africa, the absence of a safe and reliable public transport system within the suburban areas makes the dependence on private transport inevitable.

- How do one-stop shopping centres contribute to family experiences? An overwhelming majority of shoppers (77.3%) visited the shopping centres with family predominantly over the weekends. They are accompanied on average by 3-4 family members. The Pavilion Shopping Centre (19.6%) and Gateway (14.3%) were the most popular amongst shoppers in the greater Durban area and were more popular meeting places for family, for recreation and entertainment, than other shopping centres.

- Do males and females differ in their preferences for the various facilities within the shopping centres?

This study showed that males and females do not have different expectations of shopping centres suggesting that marketers can target their efforts at them as a single group rather than as two separate groups of shoppers.

Limitations of the Study

- The research is restricted to suburban regional shopping centres in the greater Durban area and, therefore, the results of the study cannot be generalized to all South African consumers who shop predominantly at other types of shopping centres in different provinces in South Africa.

- The sample represented English-speaking consumers only, since the questionnaire was designed in English and could not elicit the views of those who cannot converse in English.

The following are recommendations based on the findings:

- Shopping centre developers and managers must strive towards an optimum tenant mix, desirable product offerings and services which are key factors for the viability of shopping centres in the competitive shopping centre industry;

- Due to the lack of interest in shopping centre newsletters, creative promotional configurations could add to the attractions of shopping centres as well as other elements of promotion such as public relations, advertising, sponsorships and sales promotion;

- The tenant mix of shopping centres must be reviewed and adapted regularly in order to meet the ever changing needs and wants of modern consumers;
- Shopping centre research must be an on-going process to improve the shopping centre marketing mix and meet the requirements of shopping centre management, stakeholders and consumers; and
- Since consumers expect knowledgeable and professional staff, on-going training for shopping centre staff is vital to establish strong relationships and build customer loyalty.

Conclusion

The success or failure of the shopping centre depends on consumers, the satisfaction of their wants and desires and their willingness to patronize these shopping centres. Hence, it was important to investigate the factors that influence the consumers' decision-making process in the selection of shopping centres. It is the consumer who weighs the advantages and disadvantages of shopping centres as to what they can obtain in terms of the product offering, price and convenience.

Modern 'one stop' shopping centres or lifestyle centres should be planned with the aim of providing for the convenience, needs and wants of shoppers, such that it is possible for patrons to do their shopping in comfort and in a secure environment. Marketers can make shopping and family outings a pleasure by utilizing the shopping centre marketing mix and the entertainment options creatively.

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e-Lumination - Evaluating the Quality of Free Online Information for Decision-making

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Abstract

Information is the basis of all communication and decision making. This paper explores free and fee based sources of information on the World Wide Web. The perception exists that if you pay for it, it has to be acceptable. The free sources tend to be doubtful in that the content has not been reviewed or undergone academic rigor; however, there is valuable free information available online. A number of evaluation techniques were examined and a new e-luminator model has been developed as a new approach to evaluating free online information sources. The model promises quicker and easier evaluation of online information. For researchers and decision makers on a shoestring budget, proper evaluation of free information can reap rich rewards.

Keywords: Online Information, Evaluating Free Information, Integrating Free & Fee Information Sources, Information Overload

Introduction

In 1994, in his report, Bangemann spoke about creating a revolution based on information that would change the way people work and live together within the information society. American Vice President Al Gore (1996) proposed a Global Information Society where every person, even the remotest parts of the globe, would have access to the largest advanced library in the world that existed in cyberspace. The Internet is the window on the world of

information. Using a search engine or other web search tool, one can obtain information on just about any topic.

According to Owen (2002), Americans are literally drowning in information. Information is being churned out and broadcast to them via the Internet, cable TV, e-mail, faxes, print media and cellular phones. This phenomenon he calls the information glut. Lake (2002) suggests that 'information chaos' reached its peak in 1996/7, when the explosion of the Internet took place. He goes on further to suggest that sorting out the wheat from the chaff is the challenge facing online information users. He, however, suggests that businesses are learning to cope with this 'superabundance' of data. According to Saffo (2002), the information glut is not the cause of problems, but the inability to process that information into useful knowledge is. This is supported by Mulling (2002), who suggests that even though the electronic age allows one to possess all the knowledge in the world, one is not capable of processing all of it.

The late Pope John Paul (2002) described the Internet as an unending flood of information. However, he warned that whilst the net offered access to immense knowledge, it did not necessarily provide wisdom. He went on further to ask that authorities take responsibility for ensuring that the Internet served the common good of man and did not become a source of harm.

It is evident that the Internet has made access to information more efficient, which, if used properly would empower people with knowledge to be more effective and efficient in what they do. Information on the Internet can be accessed from free and fee based sources. Due to the ease with which one can publish online one asks the question, is the information on the Internet reliable and how does one measure this? In answering this question, this paper examines the following issues:

- Who are the users of information and what are their information needs?
- What are the differences between Free and Fee- based sources?
- What are the pros and con's of the sources of information?
- How does one evaluate free information?

In addition to the above, recommendations are sought for conducting effective searches.

Users of Information and their Information Needs

In trying to answer the question ‘who are the users of information?’ the answer is simply everyone. The users of information could be anyone ranging from individuals to groups and special interest groups, doctors, lawyers, teachers among others need information. For the purposes of this study, there are four groups that were identified, into which users of information could be categorised, Governments, Businesses, Academics and Recreational users. The information needs of these groups differ from very basic ‘fun stuff’ to very important strategic information.

Governments: Require information regarding changes in legislation in other countries, in order to ensure that their own governance structures and practices are in-line with international best practice. The information sought has to be absolutely accurate, reliable, and sourced directly from the producers of the information.

Business: Managers require information to take decisions (Mintzberg 1979). Some decisions require minimal information and do not have to be very accurate, as intuition plays a major part in the decision. However, long-term strategic decision making requires highly reliable information (Steiner, Miner & Grey 1989). This would require paying for information which impacts on the bottom line.

Academics: Academics are generally poorly paid lecturers or unemployed students who need fairly accurate information. The information does not have to be very accurate because it serves as a background for their studies and provides a broad understanding of a topic which the researcher could use to conduct an empirical study or experiment that would test the validity of the existing findings.

Recreational Users: These users have no clear purpose for using information and take a haphazard approach to obtaining it. Information gained from the newspaper and informal sources are selected according to one’s interests. Authenticity and reliability are not a pre-requisite. The more dramatic or sensational the information, the ‘juicier’ the conversation, one merely has to visit the Internet to get juicy information. Some recreational users have a

purpose for finding information especially information related to hobbies such as baking, sport, stamp collecting among others. These users take a more structured approach to obtaining free information.

It is evident from the above that information needs differ among individuals and among the groups of users, which would suggest that they would consult different sources of information. The ability and willingness to pay for information, or obtain it free, would differ as well.

Free and Fee-Based Sources

It is clear from the terminology that free information has no cost attached to the acquisition of information whereas fee based information suggests that information can only be obtained if it has been paid for. This distinction is very simple, and is no different when applied to Internet based sources of information except that mounds of information have to be sifted through in order to find valuable information (Tillman 2003).

Free Information

‘Free information is an illusion. But it would take a far greater act of magic than I can conjure to take away this popular myth’ (Kaser 2000). Information has been free of charge ever since information was made available in public domains such as the library. All that the Internet has done is set free information free, making it more accessible than in the past (Kaser 2000). The ‘free area’ of the Internet is accessed through subject directories such as Yahoo and search engines such as Google (Is the Internet ... 2001). The hidden web which is not accessed by search engines and subject directories provides up to 95% of free information (Bergman 2001). Free information is made available by individuals who have personal web pages, governments who provide Acts and Bills online at no cost and businesses who put ‘appetisers’ online with the intention of attracting new business. Kaser (2000), makes free text available on the web with the hope that people will subscribe to his newsletters or purchase his books.

Advantages of Free Information

Most information on the net is unedited and does not undergo peer reviews, resulting in quicker publication than being published in journals, books or magazines. Current topical issues, company information and articles by authors who do not have access to mainstream publishing are provided an avenue for information dissemination (Advantages and Disadvantages ... 2004). Some organisations make draft information available online which surprisingly may be enough to satisfy the users' needs. Being free, the information will not impact on the bottom line or on the pockets of independent users.

Disadvantages of Free Information

Very often, sources are not acknowledged due to the lack of bibliographic standards on the Internet. The age of information is often untraceable because authors deliberately or accidentally leave out publishing details such as dates. The accuracy and authenticity is also doubtful as some information may have been incorrectly transcribed from original sources, or the information may be biased according to the author's perception of the topic (Advantages and Disadvantages ... 2004).

Does free information really bear no costs? Decisions based on doubtful information may result in poor or incorrect decisions being taken which could impact on perceptions and the credibility of the decision maker and the organisation. Business lost as a result of uninformed or poorly informed decisions will impact on the bottom line (Steiner *et al.* 1989). Furthermore, the opportunity cost of free information can be considerably more burdensome than the cost of paying for it in the first place, valuable time is lost, and delays in going to market give your competition an advantage (Scheiber-Kurtz 2004).

Although it may seem that free information is bad information, according to Harnad and Brody (2004), free information or open access information (as they call it), dramatically increases the number of potential users. As a result, the impact of free, quality articles would be far greater.

Fee-Based Information

The fee based areas of the Internet are not covered by subject directories and search engines, instead, their databases are accessed directly for a fee (Is the Internet... 2001). The web pages of a fee-based source will contain abstracts of articles that are available. The researcher will have to pay to access the complete article. Most publishing houses allow students who have purchased a textbook and lecturers who have prescribed the book, are allowed access to the publisher's online resources such as PowerPoint slides, test banks, and links to useful sites among others.

Advantages of Fee-Based Information

The publishers of information generally edit and review documents, checking their accuracy and reliability before making the information available. This protects the user against poor quality information. Due to the use of proper bibliographic standards, the search for information is quicker and easier saving money and time that would be spent sifting through pages and pages of free information.

Disadvantages of Fee-Based Information

The proprietary nature of material could add to the time spent searching through different databases. As mentioned previously, private databases and their content are not normally found by search engines, they are often referred to as the deep web/hidden web/invisible web (Impereitos & Gravano 2002). Therefore, searchers often have to hop from database to database until they find what they were looking for. The additional time spent database hopping could possibly equate to the costs of sifting through articles found by a search engine. The cost of fee-based information makes information unavailable to some, adding to the digital divide of information haves and information have-nots, for example, a Harvard Business Review page costs \$5. In South Africa, this equates to R37.25 (\$1 = R7.50). A twenty-page article would cost R745-00. However, authoritative sources such as the Harvard Business Review provides reliable information which would result in better decisions being taken which could enhance the reputation of the

decision maker and the organisation, which in turn could generate new business and have a positive impact on the bottom line. However, paid for information is hidden and the reach and impact of the information is severely limited (Harnad & Brody 2004).

It is clear that both free and fee-based information has their merits and satisfy the information needs of different stakeholders. According to Kaser (2000), there is a double standard when it comes to purchasing information. A person could borrow a book at the library, use the information and return the book, at no cost. However, there are others who would purchase the book due to the value that it has for them. Kaser (2000) concludes that people are willing to pay for the medium and not the message. On the Internet, people are willing to pay for access (medium) but not the information (message). In order to integrate these two sources of information, it is necessary to examine the implications that these sources have for users.

Implications for Business

According to Steiner, Miner and Grey (1989), managers adopt two approaches to decision making namely maximising and satisficing. With the satisficing approach, managers make do with whatever little information they have readily available and rely more on intuition to take decisions. However, with the maximising approach, they use a rational decision making process where all possible information is sought to take near perfect decisions. The maximising approach is generally used when taking strategic decisions to gain a competitive edge over ones rivals. Competitive intelligence is the use of publicly available information to develop an edge over the competition. Developing a competitive advantage requires very reliable, highly accurate, and timeously available information to take proper decisions. Strategic decisions therefore require fee-based information that as previously discussed meets the criteria of reliability, accuracy and timeousness. The fee-based approach adds to costs. However, any cost incurred in the short term is an investment in the future.

According to Andersen (2002), the type of information that businesses want is not always available on the free Internet. Furthermore, although the net provides valuable competitor information, the searcher has

to guard against disinformation that is the deliberate publication of incorrect and deceptive information, meant to mislead users of that information Kaser (2000). Not all organisations have the ability to pay for information and as such rely heavily on free sources.

Implications for Academics

Academics are expected to publish research papers as part of their job descriptions in order to beat the threat of 'publish or perish' (Harnad & Brody 2004). Traditionally, research has been done in libraries, which meant that the researcher had to make many sacrifices at night, over weekends, and during holidays. The search for authoritative sources meant sifting through stacks of journals, until a satisfactory match was made. Today, academics can sit in the comfort of their homes or offices and surf the Internet. A search engine would be able to match key words within seconds and make the sites available on the screen. The researcher could access each link and determine the relevance of the information. If the information is inadequate, more links are available for inspection.

Academics can be divided into two groups' namely undergraduate and postgraduate researchers. Due to their financial constraints, undergraduates are limited to free information generated by search engines. Not all free information is bad. Some information such as academic research contained in online journals like the South African Journal of Information Management are of superior quality, properly researched, follow proper bibliographic standards, and have been reviewed by experts in the field of information management. Undergraduate researchers have a haphazard approach to searching, which is more akin to surfing the web (Cmor & Lippold 2001). This is due to their lack of understanding and experience of the research process, and search skills. According to Cmor and Lippold (2001), undergraduate students use the Internet for everything, believe that everything on the Internet is (or should be) free, spend hours aimlessly sifting through sites, are uncritical of the information, are guilty of plagiarism (merely cut and paste information), and opt to use the Internet due to its ease rather than the quality of information it provides. However, they recommend that students are encouraged to use the Internet because quality information is growing, the Internet develops their critical analysis and

assessment skills, and the web has the potential to stimulate new ideas, this is supported by Harnad and Brody (2004).

Postgraduate researchers on the other hand are more mature, systematic, possess superior research skills, are critical searchers and have access to research funds giving them access to fee based information sources. However, in some institutions, even senior researchers are untrained in the use of the Internet, search tools, search tool features, and tend to display similar haphazard search behaviour as undergraduate researchers.

Cmor and Lippold (2001) are of the opinion that the web is a valid research tool if researchers know what it contains, when to use it, and how to search it effectively. Students need help in developing evaluation skills and search techniques when accessing free information sources.

Integrating Free and Fee Sources

It is evident from the scenarios presented that there is merit in both approaches to information gathering. Organisations need to balance the use of both environments. In organisations where accuracy, reliability and relevance are important, a larger percentage of fee-based sources should be consulted. However, in organisations where quantity is important and financial resources are limited, the emphasis should be on using free sources of information. Integrating the two sources is not enough; it has to be managed properly.

Organisations big and small should have a Chief Information Officer, Corporate Librarian, Vice President of Information Systems, or someone, immaterial of the title, dedicated to managing the information resources of the organisation (Stair & Reynolds 2005). These individuals should be responsible for providing policies and guidelines to ensure that information from whatever source is relevant, reliable, and leads to better decisions (O'Brien 2001). CIO's determine the organisations information needs and ensure that they are met to support the organisations goals (Stair & Reynolds 2005). Corporate Librarians are a strategic part of the organisation and they manage a company's information resources whilst providing guidelines for best practices (Carlson 2004). The librarians need to take a proactive role in educating new and established employees with regards the use of online sources of information. Some of the tasks they should perform include

amongst others: teaching search skills, use of online databases, identifying online sources for the user, and providing a help desk function (Katz-Stone 2000). Lake (2002) suggests further that Information Management Policies will lead to more efficient use of information. However, he also suggests that policies should not add to existing problems, and therefore need to be practical and easily applied.

Evaluating Online Information

As mentioned earlier, the Internet is rich with information both good and bad. According to Tillman (2003), 'within the morass of networked data are both valuable nuggets and an incredible amount of junk'. It is for this reason that information needs to be evaluated before it is used. However, mere evaluation is not enough. Researchers need to determine what is considered to be quality information. Information quality can be measured along three dimensions, Time, Form and Content (O'Brien 2003). The Time dimension requires that information must be current and available when necessary, Form requires information to be clear, detailed, structured in an orderly fashion and presented in an easily understood format, Content requires information to be accurate, relevant (to the reader), and complete. According to Ballard and Ingersoll (2004), good information must be accurate, complete, objective, authoritative and timely (at the time of publication). These five criteria are common among most evaluation guidelines. Understanding what quality information is makes it easier to evaluate information sources as there is a benchmark against which to compare. Just as there are many sources of information online, there are just as many evaluation techniques that can be used to determine the quality of the information. The following are some of the evaluation techniques that are available online.

Harris's Criteria (1997)

According to Harris (1997) using the CARS checklist (credibility, accuracy, reasonableness and support), researchers are better equipped to evaluate the information they have collected in order to put it to use.

Credibility

When determining the credibility of a document, one has to interrogate the author's credentials, and the evidence of quality control. The author's credentials such as qualifications, employer, job status and years of experience are key to determining the credibility of a document. The work of highly qualified authors working for reputed organisations tends to be more credible. Furthermore, if the document has undergone some review or editing process by reputed editors, lends greater credibility to the information, which can be accepted as being of high quality and can be used. Documents that are anonymous, lack evidence of quality control, does not have a list of references and are poorly presented with spelling and grammatical errors, should be avoided.

Accuracy

When determining accuracy of information, one has to consider the detail of the content, the currency of the information, reference to other credible sources, whether statements can be backed up, and the factual content. More detailed documents show that the author has applied his/her mind to the subject. Old information that has not been updated in the last two or three years may no longer be accurate. Referencing is important in ensuring accuracy. Works that have been properly referenced can be compared with previous work to determine the accuracy of the current work. Documents that merely state opinions without being backed up with facts and empirical evidence should not be trusted as being an accurate representation of facts.

One should guard against documents without dates, documents that have old dates in fields where information is changing regularly, links to other documents that no longer exist, and statements that can't be backed up with statistics and facts.

Reasonableness

Reasonable information is tempered with fairness, objectivity and consistency (Harris 1997). An author reviewing a company or product or service must be fair in his criticism. He should not only emphasise the negative, but should look for some merit in what the organisation is doing. In

being objective, the article should look at all sides of the issue, and the author should not allow personal bias to prejudice his report. An author that swings from one extreme to the next and contradicts himself is being unreasonable, and his document should be treated with grave suspicion.

Support

All documents must be clearly referenced in order that readers can read the source documents for a greater understanding of a subject. Links to discussion groups, related sites, PowerPoint presentations and other online resources add to the credibility of a document. The presentation and format of the document is also an important consideration. Documents should be user friendly and easy to read, for example, red text on a black background is very harsh on one's eyes.

The CARS checklist with its related questions is a very easily understood tool that is easy to use. However, going through all the questions could be laborious and time consuming when trying to evaluate multiple sources of information.

Kapoun's Criteria (1998)

Kapoun (1998) developed five criteria for evaluating web pages. These criteria he named accuracy, authority, objectivity, currency and coverage. Table 1 summarises the goals of each of the criteria.

CRITERIA	GOALS
Accuracy	<ul style="list-style-type: none">• Who wrote the work?• What is the purpose of the document?• Is the author qualified to write the document?
Authority	<ul style="list-style-type: none">• Who published the work?• What is the affiliation of the writer/publisher?• What are the writers' qualifications?
Objectivity	<ul style="list-style-type: none">• How detailed is the information?• What opinions are expressed by the author?

Currency	<ul style="list-style-type: none">• When was the document produced?• Has it been updated?• Are the links still operational?
Coverage	<ul style="list-style-type: none">• Is the work cited?• Do the links complement the content?• Can the document be read easily with most software?

Table 1: Five Criteria for Evaluating Web Pages (Adapted from: Kapoun 1998: 522-23).

It is evident from Table 1, that some of the goals do not match the criteria. The author and his/her qualifications certainly do not match the criteria of accuracy, and would fit more closely with Authority. Similarly, citations or references should not fall under Coverage, but would lend itself to the criteria Objectivity. This model is comprised of fifteen simple, easy to understand questions.

Grassian's Criteria (2000)

In her help guide for students, Grassian (2000) recommends four criteria, which could be used to evaluate online sources of information, namely content and evaluation, source and date, structure and other which are illustrated in Table 2. It is evident from Table 2 that this Model examines unique criteria such as the audience, the completeness of the information, concern for the disabled, and site interactivity.

CRITERIA	GOALS
Content & Evaluation	Who is the audience? What is the purpose of the document? How complete and accurate is the information and links?
Source & Date	Who published the work? Is the author qualified to write the document? What is the affiliation of the writer/publisher? What are the writers' qualifications/expertise? Is there any form of bias in the work? When was the document produced/revised?

Structure	Is the text well written in terms of grammar, spelling and literary composition? Is there an element of creativity? Is attention paid to the disabled?
Other	Is appropriate interactivity available Are there links to search engines or a site search facility?

Table 2: Thinking Critically About WWW Resources (Adapted from: Grassian 2000).

Table 2 is a mere summary of Grassian's original guide, which covers about forty questions, which could be very cumbersome to use if one is evaluating multiple documents.

Ballard and Ingersoll's Criteria (2004)

Ballard *et al.* (2004) recommend a five criteria checklist illustrated in Table 3 below.

CRITERIA	GOALS
Identify the Source	Who owns the domain? Is the website authentic?
Sources Expertise	Who authored/published the work? Is the author qualified to write the document? What other work has the author published? Is the grammar and spelling accurate? Is the author an expert?
Level of Objectivity	Is the viewpoint balanced? Are there facts and analysis to support arguments?
Date of Publication	Is the information current at time of publication?
Verify Claims	Do other reliable sources provide same or similar information? Are references cited? Are reliable sources quoted?

Table 3: How to Evaluate Information (Adapted from: Ballard & Ingersoll 2000).

Like all the previous criteria, this is equally long and time consuming. Some of the criteria are very technical such as checking scripting, and detecting spoofing. However, of all the models, this is the only one that provided examples of each criterion.

Singh’s Criteria (2005)

Based on the criticism of the previous models, Singh (2005) proposed the e-lluminator model which was meant to be as simple as ABC and easy to use (Table 4). The model draws on the previous models and adapts the common criteria into a workable solution. The model is made up of three assessment criteria each for the A and B, and four criteria for the letter C.

	CRITERIA	EXPLANATION
A	Authority	This refers to the qualifications and expertise of the writer.
	Accuracy	Is concerned with technical aspects such as grammar, spelling, in-text referencing and factual basis of the document.
	Accessibility	How easily is the document accessed? Is it available at a reputable site that provides long term archiving facilities?
B	Breadth	Does the content cover a broad spectrum of issues or does it narrow down to a specific subject?
	Bias	Does the author write objectively or is the work very one sided?
	Bibliography	Does the writer acknowledge his/her sources using a proper bibliographic standard?

C	Content	Is the content informative, provocative, and objective? Does the writer follow a proper sequence of thoughts and support his ideas with references, graphics and tables?
	Comment	Has the paper undergone some kind of review or editing process with comment from other authorities in the field?
	Credibility	This refers to the credibility of the website where the information resides. Is it a website of a reputable company, institution or individual?
	Currency	Is the information updated on a regular basis?

Table 4: The ABC Approach to Evaluating Online Information

The ABC approach proposes ten tasks that need to be performed in evaluating an online document as discussed below.

Authority

The credentials of the author are key to the quality of information being presented. A work of a highly qualified author with extensive academic or industry experience can be easily accepted. However, the work of a relatively new writer would have to go through greater scrutiny before being accepted. Many websites, especially electronic journals do not provide sufficient information about the author.

Accuracy

Documents that are inaccurate with regards spelling, grammar, and referencing should be treated more circumspectly, as it shows that the author has not paid attention to detail. However, a person for whom English is not his/her first language, the factual content should be considered more important than the technical issues.

Accessibility

Documents that require a trail of links to be reached are often not worth the chase. It is important to check the archiving policies of the host site. When sites are updated, readers should still be able to access the document using the original URL.

Breadth

This criterion is subjective and depends on the needs of the reader. Some readers want a topic to be discussed in broad terms (e.g. Online Searching), others want information specific to a topic (e.g. Online Search Tools) and others want information that is described in broad terms and then narrowed down to specific issues (e.g. Online Searching and Online Search Tools and Techniques).

Bias

Documents that are deliberately biased should not be overlooked or discarded, as they are controversial enough to stimulate debate and discussion, provided it does not bias the readers of the document. For example, 'HIV does not cause AIDS!' This statement is controversial and worthy of debate. However, some readers could begin to believe the statement or a document that 'justifies' such a statement.

Bibliography

Online everyone is an author! Unless an author is a well-recognised writer, all quality documents must be properly referenced within the text, with a detailed list of references or a bibliography at the end of the document acknowledging all sources consulted when drawing up the document.

Content

Writing style lends to the appeal of a document. Quality documents are written in a smooth flowing sequence with difficult terms explained or clearly defined. A document that contains statistics and facts should contain self-explanatory figures and tables. The content should as much as possible be informative, be as objective as possible and should provoke discussion

and debate. Users should also be wary of the author contradicting him/herself in the document.

Comment

A document that has received some form of professional comment from either reviewers or editors can be accepted with little doubt. Editors and reviewers are expected to ensure the quality of a document with regards content and technical issues. However, sometimes, they themselves are biased towards the viewpoint of the author and may support a view that may differ from others.

Credibility

The originating website of a document could add to the credibility of a document. University, company and government websites are considered credible sources of information. Some personal websites, such as wilsonweb.com, belong to individuals who have established themselves as authorities in a subject and information can be trusted with little or no risk. The URL (uniform resource locator) is an indicator of the origins of a document. Documents that have an .ac or a .gov extension are associated with academic institutions and governments and could be accepted as credible. A credible website will allow users to provide feedback or contact the author of an online document.

Currency

This is a subjective criterion and its use would depend on the user and the information sought. Old documents such as outdated legislation, legal precedents and historical accounts of events need not be updated as their content or the underlying principle may be of importance to the reader, for example a clause in an Act of 1965 may serve as a guide for amendments in 2004. However, statistical information that is required for decision-making would require current and updated facts. In order to prove the worth of a new model, it is necessary to test it.

Testing the e-Illuminator Model

The objective for testing the e-Illuminator model was to prove firstly that it

was easy to use, and secondly it was a time saving model. The e-lluminator model was tested in an Information Systems Honours Class. The class was comprised of forty students who had previous search experience and were using Internet resources on a regular basis. The respondents were given two unseen documents, one that came from a reliable source and the other from an unknown source. They were asked to evaluate the documents using the CARS method and the ABC method. The CARS method was used as the comparator as the respondents were taught how to use the CARS model and some were using it. After conducting the exercise, the respondents were asked to make a choice between the two models. Table 5 illustrates the responses where it was found that 27 respondents preferred the e-lluminator model compared to the 13 respondents who preferred the CARS model.

Positive Feedback	No of Responses
Comprehensive	9
Easy Steps	5
Structured	2
Good Results	2
Understandable	4
Good Features	
Accessibility	2
Bibliography	1
Site Credentials	1
Update of Site	1

Negative Feedback	
Lengthy and time consuming	7
Does not allow for intuition	2
Too detailed	4
	N = 40

Table 5: Student Impressions of the ABC Model for Evaluating Online Information

Evaluating the Quality of Free Online Information for Decision-making

It is evident from Table 5 that nine of the respondents liked the comprehensive evaluation provided by the ABC model. The objectives that were being tested namely ease of use and time consumption did not get the desired responses. The ease of use was seen as a positive; however, it was not the main feature that the respondents identified. The majority of the respondents (7) who preferred the CARS model found that the ABC model was too time consuming.

In order to meet the original objectives, a worksheet Table 6 was devised. The worksheet consisted of simple questions that merely required a 'yes' or a 'no' answer. Each question was developed to answer the ten criteria of the model. In order to help the researcher a scoring key was provided for the number of 'yes' answers. The greater the number of yes answers, the more reliable is the source.

Two weeks after the first test, the same group of respondents were given a five page Internet document and asked to use the ABC worksheet to evaluate the document. Apart from different reading speeds, the average time to complete the worksheet and arrive at a score was 7.8 minutes.

Criteria	Question	YES	NO
Authority	Is there evidence to suggest that the author is skilled and has expertise in this field?		
Accuracy	Is the document accurate with respect to grammar, spelling, in-text referencing and facts?		
Accessibility	Is the document easily accessed, from existing pages or archives?		
Breadth	Does the content cover a broad spectrum of issues?		
Bias	Does the author write objectively?		
Bibliography	Does the writer acknowledge his/her sources using a proper bibliographic standard?		

Content	Is the content informative, provocative, and objectives and does the writer follow a proper sequence of thoughts and support his ideas with references, graphics and tables?		
Comment	Has the paper undergone some kind of review or editing process with comment from other authorities in the field?		
Credibility	Does the document originate from a website of a reputable company, institution or individual?		
Currency	Does the document have a date of publication/date it was last updated?		

ABC Worksheet Scores

10 Yes	Excellent Source	5 Yes	Average Source
8/9 Yes	Very Good Source	3/4 Yes	Poor Source
6/7 Yes	Good Source	1/2 Yes	Extremely Poor Source

Table 6: Worksheet for Evaluating Online Information using the ABC Model

When asked what their impressions were, the respondents all felt that using the e-Illuminator Model worksheet was quick and easy.

Conclusion

The Internet has heralded a new era in the search for, and use of information. This paper has demonstrated that there are both negatives and positives associated with this new ‘wonder tool’. However, if used properly, the benefits outweigh the negatives. It is not often that knowledge workers interrogate the documents they use. However, with the rise in misinformation and disinformation on the World Wide Web, users have to be more prudent in their approach especially when using free information. The e-Illuminator Model lists ten tasks which may seem like a lot of work when reading the list. However, most of the attributes can be seen at a glance whilst scrolling

through a web document. The worksheet provided with the e-Illuminator Model ensures that evaluation of online information is a quick and easy process. In order to prevent bias, the respondents were never told that they knew the developer of the ABC Model.

Although this paper has made recommendations' regarding search strategies and evaluation techniques, the Internet experience is unique to every individual. Therefore, individuals have to use a mixture of recommended strategies and what makes sense to them, in order to get the best of what the Internet has to offer. The e-Illuminator Model is by no means fully tested and proven as an evaluation tool. However, it provides researchers with yet another tool in their quest for quick and easy evaluations of online information.

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Students' Perceived Ability in the Use of a Computer Application in a Community Outreach Project

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Abstract

Students from a disadvantaged background in a community outreach project often do not have the opportunity to gain knowledge on computer applications (for instance, word processing and spreadsheets) at school level. In the project being reported on here, the students' perception of their ability in the use of a spreadsheet program was measured with the use of a pre- and post training questionnaire. A further comparison was drawn between the students' perception of their ability and the mark achieved in the summative assessment at the end of the training. The aims of the project were to establish whether: 1) training in the use of a spreadsheet program affected the students' perception of their own ability; 2) the *perceived ability* of students differed from their *actual ability*; and 3) the assumption that students from a privileged community may overestimate their ability and that students from underprivileged communities may underestimate their ability in the use of computer applications, is valid.

The findings indicate that the students' perceptions did change after training and that their *perceived* and *actual ability* do differ. However, the disadvantaged students from this study also overestimated their ability in the use of a computer program. To improve the *ability* of students, they should gain basic mathematical, accounting and language skills before they are introduced to a spreadsheet program.

Keywords: Community engagement, perception, ability, performance, disadvantaged students

1. Introduction

To have access to technology from an early age is an important factor in unlocking the *perceived ability* and confidence in using computers, especially at school level in privileged communities (Gupta & Houtz 2000). Therefore, students from poor communities may face more barriers than students from wealthy communities regarding confidence in using technology and other educational resources.

It is generally accepted that students with an underprivileged background where there is a lack of access to computer facilities have less knowledge of computers than students who have access to computer facilities. This leads to the belief that the perception of students from an underprivileged background about their ability may be less over-inflated than that of students from privileged societies where they have access to computers from a young age up to the end of their school years. Providing these underprivileged students with computer training should increase their knowledge, however, their perception of their abilities may impede their true ability.

In the technology-intensive world, the younger generation is viewed as digital natives, having been brought up with computers and speaking the digital language. People who are older and who have not grown up with technology but who embraced new technology at some stage do not speak the digital language well, and are known as digital immigrants (Prensky 2001). Students from a disadvantaged community who do not have exposure to computers from a young age and who are often both ill-equipped to use a computer in general and who have had very little experience with the use of computers may also be viewed as digital immigrants.

The access to computer technology in rural areas and other underprivileged communities in South Africa is of great concern and has been addressed numerous times (Herselman 2003; Burger & Blignaut 2004; Akinsola *et al.* 2005; Sikhakhane *et al.* 2005; Dalvit *et al.* 2007). However, this is not a problem unique to South Africa as this concern is shared by

authors from Australia (Haywood 1998; Bolt & Crawford 2000; Compaine 2001; McLaren & Zappalà 2002; Angus *et al.* 2004) when they discuss the digital divide. The lack of technology in these students' home environment may in the end influence their perception of their computer skills or ability.

The aim of the study on which this article is based, was to establish firstly, whether training in the use of a computer application program has an effect on the *perceived ability* of a student, secondly, whether underprivileged students have an over- or under-inflated perception of their own abilities, and finally, whether a summative assessment provides proof of these perceptions. It was assumed that the perception of students from a disadvantage background would differ from that of students from a privileged community, which is often over-inflated on account of the latter's access to computers, the internet and computer gaming. The latter furthermore believe they are computer literate because they have used computers at some stage.

The study was done based on a community upliftment project where the authors were asked to teach underprivileged students, mostly in the age group 20 to 30 years, how to make use of a spreadsheet program. It was found that training alone might not change the perception that these disadvantaged students may have of their ability in relation to their measured ability after the training.

In the following section, the literature and the concepts used in this article are discussed. This is followed by a description of the research methodology, the data analysis and the results. The article concludes with a discussion of the findings and some recommendations.

2. Literature Survey

For the end-user computing environment to be successful, users with the necessary skills are more important than mere good information systems (Torkzadeh & Lee 2003). However, familiarity with end-user computing of students from different backgrounds may differ quite substantially. Bialaszewski *et al.* (1996) state that student familiarity with information technology is likely to affect the teaching style used by facilitators as well as the academic expectations of the facilitators about their students' ability and readiness to use software programs, like spreadsheets and word processing program (Case *et al.* 2004).

When students have the knowledge and ability to use a specific computer application, in this instance a spreadsheet program, it is known as computer proficiency or computer literacy (Grant *et al.* 2009). Students who can send emails, download music files and use instant messaging, may view themselves as computer literate but, according to employers, these are not the skills they need (Young 2004). This is emphasised by Gibbs (2008) when she states that, although young people seem at ease in the digital age, they still face the challenge of having the knowledge and skills required to make use of computer applications at a level suitable for tertiary education or in the workplace.

Students may develop computer skills during their training but it may not be to the degree required by employers (Wallace & Clariana 2005). Therefore, training should be directed at attaining the necessary skills to make use of technology. Torkzadeh & Lee (2003), Case *et al.* (2004), Ballantine *et al.* (2007) and Gibbs (2008) argue, 'perceptions of knowledge and ability in computing do not always correspond to the reality'. The studies by the previous authors were done either at school level or at first-year university level. Therefore, it may be necessary to establish whether the gap between *perceived ability* and *actual ability* also exists in disadvantaged communities.

Community engagement means that an organisation, in this instance a university, makes contact and fosters a relationship with a group of people who are unrelated to the university. The purpose is to support or educate (in this specific engagement training in the use of a spreadsheet) the community and to increase awareness of the university's goals (Oxford 2009).

The perception of an individual entails the direct recognition or understanding of something, whereas ability is viewed as mental power or cleverness (Oxford 2009). People may have certain perceptions of their own ability. Bandura (1997) calls this self-efficacy. Self-efficacy is defined as people's judgments of their own ability to execute a task and of the effect this perception may have on their future activities. It can be expected that students who have had no access to computers from a young age may have a different perception of their ability to make use of an application program than students who have grown up with computers and technology might have.

The success of individuals may be influenced by the perceptions of these individuals of their ability. According to Hall & Ponton (2002), individuals can increase their self-efficacy when they understand how a positive change in their belief can affect outcomes and in return increase their success rate in achieving their goals. Lim (2004: 72) states that it is these students' *perceived ability* or confidence that governs their ability to use technology and their perseverance when difficulties arise rather than their *actual ability*. Therefore, it may be assumed that students with a higher *perceived ability* may experience more success.

3. Research Methodology

The study on which this article is based, sought to examine whether discrepancies exist between students' perception of their spreadsheet application skills and their actual performance. The objective of the training was to equip students with the necessary skills to use a spreadsheet program to assist them to attain a job. In this case, where students were from an underprivileged background, the instruction was very basic and elementary.

First, a survey questionnaire was developed to capture basic demographics and information on how the students *perceived* their proficiency in spreadsheet applications. Hindi *et al.* (2002) indicated that a survey questionnaire is an important instrument to direct the delivery of training and course content. Second, a practical summative assessment was prepared based on the groups of skills used in the survey.

3.1 Data Collection

In the following sections the target population, the measuring instrument and the research method are discussed.

3.1.1 Target Population

The authors were contacted by a community upliftment centre and were requested to teach students the basics of a spreadsheet program. This centre started out as a shelter but, because people only came to the shelter for food and a roof over their heads and never tried to change their circumstances, it was changed to an upliftment centre. Students from underprivileged

communities can register for training in a number of courses, such as computer training, guesthouse maintenance and care of the elderly. All students undertake compulsory life skills training when they first arrive. The target population for the study being reported here consisted of all four classes of students enrolled for the spreadsheet course, in total 42 students.

3.1.2 Measuring Instrument

The questionnaire was divided in three sections. The first section collected biographical information. In the second, the students indicated their *perceived* computer literacy, and the last section of the survey questionnaire collected information on the students' *perceived* degree of proficiency. This section was designed so as to allow students to rate their *perceived* spreadsheet proficiency using a 5-point Likert scale evaluation (Salkind 2009) where one (1) indicated they understand the question while five (5) indicated expert skill.

The following five-point Likert scale was used in the questionnaire:

1. No, I do not understand the question.
2. No, I am not able to do it.
3. I am uncertain.
4. I partially know how to do it.
5. I know how to do it.

The *actual ability* of students was measured with the use of a summative assessment at the end of the training. Assessment is defined as 'the process or means of evaluating academic work; an examination or test' (Oxford 2009). In the study being reported here, the summative assessment had the following objectives:

1. to measure the extent to which the students mastered the range of concepts and actions covered during the training;
2. to measure the extent to which the course adds to the computer knowledge of students receiving the training; and
3. the comparison of *perceived ability* and *actual ability*.

3.1.3 Research Method

To compare the *perceived ability* to the *actual ability*, the questions asked in the questionnaire had to be linked to the questions in the summative assessment.

The questionnaire was given to 42 students enrolled for the course at the commencement (pre) and the end (post) of the three-week period and indicated the *perceived ability* of the students. The results from the pre- and post-questionnaire were compared to each other. A second comparison was made between the second questionnaire and the summative assessment. The summative assessment was done at the end of the course and indicated the *actual ability* of the students. The results from the questionnaire were categorised into groups similar to the categories tested in the summative assessment to enable the comparison between the different questions.

3.2 Data Analysis

The data collected from the two questionnaires, representing the students' *perceived ability*, was used for the first part of the data analysis in each section. The second part of the analysis in each section was based on the second questionnaire and the summative assessment or *actual ability*. The questions from the questionnaire and summative assessment were grouped into the following six (6) categories:

1. Create, open and save a spreadsheet
2. Editing a spreadsheet
3. Formatting a spreadsheet
4. Formulas
5. Charts
6. Printing a worksheet

3.2.1 Results

In Table 1, the first section of the survey questionnaire, which collected personal information on age, gender, qualifications and whether the student had access to a computer lab, is displayed.

Table 1: Population of the Study

Age		Highest Qualification	
<20	4	Grade 11	3
20 – 30	33	Grade 12	37
>30	5	Other (N3)	2
Access to Computer Lab		Gender	
Yes	14	Male	18
No	28	Female	24

In the second section of the survey questionnaire, the students needed to indicate their computer proficiency, and this is displayed in Table 2.

Table 2: Perceived Computer Literacy of the Respondents

Computer Literacy			
		Before training	After training
1	No knowledge	4	3
2	Some knowledge	15	2
3	Average knowledge	9	12
4	Basic knowledge	14	20
5	Advanced knowledge	0	5

From the above table one can see that most of the students did not have access to a computer lab. This may have influenced their *perceived ability* of their computer literacy. However, the training did contribute to a difference in their *perceived ability* if we compare the indication in the table above of their computer literacy before the training to the indication after the training.

The results from each category are discussed in the following sections.

Category 1: Create, Open and Save a Spreadsheet

Before starting their training, the students taking part in the study were quite confident of their ability to create, open and save a spreadsheet, as 45% indicated that they knew how to do it and another 38% indicated that they partially knew how to do it. Only a small number of the students were

uncertain. When compared to the post-questionnaire, the training seemed to have a positive impact on the students' *perceived ability* because 81% indicated that they now know how to create, open and save a spreadsheet. A small discrepancy exists between the pre- and post-questionnaires where only one student did not understand the question before the training, and afterwards three did not understand the question. The reason might be the lack of time spent on explaining the scales of the questionnaire to the students because of time pressure or it could be attributed to a language problem. English is the second or even third language of these students. The result from the *perceived ability* (81%) is still less than the *actual ability* (93%) of the students when the results of the summative assessment are taken into account. In this instance, students still underestimated their own ability.

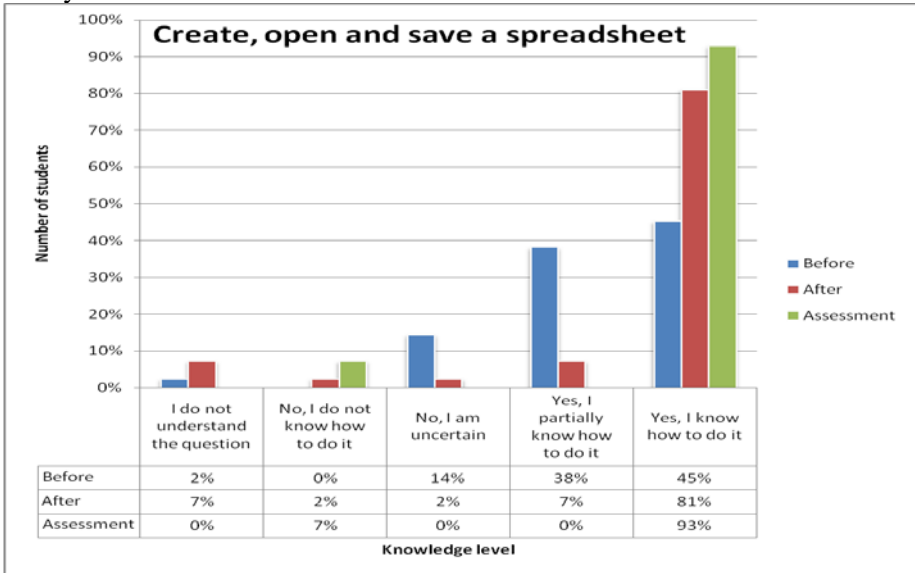


Figure 1: Results for the Category ‘Create, Open and Save a Spreadsheet’

Category 2: Editing a Spreadsheet

Before the training started, 48% of the students indicated they either did not know how to edit a document, or they were uncertain. An equal number of students (26% in both cases) were either partial or very certain that they

knew how to edit a document. The training seemed to have a positive impact on the students' *perceived ability* when compared to the post-questionnaire as 81% of the students indicated they know how to edit a spreadsheet. Again, the same small discrepancy exists between the pre- and post-questionnaires, where only one student did not understand the question before the training, while afterwards five did not understand the question. The *perceived ability* (81%) is more than the *actual ability* (74%) of the students when the results of the summative assessment are taken into account. The percentage with which the students overestimated their own ability was 7% (81–74)..

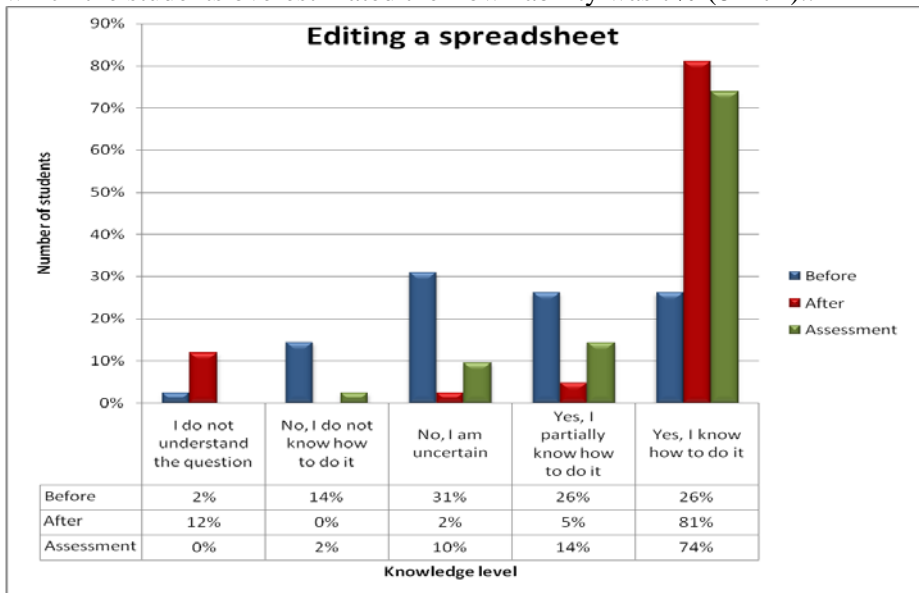


Figure 2: Results for the Category 'Editing a Spreadsheet'

Category 3: Formatting a Spreadsheet

At the onset of the training, 24% of the students indicated their uncertainty with regard to the formatting of a spreadsheet. Students who perceived that they were able to format a spreadsheet equalled 26%. After the three weeks of training, 79% of the students felt they knew how to format a spreadsheet, which indicates a positive impact on the students' *perceived ability*. The students who indicated they were certain about whether they can format a spreadsheet (79%) overestimated themselves as the summative assessment

indicated that only 48% were able to format a spreadsheet in practice. However, when we look at the breakdown between *partially and fully certain*, 12% felt that they were partially able to do it whereas the assessment indicated that 45% partially knew how to format a spreadsheet, which represented their underestimation of their ability.

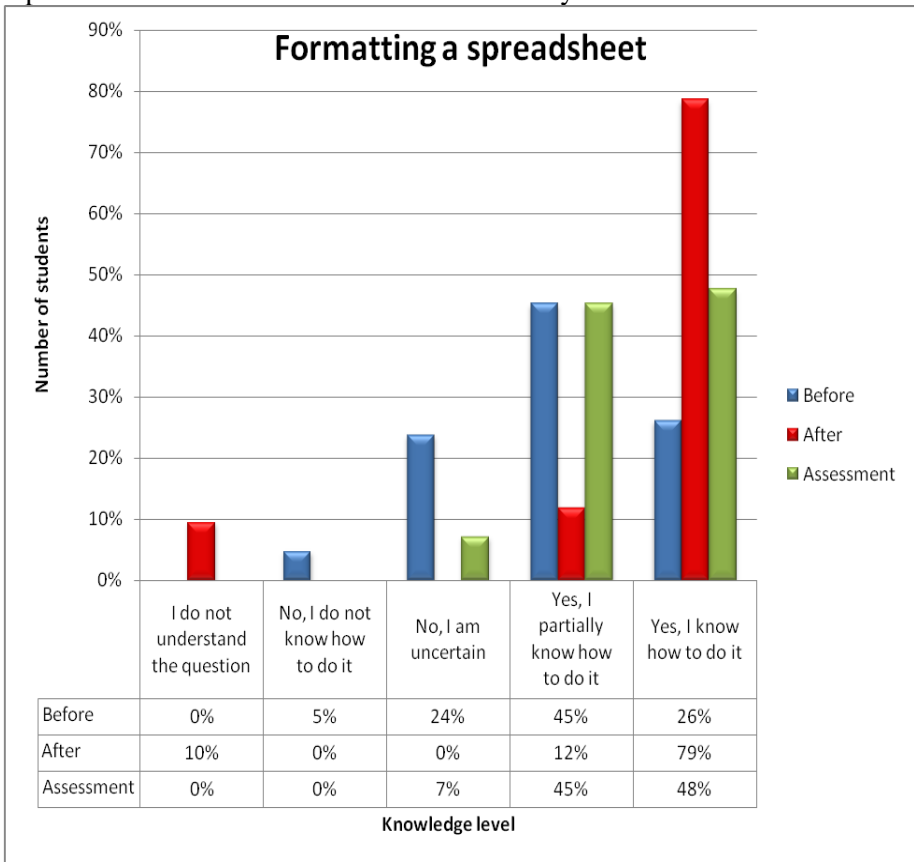


Figure 3: Results for the Category ‘Formatting a Spreadsheet’

Category 4: Formulas

The students indicated that 52% of them knew how to set up a formula in a spreadsheet program before the training started. This may be an indication that they did not really understand what it entails to set up a formula. In this

case, the result from the summative assessment (48%) is in line with their initial perception. However, the *perceived ability* (71%) of students after training indicating that they knew exactly how to set up a formula deviated quite substantially from the result of the assessment where only 48% of the students were able to set up the correct formula in full. In order to use formulas in spreadsheets, the user needs an underlying knowledge of basic mathematic calculations, for example multiplication. It is also advisable to have an understanding of basic accounting terminology. A lack of the aforementioned abilities may be a reason for the deviation.

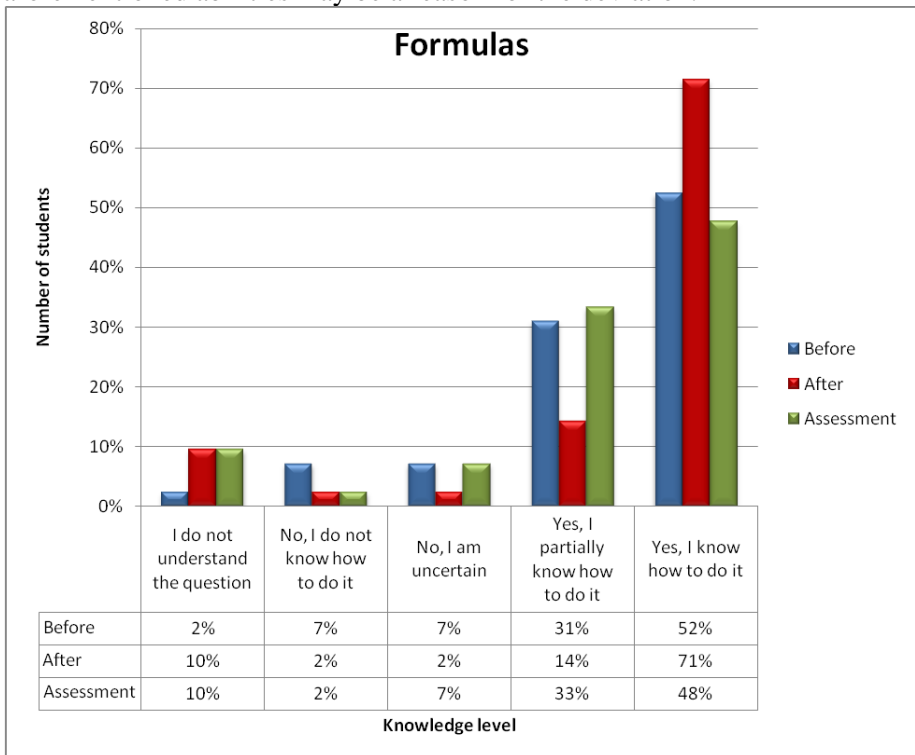


Figure 4: Results for the Category ‘Formulas’

Category 5: Charts

At the beginning of the training, the majority of students (55%) either indicated that they did not know (29%) how to use graphs in a spreadsheet or

that they were uncertain (26%). Those students who knew partially how to use a graph represented 33% of the students enrolled for the training. After the training, students overestimated their ability to use a graph, as 57% indicated they knew in full how to do it while only 43% were able to do it in practice. The students who indicated they partially knew how to use a graph represented 33% at the beginning of the training, 24% after the training while 19% of the students were actually able to use a graph partially in the assessment. A chart is in many instances the result of formulas; therefore, the deviation may be attributed to the deviation experienced in the formulas as well.

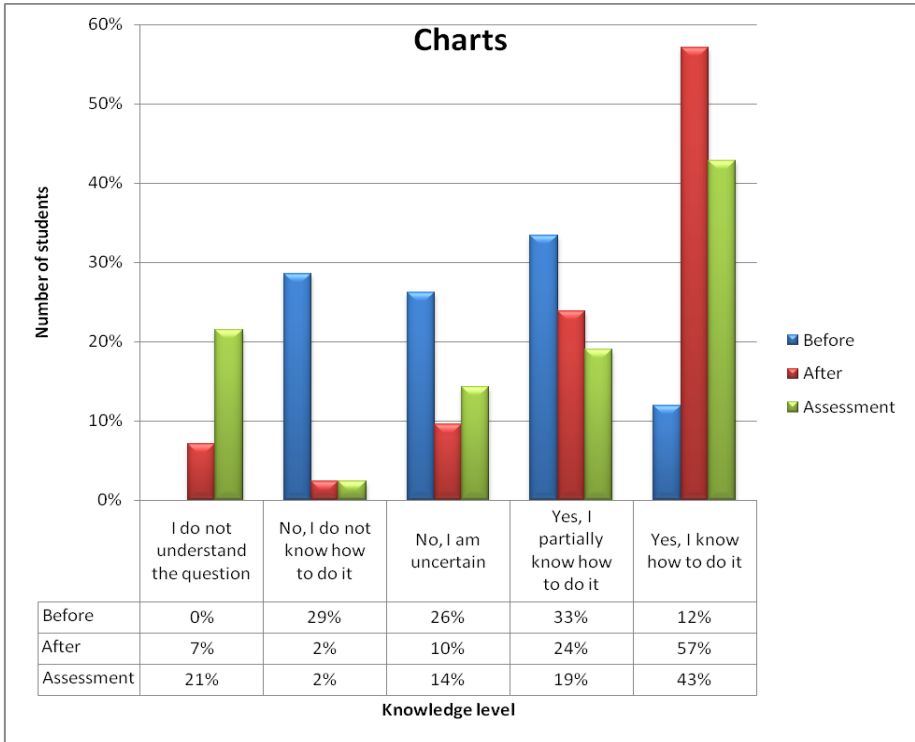


Figure 5: Results for the Category ‘Charts’

Category 6: Printing a Worksheet

Just more than 64% of the students indicated at the beginning of the training

that they either did not know (24%) how to print a spreadsheet or that they were uncertain (40%). Students might have found access to printers more of a challenge because they did not have access to their own computers or to labs and might therefore have found it necessary to go to internet cafes where printing is not always a possibility. After the training, students were confident of their ability to print a spreadsheet as 45% indicated that they were able to print a spreadsheet and the assessment indicated that 55% could do it in practice. This may be attributed to the fact that the students had training in a word processing program before they started their spreadsheet training. However, quite a few students (24%) were still uncertain how to print a spreadsheet in practice. This may be attributed to the fact that students did not have the chance to make use of printers as we had technical difficulties and could only show them the steps on how to print on the screen but could not do it in practice.

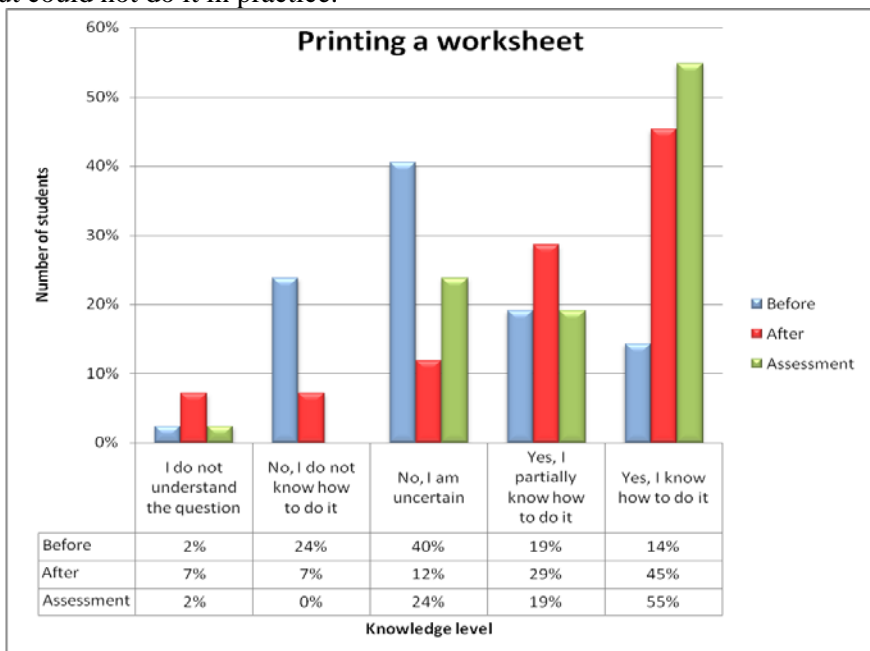


Figure 6: Results for the Category 'Printing a Worksheet'

Open-ended Question

An open-ended question was asked in the questionnaire to establish whether the students knew or understood what a spreadsheet was. We asked whether they knew of a situation in everyday life where they could apply a spreadsheet. Before the training, 20 of the 42 students were not able to formulate an answer to this question; however, the rest knew that it could be used to compile a budget or class list with test marks. At the end of the training, 10 of the 42 students still did not supply an answer or did not know where they could apply spreadsheets. The students do not have the necessary business background to know about budgets, financial statements and terminology such as profit and sales. Although numerous practical examples were supplied during the training, they were still not sure how to apply the gained knowledge after the training. This can also be attributed to the fact that the students had not yet been exposed to the working society.

3.3 Summary of the Results

The students' perception of their ability was measured by way of the questionnaire, which was completed before and after the training. The students' *actual ability* was measured by a formal practical assessment to determine their actual practical skills after the training.

Figure 7 indicates the summary of the results of the pre- and post-questionnaire as well as the assessment.

The *perceived ability* of students before the training started changed positively during this study. In Category 1 (create, open and save), the *perceived ability* of students increased from 45% to 81%. For Category 2 (editing) the increase was from 26% to 81%. Category 3 (formatting) showed an increase from 26% to 79% in the *perceived ability* of the students. In Category 4 (formulas), the perception increased from 52% to 71%, while Category 5 (graphs) showed a substantial increase from 12% to 57%. The last category (printing), showed an increase from 14% to 45%. If we take the average for all the questions into consideration and we compare the *perceived ability* before the training (29%) with the *perceived ability* after the training (69%) as depicted in Figure 7, it is clear that the formal training had a positive effect on the perception of the students.



Figure 7: Summary of the Results Before and After Training as well as for the Assessment

In some cases, students overestimated their ability while in other cases, they underestimated their ability. As stated before, *perceived* and *actual* ability in computing does not always correspond with the reality. The *perceived* ability of students after training was 81% for Category 1 (create, open and save) and the *actual* ability, 93%. In Category 2 (editing), the *perceived* ability and the *actual* ability was 81% and 74% respectively. Category 3 (formatting) showed a *perceived* ability of 79% and an *actual* ability of 48%. *Perceived* ability (71%) for Category 4 (formulas) deviates

from the *actual ability* of 48%. For Category 5 (graphs), the *perceived ability* was 57% and the *actual ability*, 43%. The deviations between *perceived* (71%, 57%) and *actual ability* (48%, 43%) (in Category 4 and 5 may be attributed to the need of an underlying knowledge of basic mathematic calculations and an understanding of basic accounting terminology. The results recorded for Category 6 (printing) were 45% *perceived ability* and 55% for the *actual ability*, which could be the result of training in a word processing program before this course. Overall, taking the average of all the questions into consideration, the *perceived ability* (69%) deviated from the *actual ability* (60%) by 9%, according to Figure 7. Therefore, in this study students overestimated their overall ability to apply spreadsheets by 9%.

4. Conclusion

The above discussion of the results and the literature reveal that there is not always a relationship between the perception of students of their computer ability and their actual performance. Students, who play computer games, download music and read their emails perceive themselves to be computer literate but this ability is unfortunately not what is expected of them in the workplace. The analysis suggests that the students from the group taking part in the study on which this article is based, underestimated their ability in the less complex tasks such as editing and formatting, and overestimated their ability in the more complex tasks, such as creating formulas and designing graphs.

Despite the limitations of 1) the short period of time available to teach the students, and 2) the language barrier, which was especially experienced when the questionnaire was completed by the students, the end result was very positive as 71% of the students passed the course.

The results of the analysis suggest that the authors' assumption that students from privileged communities overestimate their abilities is not only true for them but also for students from underprivileged communities. Perception of ability to make use of computers may therefore not only be based on the background of the person involved, but other factors could play a role as well. Factors impeding on *actual ability* could be divided into 4 broad categories of barriers:

- Language;
- Mathematics;
- Accounting terminology; and
- Lack of work/ business experience.

The identified reasons for the deviation between the *perceived ability* and the *actual ability* of students could assist facilitators of future similar courses (computer courses in spreadsheet application) on how to prepare the course material and how to redirect their preparation method. Facilitators should ensure that students who are unemployed, have a lack of mathematical skills and/or accounting terminology, receive assistance in basic skills in these areas before they start training such students in spreadsheet programs.

In conclusion, it is important to align the *perceived* and *actual* abilities of students as this has an impact on their efficiency in their future workplace. The *actual ability* could be brought in line with the *perceived ability* if the abovementioned barriers could be addressed before training starts.

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Course Management Systems from a Usability Perspective

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Abstract

The advent of the Internet and the World Wide Web has revolutionised practices in business, government, health, and education amongst others. In education, the Internet and World Wide Web opened new doors for teaching and learning, thereby affording educators an opportunity to deploy new teaching, learning and administration strategies and affording learners a rich learning experience. In South African higher education institutions, course management systems (CMSs) have been adopted, and are becoming increasingly popular among academics. However, much attention has been focused on the technology, namely the functionalities and tools offered by CMSs. Very little effort has been directed at understanding the usability properties of this class of software and the impact it may have on adoption of this type of software. This paper focuses on the evaluation of selected CMSs used in higher education by using specific usability criteria and principles as the basis for the evaluation. This usability inspection method is termed heuristic evaluation, which is performed ‘as a systematic inspection of a user interface design for usability’ (Nielsen 2005). Results pertaining to the heuristic evaluation of the selected CMSs will be discussed. This paper is part of a larger study that aims at generating knowledge about the interactive properties of CMSs.

Keywords: Heuristic evaluation, testing, evaluation methods, e-learning, course management systems

Introduction

Higher education institutions have witnessed an upward trend in the acceptance and adoption of course management systems (CMSs) by academic staff and students. While much attention has been focused on the technology and adoption rates of CMSs, little effort has been directed at understanding the usability properties of this class of software. The usability properties of CMSs should allow both teachers and learners to efficiently operate this interactive software, and should make provision for the performance of the intended learning activities (Ardito *et al.* 2006). According to Kruse (2000), the user interface of an e-learning system can become a barrier if it is not well designed, where users can become bewildered, lost or frustrated with ‘confusing menus, unclear buttons or illogical links’ (Costabile *et al.* 2007).

The purpose of this paper is to describe a heuristic evaluation (HE) of selected CMSs used in the context of higher education, based on specific usability criteria and principles developed by Nielsen (2005). The CMSs selected are all open-source e-learning applications reviewed by the University of KwaZulu-Natal as possible replacements for the existing online learning system OLS (in-house system) (Learning Management Systems Review, 2007). While propriety systems like Blackboard (formerly known as WebCT) (Blackboard 2009) are widely used, well-established, and support a large user-base, they are very costly. This has led to some universities, such as the University of KwaZulu-Natal, to migrate from propriety to open-source solutions (University of KwaZulu-Natal Learning Management System (LMS) Review 2008).

Due to the absence of specific heuristics aimed at the evaluation of CMSs, a heuristic evaluation method based on the general heuristics proposed by Nielsen (2005) was chosen to evaluate the selected set of CMSs. This method is not only a quick and cost-effective technique, but it can also serve to supplement user testing in that heuristic evaluations can identify many usability problems that are not discovered by user testing (Nielsen 2007c). The usability problems identified as a result of this evaluation technique may be beneficial to designers of such systems, since these problems could be attended to in future versions of the software. The ultimate benefactors of heuristic and other usability evaluations of e-learning

applications would be the primary stakeholders namely lecturers and students as they can work with ‘easy to learn’ and ‘easy to use’ systems.

In presenting the results of this research, we first provide the context of the research with the problem statement and research objectives in the next section, followed by the literature review, research methodology, findings and analysis, and answers to the research questions. The final section concludes the study by discussing the significance and limitations of this study, and makes recommendations for future research.

Problem Statement and Research Objectives

Minimal attention has been given to understanding the usability of course management systems, therefore the problem addressed in this research is the usability properties displayed by a selection of open-source course management systems designed for use in higher education institutions. The goal is to conduct a usability study by establishing compliance of selected open-source course management systems to usability principles using the heuristic evaluation method. The research objectives addressed in this research are the following:

- *Identify usability problems encountered when mapping Nielsen’s heuristics to selected open-source course management systems.*
- *Evaluate the effectiveness of heuristic evaluation for uncovering usability problems in interactive systems.*
- *Describe the characteristics of usability problems found by heuristic evaluation.*

Literature Survey

The introduction of the Internet and the World Wide Web has revolutionised business, government, health, and educational practices, amongst others. These technologies have impacted education by affording educators an opportunity to deploy new models and tools for teaching, learning and managing courses. Learners, on the other hand are given the opportunity to participate in active, independent, self-reflective and collaborative modes of learning (Kakasevski *et al.* 2008).

The South African government has acknowledged the role of information and communication technologies (ICTs) in transforming teaching and learning environments into ‘an inclusive and integrated practice where learners learn collaboratively, engage in meaningful contexts and develop creative thinking and problem solving skills’ (Government Gazette 2004).

E-learning is characterised as ‘any time’, ‘any place’ education using ICTs as delivery platform, and can address challenges such as congested education facilities, lengthy commuting time for teachers and students that live far from universities, and life-long education (Ardito *et al.* 2006).

E-learning systems/applications primarily used in higher education maybe categorised as course management systems (CMSs), learning content management systems (LCMSs), and learning management systems (LMSs):

- According to Horton & Horton (2003) a LCMS simplifies the task of ‘creating, managing and reusing learning content, namely media, pages, tests, lessons and other components of courses’. This class of software does not provide testing capabilities, but may deliver tests created and administered by a test creation tool.
- A LMS is characterized as systemic in that it is ‘the infrastructure that delivers and manages instructional content, identifies and assesses individual and organizational learning or training goals, tracks the progress towards meeting those goals, and collects and presents data for supervising the learning process of an organization as a whole’ (Szabo & Flesher 2002 cited in Watson & Watson 2007).
- CMSs are used primarily for online or blended learning in higher education, allowing lecturers to place course materials online, add registered students to courses, track student performance, allow for online submission of student assignments and projects and facilitate communication and collaboration with students as well as their lecturers (Watson & Watson 2007).

While each of these categories of e-learning software has a distinctive purpose and character, they share certain functionalities. CMSs

are, however, the primary focus of this paper. Typical course management systems include Blackboard (<http://www.blackboard.com/>), Moodle (<http://moodle.org/>) Atutor (<http://atutor.ca/>), Dokeos (<http://www.dokeos.com/>), Sakai (<http://sakaiproject.org/>) and several more (<http://www.edutools.info>).

Evaluating Usability of e-Learning Systems

Usability is defined as ‘the extent to which a product can be used by specified users to achieve specified goals with effectiveness, efficiency and satisfaction in a specified context of use’ (ISO 9241 1997). According to Nielsen (1993), usability principles ‘are generic guidelines that are applicable to all user interfaces’ with the intention of making an interface user-friendly.

Usability evaluation studies assist in the acceptance and adoption of educational technologies and ultimately improve software users’ productivity. There are several usability evaluation methods (UEMs) namely cognitive walkthroughs, heuristic evaluation, usability testing, surveys, interviews, and observational methods (Dix *et al.* 2004; Nielsen 1994). As mentioned previously, a heuristic evaluation method based on the general heuristics proposed by Nielsen (2005) was chosen to evaluate the selected set of CMS due to its cost-effectiveness and generic applicability to a wide range of applications. The next section discusses heuristic evaluation in more detail.

Heuristic Evaluation

‘Heuristic evaluation (HE) is a discount usability engineering method for quick, cheap, and easy evaluation of a user interface design’ (Nielsen 2005). According to Nielsen (2005) HE is a popular usability inspection method that is a systematic inspection of a user interface design against pre-specified usability criteria. The goal of this usability inspection method is to locate usability problems in the design to be addressed as part of an iterative design process. HE involves a small set of expert evaluators (with knowledge of usability engineering and system domain knowledge) who inspect the

interface and determine its compliance with recognized usability principles (the ‘heuristics’) (Nielsen 2005). An advantage of HE is that it does not require evaluators to undergo training in the use of the target software. The evaluators are given sufficient time to familiarise themselves with the software and in addition evaluators are permitted to request information about the domain if they are non-domain experts (Nielsen 2007a).

Nielsen (2005) cautions that this technique does not provide a systematic method to solve usability problems nor does it suggest a way to assess the quality of any redesigns.

HE is mostly employed during development, but can be an effective technique with fully implemented systems. The research described in this paper used HE to uncover basic usability problems in selected CMSs, i.e. fully implemented systems. According to Nielsen (2007a) the responsibility for analyzing the user interface is placed with the evaluator in a heuristic evaluation session. During the evaluation session, the evaluator examines the interface numerous times, by closely inspecting the different dialogue elements and comparing them with a list of recognized usability principles (the heuristics) (Nielsen 2007a).

The ten general principles for user interface design are described in Table 1 (Nielsen 2005). They are called ‘heuristics’ because they are more in the nature of rules of thumb than specific usability guidelines. These heuristics served as the usability evaluation criteria for the CMSs.

Table 1: General User Interface Design Criteria (Nielsen 2005)

Heuristic	Description
1.Visibility of system status	Users should be kept duly informed on what the systems is doing, how is it reacting to user input and what is going on by means of system generated feedback.
2.Match between system and the real world	The system should speak the user’s language that is terminology should be based on users’ language for tasks; Meaningful icons, mnemonics and abbreviations should be used. In addition information needs to be presented in an intelligible manner.

3.User control and freedom	Users often make mistakes. They need to be able to confidently explore the system without the fear of irreversible damage. Systems should provide cancel, undo, quit, and redo functions.
4.Consistency and standards	Applications should have the same visual appearance throughout the system. Words, commands, actions have same effect in equivalent situations. The same controls should be used and should occupy the same location in all windows. The design should conform to interface standards.
5.Error prevention	Systems should be designed to eliminate or prevent the occurrence of errors by error checking mechanisms for example confirmation options.
6.Recognition rather than recall	Objects, information and actions should be visible or easily retrievable so as to minimise the user's memory load. For example the use of menus, icons, and choice dialog boxes promotes recognition over recall.
7.Flexibility and efficiency of use	Experienced users should be able to perform frequent actions quickly by the use of accelerators such as function keys, abbreviations, context menus, double clicking, navigation jumps to required window etc.
8.Aesthetic and minimalist design	There should be no irrelevant information in dialogues.
9.Help users recognize, diagnose, and recover from errors	There should be no codes in error messages, i.e. they need to be expressed in simple terms, clearly indicate the nature and location of the problem and indicate how it can be resolved.
10. Help and documentation	It should be easy to search for information, help should be focused on the user's task, concrete steps should be provided and documentation should not be too large.

Research Methodology

For this research a case study methodology was followed at the University of KwaZulu-Natal. The unit of analysis was selected open-source course management systems. Data was collected from three groups of evaluators using Nielsen's general 'heuristics' to evaluate the usability properties of selected CMSs. The participants constituting the groups were drawn from Information Systems & Technology honours students that were registered for the Human Computer Interaction module. Students organized themselves into groups for conducting the heuristic evaluation of a CMS. Each group was made up of 3 to 4 honours students. Nielsen (2007a) recommends the use of about five evaluators, with a minimum of three. The postgraduate students chosen to be evaluators in this study have studied and applied human computer interaction (HCI) at the undergraduate and post-graduate levels, and have experience with CMSs. This is consistent with Nielsen's (2005) recommendation that evaluators have experience with both applying HCI principles and with the domain.

The target CMSs selected for the purposes of this study was Moodle (<http://moodle.org/>), ATutor (<http://www.atutor.ca/>) and Dokeos (<http://www.dokeos.com/>). These are all open-source CMSs also known as e-learning platforms that were easily accessible for evaluation and were reviewed by the University of KwaZulu-Natal ICT department with a view to replace the current online learning system (OLS). The ICT administrator provided login access rights and user privileges to participants so that they could accomplish given tasks commensurate with a tutor or lecturer.

Each group of evaluators was required to perform a heuristic evaluation of a given CMS using Nielsen's ten heuristics as described in Table 1. Each member of the group was required to conduct and record the results of the heuristic evaluation separately. Once the individual evaluations were completed, the results were aggregated and documented in a report. This was in keeping with Nielsen (2007a) guidelines for conducting a heuristic evaluation, where individual evaluators examine the interface independently, and only after all individual evaluations have been concluded, are evaluators allowed to communicate and aggregate their findings. Based on the evaluation, groups were required to write a report on the usability of the given CMS, highlighting the usability problems uncovered together with respective severity ratings.

The heuristic evaluation was conducted using a task based approach. The lecturers and tutors have tasks to accomplish and the interface with which users directly interact should be oriented to these tasks (Dix *et al.* 2004). The real world tasks provided the basis for interaction with the respective systems with the aim of identifying usability problems. It is important to note that evaluators were mandated with identifying usability problems against a set of heuristics and not necessarily problems with respect to tasks performed. Consequently evaluators were given an opportunity to get clarification with respect to the tasks to be performed. In addition, the evaluators were given a month to familiarize themselves with the target systems before compiling a report.

Evaluators were given the following tasks to perform with the respective CMSs: register a course/module; publish simple text course outline; add and manage course participants; upload files; make announcements; conduct an online chat with course participants; create a group; conduct a group discussion; add an assignment online; create and share a blog; send an e-mail to course participants; and create a self assessment quiz. The evaluators cum students have prior experience of communicating via the threaded discussion forum, creating blogs, conducting online chats, uploading files, etc. with CMSs and other virtual learning software, and therefore had an understanding of the tasks performed.

An additional step in the heuristic evaluation process requires evaluators to rate all of the usability problems identified. According to Nielsen (2007b) the rating can be done quantitatively using the following 5-point scale as depicted in Table 2. The evaluators were required to record the severity of each usability problem using the 5 point scale listed in Table 2 in their reports. Table 5 presents a summary of the results of the severity rating.

Table 2: Severity Rating Scale for Usability Problems (Nielsen 2007b)

0	I don't agree that this is a usability problem at all
1	Cosmetic problem only: need not be fixed unless there is extra time
2	Minor usability problem: fixing this should be given low priority
3	Major usability problem: important to fix, so should be given high priority
4	Usability catastrophe: imperative to fix this before product can be released

Findings

The heuristic evaluation results are organized and summarized in Table 3 according to heuristics used as the basis for the evaluation. A selected list of usability problems are presented here based on typical heuristic violations.

Table 3: Selected Usability Problems in Target CMSs

CMS	Usability Problem(s)
Visibility of System Status	
ATutor	When uploading a file the user is not aware of the progress of the upload.
Moodle	<ul style="list-style-type: none">• No confirmation message when the ‘save changes’ button is pressed.• No status or progress bar to show the user the amount of time remaining until the file upload is complete.
Dokeos	After correcting error(s), the error box is still visible leading the user to believe that the system is processing an error.
Match between System and the Real World	
ATutor	The word ‘Filter’ is used to initiate the search function which is not consistent with real world conventions.
Moodle	<ul style="list-style-type: none">• The keyboard icon preceded by a question mark is used to invoke the help documentation. A keyboard would not be usually associated with a help function.• The edit icon (‘hand with a pen’) is used to add a course participant, which is more suitable for editing or writing something.
Dokeos	The icons are confusing for example: <ul style="list-style-type: none">• The build icon (‘wand’) is used for editing of questions for quizzes instead of the ‘modify’ (pencil) icon.• The spanner and screwdriver icons are used for ‘course settings’ are more suited to maintenance.
User Control and Freedom	
ATutor	Errors for e-mail messages appear on a new screen and do not support ‘redo’ (resend) once the error appears.
Moodle	<ul style="list-style-type: none">• There are no exit points or undo/redo options available when uploading the file. There is no way of stopping the upload of

	<p>an incorrect file without closing the browser.</p> <ul style="list-style-type: none">• The delete function also does not provide undo/redo.
Consistency and Standards	
ATutor	<ul style="list-style-type: none">• There is no consistency when uploading a file. ‘File storage’ and ‘File manager’ are two ways in which a user can upload files.• The chat system looks totally different from the ATutor interface design and left the user feeling that an external chat was being used.
Moodle	<ul style="list-style-type: none">• ‘File uploaded successfully’ feedback message is in red which is normally user to alert users to errors.• The word ‘beep’ is in blue indicating a hyperlink but it acts like a button, not consistent in terms of standards and has no affordance since the shape and attributes of an object should suggest what can be done with it.• No consistency in button layout throughout the application.
Dokeos	<ul style="list-style-type: none">• A title to be filled for reply thread in a group discussion, instead of automatically filling it in with the original message topic title.• Creating a blog is not intuitive and does not match past experience with other blog displays on web.• The confirmation dialog for initial tasks used a green tick for actions successfully completed. However, when confirming addition of groups, a blue info icon and box is used.
Error Prevention	
ATutor	<p>The create course form has no introductory instructions, which should state that fields marked with an asterix (*) are compulsory fields.</p>
Moodle	<ul style="list-style-type: none">• There is no error prevention for flooding the chat-room with messages which is a commonly banned practice in chat-rooms.• There is no error prevention for abuse of the alert function, ‘beep’.
Dokeos	<p>Field length for course code is not displayed when inputting data.</p>

Recognition rather than Recall	
ATutor	The system does not make certain actions visible.
Moodle	No 'enter/send' button to submit your message in chat rooms. One had to recall this from past experience with chat rooms.
Dokeos	Computer Technology > Objectives > Course description Breadcrumb in the wrong order.
Flexibility and Efficiency of Use	
ATutor	<ul style="list-style-type: none">• No provision for importing class list.• The system lacks accelerators such as shortcut keys or icons that allow for quicker interaction for more experienced users. Uses sub tabs for tasks instead of icons.
Moodle	<ul style="list-style-type: none">• There are no accelerators available for the user to be able to find the option to create a group discussion quickly, or to add and manage participants.• The only way to edit or make the course outline in Moodle is via a 'summary'.
Dokeos	<ul style="list-style-type: none">• After creating a group the system does not allow you to select the participants for groups, rather it adds all registered course participants to the group.• The functionality for course editing or maintenance are spread over 3 different sections in the system.
Aesthetic and Minimalist Design	
ATutor	The announcements page is complicated with the display of a task bar that has no relation to making an announcement (user has to know how to disable task bar).
Moodle	Creating a question for the quiz has too many options.
Help Users Recognize, Diagnose, and Recover from Errors	
ATutor	Although the error message for sending e-mail allows the user to recognize that an error has occurred, it does not diagnose the error, nor does it suggest how to solve the problem.
Moodle	Clicking on 'path' in the summary section produces an error message, which does not help to diagnose or correct the problem.
Dokeos	Error messages are simple and forgiving, but they are generic and do not point out error or suggest ways in which to correct them.

Help and Documentation	
ATutor	Help provided to send an email is not goal oriented and does not provide sufficient information for a user to complete this task.
Moodle	<ul style="list-style-type: none">• There is no task specific help for many of the options on the quiz questions for example terms such as ‘Grade’ and Type are not appropriately defined. The ‘Go’ button does not provide a tooltip to inform the user where they will be taken and what will happen.• A user must understand how hyperlinks work because once you find the e-mail address you have to click on it to mail.
Dokeos	There is very little help provided with respect to a specific task. There are no step-by-step instructions. Even when help is provided the terms are not consistent with the actual system.

Analysis

The usability problems presented in Table 3 were encountered by the evaluators performing the designated tasks that are commonly performed by tutors or teachers. Hence they represent typical problems or difficulties that would be experienced by users of target CMSs. According to Nielsen (2007a), ‘heuristic evaluation aims at explaining each observed usability problem with reference to established usability principles’. Based on the results of the usability evaluation, designers can make the necessary revisions to the system in accordance with the guidelines provided by violated principles for good interactive systems. In addition, there may be many instances where the fixes to usability problems are obvious and easily implemented as soon as they have been identified (Nielsen 2007a). Melton (2004) conducted a heuristic evaluation of Moodle and reported the following violations of Nielsen’s (2005) heuristics: Visibility of system status (‘dependent on the browser’s signals for status’); consistency and standards (‘there may be some variation in consistency across modules’; ‘problem with links’; ‘Navigation is a problem in forums’); error prevention (‘only one prevention mechanism located’); help and documentation (‘no help available from the main page, users need to go into a section’).

Analysis took the form of document analysis which in this instance was evaluators’ reports on the usability of systems. Each group of evaluators

recorded the aggregated findings of heuristic violations for a course management system in a report based on the performance of the same set of designated tasks.

Table 4 presents a count of the distinct usability problem types found with reference to heuristics for each of the target CMSs, together with total heuristic violations.

Table 4: Number of Distinct Usability Problem Types for each CMS

Heuristics	ATutor	Moodle	Dokeos
1. Visibility of system status	1	3	1
2. Match between system and the real world	1	2	1
3. User control and freedom	1	1	-
4. Consistency and standards	3	3	3
5. Error prevention	1	2	1
6. Recognition rather than recall	2	1	1
7. Flexibility and efficiency of use	1	2	6
8. Aesthetic and minimalist design	2	2	-
9. Help users recognize, diagnose, and recover from errors	1	2	1
10. Help and documentation	1	3	1
Total	14	21	15

It should be noted that the number of distinct usability problem types for each CMS cited in Table 4 is a reflection of the evaluators' experiences with specific functionality in the system. Furthermore the count of distinct usability problems in Table 4 did not incorporate repeated occurrences of the same error due to the fact that this was not consistently recorded for each of the ten heuristics in all three reports. Hence the number of distinctive usability problems listed in Table 4 was based on illustrations and discussion of violations cited in the reports, and which were accompanied by a severity rating. It should also be emphasized that the heuristic violations only relate to the functionality of the system involving the pre-defined tasks and not to the systems as a whole. This would explain the low figures of usability problems presented in this research.

The summary data provided in Table 4 provides insight into the scope and degree of usability problems across established usability principles for the target CMSs. For example, evaluators of Dokeos reported a higher incidence of violations of the heuristic ‘flexibility and efficiency of use’ than any other heuristic. This summary helps designers when prioritising and taking corrective action for usability problems.

According to Nielsen (2007b), compilation of severity ratings of usability problems will indicate the order in which usability problems need to be addressed. Accordingly, evaluators’ severity rating scores of 1-2 (cosmetic to minor) were categorized as minor problems, and scores of 3-4 (major to usability catastrophe) were categorized as major problems. Table 5 presents the counts, as well as associated percentages pertaining to major and minor problems for each CMS.

Table 5: Severity of Usability Problems for CMSs

Severity Level	ATutor	Moodle	Dokeos
Minor Problems (1-2)	8	7	5
Minor Problem %	57%	33%	33%
Major Problems (3-4)	6	14	10
Major Problem %	43%	67%	67%

An analysis of the findings of the severity rating evaluations for each CMS follows:

- **ATutor:** ATutor has a few major usability issues when applying the heuristics to the system. In the main, a few cosmetic and minor changes are required for addressing usability problems with severity ratings of either 1 or 2. The major usability problems were associated with the following heuristics: ‘user control and freedom’, ‘consistency and standards’, ‘help users recognize, diagnose, and recover from errors’ and ‘recognition rather than recall’.
- **Moodle:** Evaluators reported a few minor and cosmetic problems that needed improvement, particularly with reference to the heuristic ‘consistency and standards’. Several major problems were identified as important to fix, and as such should be given high priority. These major

usability problems were noted with reference to the following heuristics ‘user control and freedom’, ‘flexibility and efficiency of use’, ‘help users recognize, diagnose and recover from errors’, ‘help and documentation’.

- **Dokeos:** The evaluators reported that the system displayed high conformance for heuristics ‘error prevention’ and ‘aesthetic and minimalist design’. In addition the heuristic ‘recognize rather than recall’ enjoyed support via the use of visual tools and the breadcrumb technique. While the choice of icons did not comply with the heuristic ‘match between system and real world’ the system offered in some instances labels, and tooltips that provided clarity to the icons. The major problems were related to the heuristics ‘flexibility and efficiency of use’, ‘consistency and standards’ and ‘help and documentation’.

Answers to Research Questions

This research has been motivated by a desire to understand the usability properties of CMSs. To this end, the usability properties of three selected CMSs (ATutor, Moodle and Dokeos) were investigated using the heuristic evaluation method.

This section discusses how the findings contribute to answering research questions corresponding with the research objectives outlined for the study.

- *What usability problems were encountered when mapping Nielsen’s heuristics to selected open-source course management systems?*

The output of the HE is a list of the usability problems associated with each of the ten heuristics used as the basis for the evaluation of the target systems (refer to Table 3). This is consistent with the logical outcome of conducting heuristic evaluations whereby ‘usability problems in the interface’ are identified ‘with reference to usability principles that are violated by the design’ (Nielsen 2007a).

- *How effective is heuristic evaluation for uncovering usability problems in interactive systems?*

Heuristic evaluation, based on the basic heuristics defined by Nielsen (2005),

has proved effective as a technique in uncovering several usability problems in interactive systems, in this instance CMSs. Evidence of the effectiveness of this technique is borne by the number and range of usability problem types discovered. According to Nielsen (1992), a heuristic evaluation is likely to be more successful when conducted by individuals who have knowledge of usability engineering and the system domain. A summary of the number of distinct usability problem types for each heuristic in each of the target CMSs was tabulated in Table 4.

Martin *et al.* (2008) performed a comparative usability study, using Nielsen's heuristics, of dotLRN, Moodle, and Sakai e-Learning platforms using Nielsen's heuristics, and reported the following percentage compliance to usability checkpoints: dotLRN 78%; Sakai 77%, and Moodle 68%. Since heuristic evaluation is a subjective technique, it is likely that different evaluators acting independently may discover both similar and dissimilar usability problems. This is consistent with the goal of heuristic evaluation, which is to uncover as many usability problems as possible. The findings of Martin's *et al.* (2008) study and results of this research illustrate the need for designers to pay more attention to the usability properties of course management systems.

A study that compared two evaluation methods namely heuristic evaluation and survey evaluation in evaluating *Info3Net*, which is the course website for *Information Systems 3* students, was conducted at Walter Sisulu University (WSU) in East London. The study involved both experts and students as evaluators. The study included a category on general interface design criteria based on Nielsen's heuristics. For this category, 4 usability experts using the HE method identified 38 problems, compared to 37 usability problems identified by 61 learners (survey method) (Ssemugabi & De Villiers 2007). This evidence from this empirical study relating to general interface design supports the effectiveness of the heuristic technique in that a similar number of usability problems can be identified with fewer resources expended.

- *What are the characteristics of usability problems found by heuristic evaluation?*

Table 5 provided detail on the percentage of minor and major problems encountered in each CMS. The findings as reported by evaluators'

performing pre-defined tasks indicate a higher proportion of major problems for Moodle and Dokeos than for ATutor. Major problems for each of the target systems were associated with specific heuristics described in Table 1. There were several instances of the same usability problem as expert evaluators undertook different tasks, for example, lack of accelerators or shortcuts, inconsistent choice of colours for displaying positive versus negative feedback, poor choice of icons to match real world actions and so on. On the other hand, some heuristics were generally well-supported, but surfaced as a major usability problem in a single location. There was evidence of poor structure or organization of functionality, as was an absence of visual tools such as icons. This is in accordance with Nielsen (2007c) that ‘usability problems can be located in a dialogue in four different ways: at a single location in the interface, at two or more locations that have to be compared to find the problem, as a problem with the overall structure of the interface, and finally as something that ought to be included in the interface but is currently missing’.

Conclusion

Some of the limitations pertaining to this research are the use of only one usability evaluation technique namely heuristic evaluation, the use of only generic heuristics (as opposed to domain specific heuristics), and the use of a small group of evaluators (3-4) for each target system. In order to overcome these limitations, recommendations for future evaluations include an increased number of evaluators for heuristics evaluations; the use of surveys to include a wider testing audience including undergraduate students; and the use of usability testing to provide more comprehensive testing of CMS software aimed at uncovering and reporting a wider spectrum of usability problems. Another limitation is the lack of literature with regards to heuristic evaluation of course management systems as noted in the introduction. This meant that an analysis or comparison of heuristic evaluation results across course management systems, both propriety and open source, was not tenable. The need for domain specific heuristics to evaluate CMSs is of utmost importance and the establishment of such heuristics is acknowledged.

The significance of usability studies is that it highlights usability problems which system designers can use for improvement or correction in

future revisions of the product. Hence usability evaluations play a critical role in the human-centred design process. Furthermore usability studies provide information on the usability properties of interactive software, which helps organizations to make more informed decisions when selecting CMSs for adoption. The ultimate goal is to provide an improved user experience and user satisfaction for this class of software.

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Wireless Network Security

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Abstract

Wireless networking technology opens up a broad range of exciting possibilities for users. Application of technology can help to lower installation costs and time to deploy network infrastructure, can increase productivity and allows for a higher level of flexibility in how people make use of computers in their work and play. There is, however, an inherent information security risk in the use of wireless technology. Wireless signals do not adhere to the containment of walls, fences, wires and other physical constraints. Homes and businesses which host insecure wireless access points open themselves up to a wide range of security threats. To ensure the privacy of transmitted data, all current consumer grade hardware is embedded with various data encryption and protection schemes as a standard feature.

South Africa is currently experiencing tremendous growth in Internet usage and the penetration of broadband technologies in homes and businesses.

This study investigates and assesses the level of application of wireless network security in home and home-office environments – to determine the extent to which adequate security measures have been applied by end-users. Wireless network security can be passively and non-intrusively assessed by means of a wireless audit tool – a system designed to log wireless network signals and their associated security encryption schemes.

Keywords: Wireless Security, Wardriving, Networking

Problem Statement, Objectives and Research Questions

In an article entitled 'How to Secure your Wireless Network' by David Watson (ND), it is noted that although wireless hardware manufacturers provide security features with their products, many hardware vendors disable security features out of the box to ease configuration for end-users. It is conceivable that many end-users make the tacit assumption that the hardware vendors have designed the equipment they are buying with security in mind. Further more, in some circumstances, the possibility exists that security matters are not even considered by end-users when setting up wireless networks. In the same paper by Watson (ND), it is noted that a seven-month security audit conducted in 2002 by the International Chamber of Commerce's Cybercrime Service found that 94% of the 5000 networks audited in central London were completely insecure and could be accessed with little effort.

Homes and businesses which host insecure wireless access points open themselves up to a wide range of security threats. With clear, unobstructed space, a wireless signal may be accessible from more than 500m away from an access point using standard equipment (Williams 2006). Williams also notes that it is possible to detect and connect to wireless networks from further than 500m using readily available, sensitive high gain antennas. According to Posey (2005), in an informal article entitled 'Wireless Network Security for the Home', it is possible to remotely gain unauthorized access to data on computers connected to an insecure network – without the knowledge of the network owner. It is also possible for criminals to make use of unsecured wireless Internet connections to commit crimes and fraudulent activities. Criminal exploitations of wireless networks have been well documented (W1,W2,W3) . Computers can be incidental to a crime (used as storage devices), or can be used as a tool in the commission of a crime (Buys 2004). Traces of these activities by law enforcement agencies lead back to the owner of the Internet connection – and it is difficult to trace further. Owners of insecure wireless networks may find themselves under the spotlight of law enforcement agencies should their networks be compromised and used to commit crimes. It is possible to identify insecure networks through the practice of wardriving.

The practice of wardriving involves the search for wireless networks and the recording of their location and security related attributes (Berghel

2004). People who participate in wardrives often upload their results to Internet-based public databases, an example of which is WIGLE (W4). This is a major security risk for people who run unsecured wireless networks.

This leads to the problem statement for this research: Information regarding the level of application of embedded security features by end-users could prove invaluable to hardware vendors for future designs for wireless equipment. The increasing proliferation of wireless connectivity necessitates a heightened level of security awareness amongst end-users to ensure the confidentiality, integrity and availability of their data and transactions. To facilitate these objectives, there is a need to determine the extent to which adequate security measures have been applied by end-users to their wireless networks.

Hence the objective here is to assess the level of wireless network security to determine the extent to which adequate security measures have been implemented by end-users.

The research question is thus, ‘To what extent have wireless application security measures been implemented by end-users to protect their home networks?’

Literature Survey

According to statistics issued by the International Telecommunication Union (ITU) (W6), as of 2008 there are approximately 3 566 000 Internet subscribers in South Africa – 12% (426 000) of these subscribers are connected to the Internet via broadband technologies. Although Internet penetration for the population of South Africa is extremely low at 7,51 subscriptions per 100 inhabitants as of 2008, South Africa is experiencing a mini growth explosion in the number of broadband connections in the country. According to the ITU, South Africa’s broadband subscriptions have increased from approximately 60 000 subscribers in 2004 – to 426 000 in 2008 – a growth of 610% in 5 years. According to the Africa development indicators for 2007 as released by the World Bank, 2005 statistics reveal that South Africa as a country in Africa has the third highest penetration of Internet access per 1000 inhabitants – following the Seychelles and Morocco.

Government aided initiatives such as the eThekwin Smart City Project (W8) and the Tshwane Smart City Project (W9) aim to bring greater

connectivity and accessibility to the Internet for South Africans. With the introduction of the Second National Operator, Neotel (W10), South Africa may benefit from increased competition in the telecommunications sector – which may help improve broadband penetration through competitive pricing against the incumbent provider.

With South Africa's winning of the bid to host the 2010 Soccer World Cup, there is increased investment in numerous sectors of the economy to ready the country for the event. Large projects to install undersea fibre optical cables to South Africa, including the SEACOM cable (W11), will dramatically improve the international bandwidth available in South Africa.

In a paper entitled *Wireless Infidelity I: War Driving*, Berghel (2004) suggests that wireless-networking technologies can be loosely grouped by topology into four categories. Personal Area Networks (PAN), Wireless Local Area Networks (WLAN), Wireless Metropolitan Area Network (WMAN) and Wireless Wide Area Networks (WWANs). Off-the-shelf, consumer grade wireless networking devices are categorised as Wireless Local Area Network (WLAN) equipment. This study concentrates on Wireless Local Area Networks utilised in domestic and small business environments.

Wireless networking technology opens up a broad range of possibilities for end-users, enabling end-users to enjoy the benefits of high-speed network connectivity together with increased mobility. According to Beech and Geelhoed of HP Laboratories (2002), end-user investment in wireless technology is driven by the perceptions of increased mobility, ease of installation and scalability of the technology. Although some users adopt wireless technology with these perceptions in mind, many end users have purchased wireless enabled routers primarily for their broadband functionality – and not specifically to set up a wireless network (Szewczyk 2006). According to Szewczyk, many broadband ADSL modems that are on the market today are supplied with embedded wireless functionality in an attempt to add value to the user experience. The predominant ADSL provider in South Africa, Telkom, provides wireless enabled ADSL modems as part of its package deal for broadband Internet access (W12). In an article entitled 'How to Secure your Wireless Network' by David Watson (ND), it is noted that many wireless network hardware vendors disable security features out of the box, to ease configuration for end users.

There are a wide range of security options available for securing WLAN networks from unauthorised access. These methods can be loosely grouped into authentication methods and encryption methods (Vibhuti 2005).

One of the most primitive of authentication methods is MAC (Media Access Control) authentication which uses a wireless network interfaces card's unique hardware ID to control access. There are numerous tools available that allow a hacker to penetrate this security measure (Vibhuti 2005).

Wired Equivalent Privacy (WEP) and Wi-Fi Protected Access (WPA) are the two dominant encryption schemes used on wireless 802.11 networks to secure the data transmitted between nodes. There are variants of each of the two schemes: WEP is available with 64bit and 128bit key strength. WPA and WPA2 (a revision of the WPA encryption scheme designed for enterprise networks) can be operated in conjunction with various key rotation and authentication technologies. Wireless encryption schemes are mutually exclusive – you cannot operate more than one of the designated encryption schemes at the same time (Vibhuti 2005).

Technical flaws in both schemes have been amply illustrated by various authors including Mateti (2005), Moen (2004), Watson (2005) and Vibhuti (2005). It is well documented (W26) that it is possible to crack encryption schemes in a laboratory environment and retrieve the key using consumer grade wireless network equipment. Software that is freely available for download from the Internet (W13) can be used on a laptop computer to crack both WEP and WPA wireless encryption keys and gain unauthorised access to a wireless network.

It is possible to remotely gain unauthorized access to data on computers connected to an insecure network – without the knowledge of the network owner (Watson 2005). It is also possible for criminals to make use of unsecured wireless Internet connections to commit crimes and fraudulent activities. Computers can be incidental to a crime (used as storage devices), or can be used as a tool in the commission of a crime (Buys 2004). Traces of these activities by law enforcement agencies lead back to the owner of the Internet connection – and it is difficult to trace further.

Watson (2005) reports that there have been high profile security related incidents involving wireless technology in previous years. In his article entitled 'How to Secure your Wireless Network', Watson cites an

example where wireless cash registers of a US-based consumer electronic giant were found to be operating insecurely. In another example, Watson notes that the closed-circuit camera security system at the Headquarters for the US Defence Information Systems Agency (DISA) was operated and managed via an insecure wireless network – allowing accidental passersby easy access to security footage from the cameras on the network from across the road.

In an informal report by the Durban Wireless Community (Jolley 2007), it was noted that numerous networks operated by professional Wireless Internet Service Providers (WISPs) in Durban operated insecurely – using none of the encryption schemes that are currently available for securing wireless networks. In a paper entitled ‘Hacking Techniques in Wireless Networks’ by Mateti (2005), techniques to ‘sniff’ unencrypted wireless network traffic are discussed in detail. Packet sniffing tools allow for the passive interception and logging of network traffic, for example, confidential emails, authentication details and private Internet related traffic. Customers who wish to transact confidentially across these networks should make use of Virtual Private Networks (VPNs), or SSH encryption to secure their data sessions over otherwise insecure networks as this will help to improve the level of security of these transactions. Unfortunately, the possibility exists that many users are not aware of the state of security employed on the WISP networks – and may transmit unprotected, confidential information over these networks not realising the dangers of doing so.

Wireless networks are often setup behind firewalls allowing a user to access the resources of an organization without passing through the organisation’s border gateways thus exposing the organization to significant risk (Solms 2004).

Wireless auditing tools are designed for lawful, legitimate purposes (Berghel 2004). Wireless audit tools can be used to help with the control and regulation of output signal strength, monitor bandwidth consumption and plot the coverage patterns and availability of wireless networks. According to Potter (2005) in a paper entitled ‘Wireless Vulnerability Assessment’, wireless-auditing tools can be used by organisations to manage wireless vulnerabilities. Potter notes that wireless auditing tools could prove

invaluable to organisations that need to monitor for the presence of rogue access points to ensure a high level of network security.

Although wireless auditing tools are designed for lawful purposes, the possibility exists that the information collected by these tools could be used for unlawful purposes (Berghel 2004). From a technology perspective, the tools to perform wireless auditing are the same as the tools that could be used to gain information that could aid a hacker in gaining unauthorised access to a wireless network. One of the solutions to wireless security that presents itself is to raise the awareness of end-users regarding wireless security, the capabilities of wireless auditing tools and the uses to which they are put. End-users who are equipped with this knowledge would be better able to secure their networks from unauthorised access and misuse.

The ethics and legalities regarding the use of computer security assessment tools have been questioned over the past few years. The introduction of Paragraph 202 StGB by German lawmakers prohibits the development, hosting or distribution of computer security assessment tools within the country (W16). Computer security tools such as NMAP (W17) could be used for illegal purposes to gain unauthorised access to computer networks. The ban on security tools encompasses all related security tools – from popular penetration testing tools such as Backtrack (W18) to lesser-known tools including Kismac (W19).

Research Methodology

The practice of wardriving involves the search for wireless networks and the recording of their location and security related attributes. A war driver (person who conducts a wardrive) would utilise a wireless enabled portable computing device (usually a PDA / laptop computer), coupled to a GPS device. Purpose built software such as Netstumbler for Windows (W14) or Kismet for Linux (W15) is used to manage the scanning process and maintain a log file of discovered networks. Wardriving is a passive process – wireless auditing tools utilised in the wardriving process do not actively engage with surrounding wireless access points – and are set to detect (observe) and record network signals which are encountered during the scanning process. People who participate in wardrives may choose to upload their results to public databases that can be accessed via the Internet.

Databases such as WIGLE (W4) allow any registered user to learn the geographic location of any wireless network in the system. As of October 2008, the WIGLE database (W4) contained more than 17 million networks that have been detected and uploaded (site accessed 11 June 2009). This is a major security risk for people who run unsecured wireless networks – it is easy for attackers to learn the location of these networks by simply accessing an online database.

The research instrument used in this investigation was a wireless security-auditing tool - a software program installed on computer hardware to passively capture, log and analyse signals from wireless networks surrounding the user. A wireless security-auditing tool is used while wardriving to capture security related data for wireless networks.

Prior to conducting the wardrive, two routes of approximately 10km each were predetermined by means of a random sampling method. The routes selected are indicated on maps contained in the appendix.

Both of the predetermined routes were analysed on separate days - Monday the 22 of September 2008 and Tuesday the 30th of September 2008. The second drive was selected to fall within school holidays – with the assumption that users may switch off their wireless networks when not in use – during school holidays there is a greater chance that more networks will be available as learners would be at home and may be making use of the Internet.

Three laptop computers were simultaneously utilised as research instruments to detect and log wireless networks while driving the predetermined routes:

- Apple Macintosh Macbook running OSX 10.5 – loaded with KisMac 0.21a to detect networks;
- Apple Macintosh Macbook Pro running OSX 10.5 – loaded with KisMac 0.21a to detect networks; and
- HP Compaq nx8220 laptop running Windows XP Professional – Loaded with Netstumbler 0.4.0 to detect wireless networks. The laptop was connected to a Garmin ETrex GPS to log the location of detected networks. The GPS provides accuracy of results to within 12 meters.

It is important to note the different hardware specifications of the laptop computers selected for the detection and logging of wireless networks for the wardrive. Variances in antenna gain, physical positioning of the internal antennas inside each laptop computer, the wireless chipset and other related factors may contribute to variances in the number of networks detected by each laptop computer and the effectiveness of each as a wireless audit tool. To ensure the maximum number of networks could be detected, multiple laptop computers with differing wireless specifications were utilised. The log files from each of the laptop computers were combined to create a master log file. Wireless access points can be uniquely identified by their MAC address as detected by the wireless auditing tool – allowing for any duplication of network detection to be eliminated.

A Garmin Nuvi 310 was used in addition to the Garmin ETrex in accordance with the predefined rule set to aid the researchers in the event of road closure or obstruction that would require a deviation from the route.

The wireless audit tool revealed the following attributes of each wireless network:

- SSID (Network Name);
- Network BSSID (MAC address of wireless access point);
- The level of encryption employed (None, WEP, WPA);
- The GPS location of the wardrive vehicle at the time the network was discovered;
- Signal strength, data rate configuration and various other technical attributes; and
- The possibility to detect the hardware vendor of the wireless access point by looking up the MAC address in a Hardware Vendor MAC address database – Netstumbler includes this functionality.

The log files from each of the three laptop computers were combined into a master log file that was analysed using Microsoft Excel, KisMac, Google Earth and SPSS.

Earth Stumbler v0.2 (W5) is a free utility that was used to convert the master log file from Netstumbler format to Google Earth KML format. This utility enabled the researcher to generate an additional data layer for Google Earth maps, which contains a distribution of the wireless networks detected.

Data Collection

Paragraph format, Times New Roman 11 pt, single space, justified, 1 cm indented, 6 pt spacing after.

Data Analysis

An understanding of the application of encryption schemes for wireless networks for the wardrive sample provides an insight into the level of security that end-users have implemented for their wireless networks. Figure 1 contains a summary of the application of wireless security schemes of the 234 uniquely identifiable wireless networks as detected during the co-ordinated wardrives of September 2008.

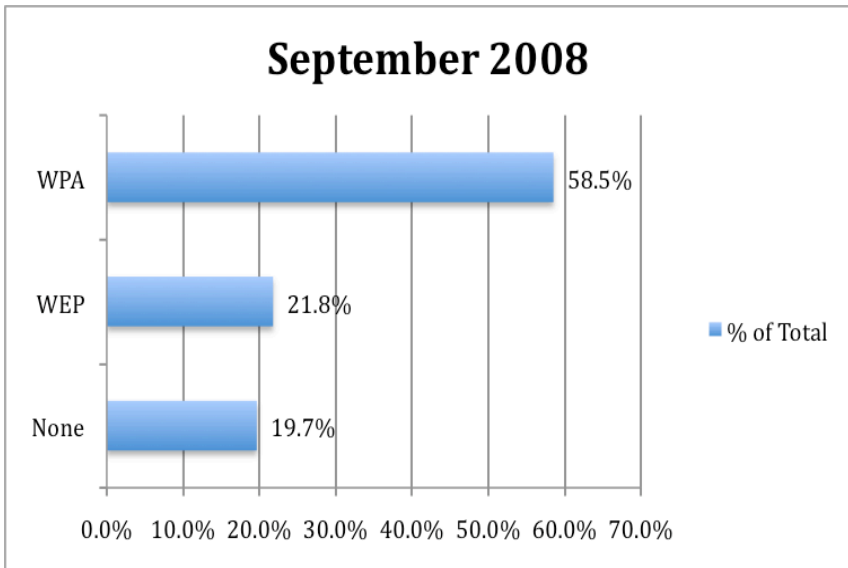


Figure 1: Detected Networks – September 2008

Figure 2 presents data for a wardrive conducted in June 2009 during which 325 unique networks were discovered.

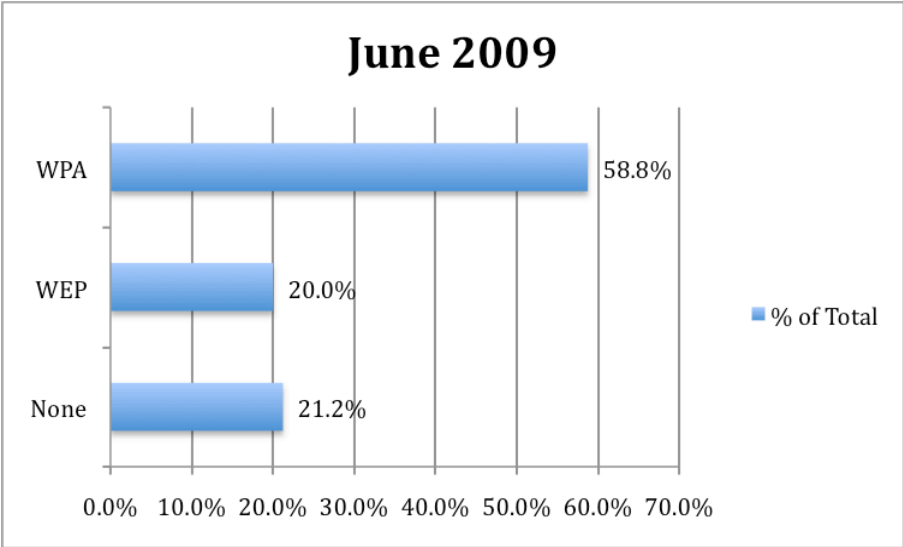


Figure 2: June 2009 Wardrive

The results of wardrives conducted during February 2007, September 2008 and June 2009 are collected in Table 1.

Security Level	June 2009		September 2008		February 2007 (Source: Jolley 2007)	
	Count	% of Total	Count	% of Total	Count	% of Total
None	69	21%	46	20%	293	39%
WEP	65	20%	51	22%	308	41%
WPA	191	59%	137	59%	156	21%
Total Networks	325		234		757	

Table 1: Summary of Detected Encryption Schemes

WEP encryption is considered a poor choice for securing a wireless networks due to the inherent technical flaws in the scheme which have been amply illustrated by various authors including (Mateti 2005), (Moen 2004) and (Vibhuti 2005). According to this definition, approximately 40% of the networks discovered during the 2008 and 2009 wardrives could be considered insecure.

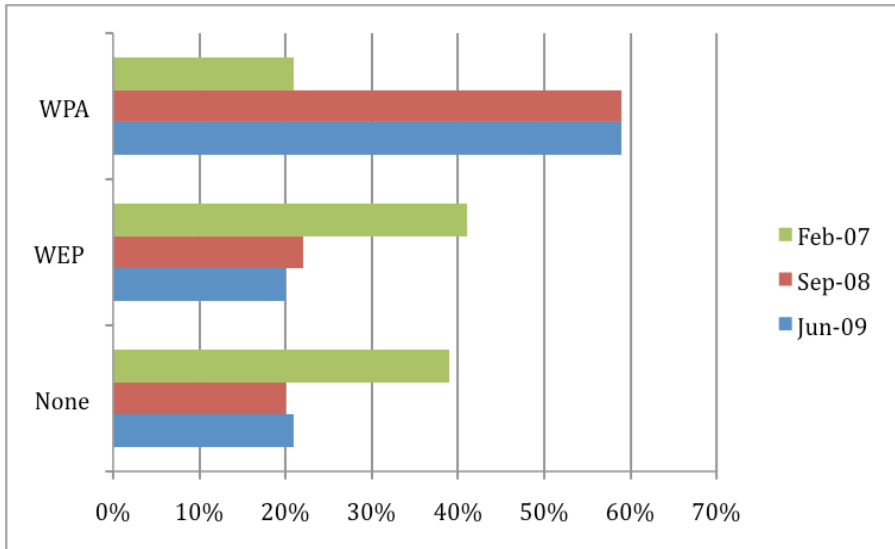


Figure 3: Encryption Schemes

WPA encryption is considered more secure than running an open network, or encrypting traffic using the WEP security scheme, Vibhuti (2005). Data from the September 2008 and June 2009 wardrives reveals a reduction in aggregate use of the WEP encryption scheme relative to the respective samples (41% reduced to 22% and then to 20%), as well as a reduction in the percentage of open networks detected from February 2007 to September 2008.

The results from the coordinated wardrives during September 2008 and June 2009 suggest a significant improvement in the aggregate security configuration of the networks detected when compared with data collected by the Durban Wireless Community in February 2007.

Answers to Research Questions

Results from the wardrives of June 2009 and September 2008, combined with results from the Durban Wireless Community wardrive of February reveal a trend in the application of security schemes by end-users for their wireless networks.

As discussed, WPA is considered a more secure encryption scheme than WEP and is generally accepted as the current benchmark scheme for wireless security (Vibhuti 2005). A comparison of the aggregate results from each of the aforementioned studies reveals an increase in the application of the WPA encryption scheme for end-user wireless networks.

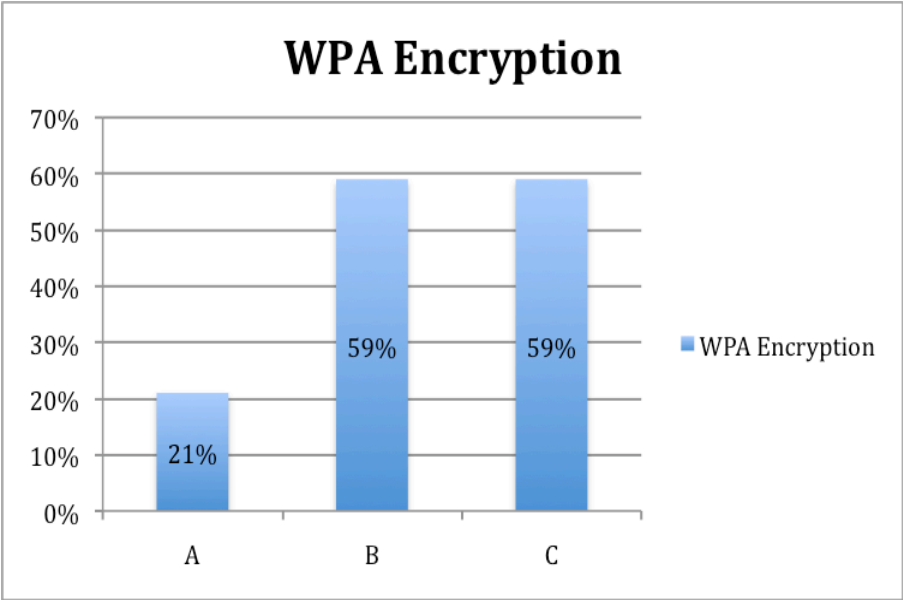


Figure 4: WPA Encryption - June 2009 (C), Sept 2008 (B) and Feb 2007 (A)

A comparison of the aggregated results from each of the aforementioned studies reveals an increase in the application of the WPA encryption scheme for end-user wireless networks. Data from the wardrives conducted by the researcher in September 2008 shows a significant increase

in the percentage of secure networks of the sample compared with historical data. This upward trend would suggest an improvement in the security posture of end-users, as a greater proportion of the sample is using the more secure encryption scheme. Data from the wardrive of June 2009 shows a negligible increase in the percentage of WPA secured networks when compared with September 2008.

As indicated earlier, WEP is considered a weak encryption scheme compared to WPA (Vibhuti 2005). Certain authors including Watson (ND) and Szewczyk (2006) have suggested that WEP encrypted networks should be categorised as insecure networks from a security perspective due to the relative ease with which these networks can be compromised. Converse to the noted increase in the percentage of networks which are secured with WPA, there is a downward trend for the application of the WEP encryption scheme for wireless networks. A comparison of results from the three datasets reveals a downward trend in the application of WEP encryption for wireless networks. There is a decrease from 41% in February 2007 to 22% and 20% detected for September 2008 and June 2009 respectively.

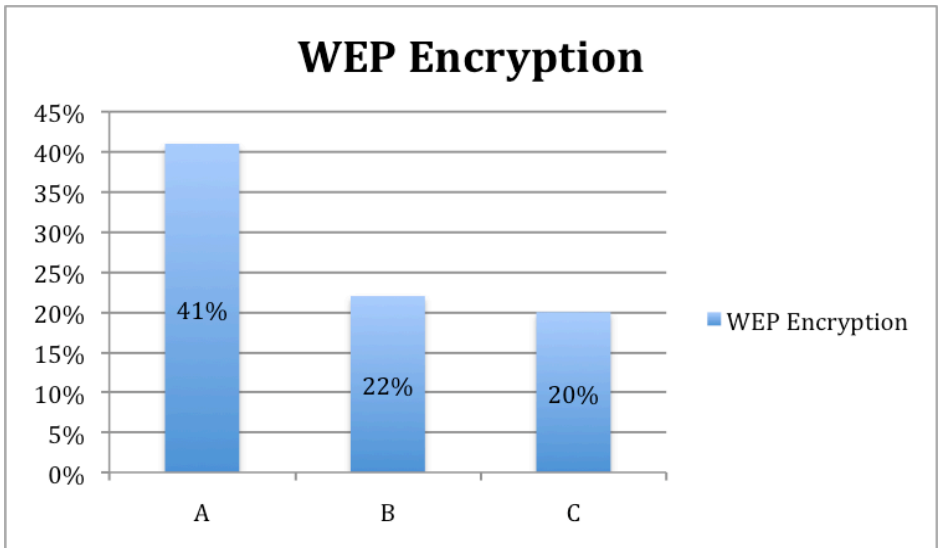


Figure 5: WEP Encryption - June 2009 (C), Sept 2008 (B) and Feb 2007 (A)

The percentage of networks detected which lack WEP or WPA encryption has decreased from 38% in February 2007, to 20% in September 2008. There is a marginal increase (1%) in the number of unsecured networks in June 2009. It is conceivable that a portion of the unsecured (no wireless encryption scheme applied) networks detected may have been intentionally setup in this manner. Wireless hotspots in hotels, restaurants and other areas (especially bed and breakfast establishments) are often configured to operate without WEP or WPA encryption to simplify access for patrons (Vibhuti 2005). This paradigm may explain the 1% increase in unsecured networks as detected in June 2009.

Conclusion

As discussed in the Data Analysis section of this paper, there is a general improvement in the security posture of wireless networks from February 2007 to June 2009. Penetration of the WPA encryption scheme has increased from 21% to 59% in just over two years. The percentage of unsecured networks has dropped from 39% to 21% in the same timeframe. WEP secured wireless networks have decreased from 41% to 20% from 2007 to 2009. It is conceivable that the remaining WEP secured networks detected during 2009 are comprised from older network hardware – the majority of modern wireless access points are either unsecure by default, or force the end-user to apply WPA encryption before enabling the service (Vibhuti 2005), or alternatively, as indicated earlier, are left open intentionally. It is expected that as this hardware is upgraded in the coming years, the utilization of the WEP encryption scheme will tend to zero, as WEP is generally more difficult to configure from the usability point of view and is less secure than WPA.

Wireless networking technology serves as a powerful enabler for mobility. However, there are inherent information security risks associated with the use of this technology. It is of utmost importance that wherever possible, wirelessly transmitted data is secured by means of an encryption scheme to ensure the confidentiality and integrity of a transmission, as well as to prevent network resources from being accessed by unauthorized users.

It is important to note some of the SSIDs (text based, user defined identifiers for wireless networks) detected during the wardrive were set to

values that could reveal sensitive information about the network owner or the network itself, thus compromising security. Individuals who use their home addresses, first names, surnames or any other personally identifiable information for naming their wireless networks are essentially providing data that could be used in an exploit by a social engineer. Social engineering is the art of manipulating people into performing actions or divulging confidential information (Powers 2006). It is therefore recommended that end-users choose SSIDs that do not reveal personal information about the network owner of the network itself.

The 2010 Soccer World Cup in South Africa has resulted in an associated influx of people and an increase in online commercial transactions. It is of utmost importance that security is considered while planning the expansion of computer networks – in homes, businesses and government. The explosive growth of broadband technologies in South Africa, combined with the low levels of computer education and technical skill could result in South Africans becoming targets for computer based crimes. End-users need to be security conscious to protect their data and transactions – especially when making use of wireless technology.

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The Impact of Learning Styles on the Acquisition of Computer Programming Proficiency

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Abstract

Computer Programming forms the basis from which most students of information technology ‘launch’ themselves into further endeavours within the discipline. However, statistical analysis of students’ performances in programming related assessment tasks reveals that the mastery of computer programming skills is not easily acquired. This assertion is supported by reports of high failure rates in computer programming courses at several academic institutes. This trend is also confirmed at the University of KwaZulu-Natal (UKZN) where programming related assessments have resulted in failure rates as high as 50%. In order to investigate this dilemma, a phenomenographic approach is used to discover how students experience the phenomenon of computer programming. The investigation is conducted with reference to the deep and surface learning styles framework. Student responses to interview questions on computer programming are classified according to this framework. It was found that at least 50% of the respondents adopted a surface approach towards the learning of computer programming. A point bi-serial correlation was drawn with the students’ performance in a computer programming examination. There was a strong correlation between the learning styles adopted by the students and their performance in the computer programming examination.

Keywords: Computer programming, deep and surface learning, phenomenography, point bi-serial, qualitative, stratified random sampling,

pedagogy of computer programming, post-modernism, interpretivism

Introduction

The learning of computer programming has been identified as problematic by the academic fraternity. Cognisance of this sentiment is attested to by a growing number of literary inquisitions that attempt to identify factors that may contribute towards obviating this stigmatic attachment. According to Efopoulos *et al.* (2005), there is a growing research impetus in the area of computer science education. This has resulted in the emergence of journals that have either exclusively focused on the teaching of computer programming or have a significant proportion of publications relating to the teaching/learning of computer programming (e.g. Computer Science Education, International Journal of Human-Computer Studies, Association for Computing Machinery (ACM), Journal Storage (JSTOR)). A possible explanation for this elevated interest in the teaching/learning of computer programming is that:

software construction is a complex, socio-technical, cognitive process that requires a combination of technical, social, analytical and creative abilities (Rose, Heron & Sofat 2005).

Many studies on the learning of computer programming (e.g. Pea & Kurland 1984; Kaczmarczyk *et al.* 2010) allude to the deep misunderstanding of programming related concepts by adult novice programmers. Hence, attempts at resolving the impasse between novice and expert programming will not be an easy task. A consequence of this dilemma is a declining set of standards in elementary programming courses coupled with an increase in the failure rates (Warren 1991). This trend is also confirmed currently at the University of KwaZulu-Natal (UKZN) in the School of Information Systems and Technology (IS&T) where programming related assessments have resulted in failure rates as high as 50%. These sentiments tend to echo an unequivocal belief that the acquisition of competence in computer programming is no trivial achievement.

The Positivist Paradigm and Computer Programming

The enigmatic status regarding the pedagogy of computer programming seems to be perpetuated by the failure of the positivist paradigm to embrace the complexities inherent in such studies. The use of empiricism without theoretical quality frameworks to underpin research efforts has resulted in a paradoxical situation where the combined effort is disparate in nature. According to Sheil (1981), the use of empirical methods to underpin research in the domain of computer programming has not been conclusive from the perspectives of reliability and generalisation. Hazzan *et al.* (2006) comment that:

the ominous tendency of the Hawthorne effect to discredit experimental research has resulted in the spawning of post-modern methodologies that are empirically qualitative.

Traditionally, computer programming is considered to be a ‘scientific activity’. Hence, a natural consequence should be that research in the field would have strong inclinations towards positivism. However, Murnane (1993: 216) goes on to counter this argument by asserting that:

no studies have shown that students who perform well in the traditional sciences have any particular advantages when it comes to programming [T]he development of a computer language may be a scientific process, but the authoring of a program written in that language is not.

Another significant contribution that can be added to the ‘mix’ is made by Strauss and Corbin (1990:17) who claim that:

qualitative methods are used to better understand phenomenon about which little is already known or to gain in-depth information that may be difficult to convey quantitatively... embodying a research demeanour that is not fully dependent on statistical procedures and other means of quantification.

According to Sanders, Lewis and Thornhill (2003:83), the invocation of qualitative methods would classify a research project as interpretative. The interpretive approach embodies an:

understanding of the social world from the 'inside', a world which considers the minds of people and their interactions with one another and their environment (Klopper 2008).

The evidence gathered from these literary sources suggests that research into the learning of computer programming should embrace post-modern philosophies such as interpretivism, as a viable option. This embodies a research ethos that accommodates the mixing of diverse ideas and methodologies that are qualitative in essence. This assertion is corroborated by the claim made by Berglund *et al.* (2006) that:

the qualitative research paradigm enables the drawing of a more solid and significant conclusion about how students learn computing.

Research Question

The current study embraces the ideals of post-modernism and engages the phenomenographic research strategy to gain knowledge of the ways in which learners come to grips with the concepts and principles of computer programming. Phenomenography is defined by Eckerdal, Thune and Berglund (2005) as:

an empirical, qualitative research approach where the object of interest is how a certain phenomenon is experienced by a certain group of people.

The deep and surface theoretical framework is employed to underpin this study. A precise research question reads as follows:

- What is the impact of learning styles (as embodied by the deep and surface framework for learning) on the acquisition of computer programming knowledge?

The sub-questions are as follows:

- What is the pre-dominant learning style employed by students learning computer programming?
- What is the correlation between learning styles and students' performance in computer programming assessment?

The Deep and Surface Framework

There have been many definitions of the concepts of deep and surface learning (e.g. Booth & Morton 1997: 34; Martin & Saljo 1976; Rhem 1995; Cope & Horan 1998; Hughes & Peiris 2006; Simon *et al.* 2006; Haripersad 2010). A common theme in these definitions is that the surface approach to learning entails memorisation, rote learning and consumption of knowledge from a quantity perspective for the purpose of reproduction at some assessment forum (such as an examination). The deep approach to learning entails intimate and quality driven understanding of content for the purpose of application and extension beyond the factual dimension. Lewandowski *et al.* (2005) cite various studies that are consistent with their assertion that: 'experts form abstractions based on deep (semantic) characteristics rather than on surface (syntactic) characteristics'. A listing of the characteristics of the deep and surface learning style framework gleaned from the sources mentioned above entail the following:

- Surface learning is related to passive processing that lacks reflection, uses low-level meta-cognitive skills and is extrinsically motivated.
- Deep learning is a product of active processing that is intrinsically motivated, reflective, and uses higher-level meta-cognitive strategies.
- Surface learning may result in good memory for facts and definitions, but has a limited ability to understand or use them.
- Deep learning, results in facility of thought derived from linking newly acquired facts and definitions into a conceptual framework of existing knowledge.

- Students who use surface learning may do well on tests that assess learning through knowledge of facts and definitions; they may not understand or be able to apply the memorised and superficially processed information.
- Students who use deep learning are able to understand, apply, and use information learned.

The impact made by this framework on the learning of computer programming cannot be ignored and is corroborated by a study undertaken by Booth (2001). Booth investigated the significance of the style of learning on the acquisition of competence in computer programming. She classified student programmers as either novices or experts. In order to make this classification, she conducted interview sessions with students to ascertain their level of understanding of computer programming. Individual responses were classified as a demonstration of either deep or surface knowledge of programming. The outcome of this exercise was an overall classification labelling a student as either an expert programmer if the majority of responses were classified as deep or a novice programmer if the majority of responses were classified as surface. The findings of Booth's phenomenographic study into the understanding of computer programming from a deep and surface perspective were that students who approached learning to program as learning to code in a programming language or as a pre-requisite for simply passing the course exhibited a surface approach to learning thereby rendering themselves as novice programmers. In contrast, students who focused on understanding the problem domain adequately in order to produce a product that could be used in a professional environment exhibited deeper learning traits thereby rendering themselves as experts. The current study undertook to replicate this study on students in the School of IS&T at UKZN.

Data Collection

It is reported in Hoepfl (1997) that interviews are the primary strategy for data collection when the phenomenographic approach to research is employed. The data collection strategy for the current study is commensurate

with the assertion made by Hoepfl and aligned to a similar study conducted by Bruce *et al.* (2006).

The primary target population consisted of students who had completed the ISTN 212 course in computer programming in the School of IS&T. This course was offered at the Durban and Pietermaritzburg campuses of UKZN. The target population consisted of 261 students. Students were informed of the voluntary nature of their participation as well the non-obligatory demeanour of the interview questions. The interview sample consisted of 35 students from the target population who participated in a one hour semi-structured interview. In accordance with the sentiments expressed by Hoepfl (1997) the objective was to seek information-rich cases that can be studied in depth. This is an embodiment of an approach that prioritises the depth that can be ascertained from the data source at the expense of the volume of data.

According to the literature several variables could qualify as potential detractors to any focused study on the learning of computer programming. The significant factors identified were the influence of culture (Bishop-Clark 1995; Rose, Heron & Safat 2005), previous programming experience (Byrne & Lyons 2001; Hagan & Markham 2002; Wilson & Shrock 2002; Allert 2004; Bergin & Reilly 2005; Govender 2009), gender (Bennedsen & Caspersen 2005; Lau & Yuen 2009) and mathematics and problem solving ability (Pillay & Jugoo 2005; Pioro 2006; Bennedssen & Caspersen 2008). In order to accommodate and possibly minimise the influence of these factors, a stratified random sampling strategy was employed. Interviewees were selected in order to obtain adequate representation from the spectrum of variables identified. Twenty students from each campus (Durban and Pietermaritzburg) of UKZN were invited to participate in the interview sessions. There was one student from the Pietermaritzburg campus and four students from the Durban campus who were absent from the interview sessions. However, this did not have a significant impact on the data as there was a liberal presence of respondents from the different variable classifications.

Data Presentation

The interview consisted of 12 questions. The main strategy involved classification of interviewee responses to each interview question as either

deep or surface. This judgement was made on the basis of the quality and depth of understanding inherent in the responses to each question. In accordance with the dictates of qualitative research, the researcher's subjective judgement, underpinned by knowledge in the subject area was used to make the distinction between deep and surface responses. However, there were instances where an absolute classification could not be made. In these situations, a value of neutral was assigned to these responses.

In order to explain the logic used in making the classification according to the deep and surface framework, a few examples of verbatim responses extracted from the interview transcripts are presented: Here is a student's response to the question: How would you inter-change the value of two variables named x and y?

Create another constant variable X equalling ten, just as a value, to switch it and, then switch A from ten to thirty, then you just add two X, or if you want, well A could be X, so you could say A plus two A, gives you the new A, and B minus A equals the new B, and C minus A equals the new C.

An analysis of this response reveals that the student was able to accomplish the required task for the specific problem presented. However, the lack of generalisation curtailed any prospect of applying the same solution strategy to another set of input values for the same task. The respondent is thus classified as a surface learner in this instance. This classification is in direct contrast to the classification made for the following response for the same task by another student:

I initialise a variable temporary, then I take the value of C, and I assign the value of B to C. Oh, before that, I will assign C to a temporary variable, and then I will assign B to C, and A to B and I will assign the temporary, that temporary to A.

In the instance above, this response is indicative of expert understanding of the problem domain where the solution offered is applicable in a generalised context. Hence, the student is classified as a deep learner in this instance. Another demonstration of the deep and surface framework is presented in

relation to the applicability of an unconditional or ‘for ... do’ loop. The student is given a scenario that required the computation of the average of a finite set of numbers. The interaction between student and interviewer is as follows:

Student: I would use a Do loop (Student).

Interviewer: Why can’t a For loop be used?

Student: Because For loops are generally associated with arrays.

Interviewer: Why wouldn’t you use a While loop?

Student: You can use the While loop but I’m more comfortable with a For loop.

The student’s response is correct in this instance. In a written examination that required implementation of the looping construct, the student would probably score maximum marks. However, the explanation for the choice of looping structure is indicative of a superficial or a surface learning demeanour. The student was not able to offer an adequate generalisation for the implementation of the ‘For’ looping construct. However, the student has been able to construct a personal cognitive model for looping that has been applied successfully to specific problem situations. This conclusion is established from the comment that ‘... “For” loops are generally associated with arrays’. The problem here is that this cognitive model is not completely reliable and there are exceptions where it will not work. Hence the response provided by the student in this instance is classified as surface learning.

There were cases where it was not possible to make distinct classifications. This could be attributed to situations that required excessive intervention by the interviewer or cases where the responses given were somewhat confusing. These responses were interspersed with elements of deep understanding, but the impact of these responses was diluted by comments that may have been indicative of superficial understanding. In the following excerpt, the student was required to comment on the applicability of the ‘While’ loop in preference to a ‘Repeat’ loop. The following response was given:

When they ask the question ‘do you want more items?’ and then do

everything it is the While Loop; If they ask the question after doing everything it is a Repeat Loop.

In this case the answer is correct and also indicative of meaningful understanding of the difference between both loops. However, the student did not allude to the significance of the fact that the ‘Repeat’ loop was always executed at least once. The inability to make this generalisation begins to impart a measure of doubt to the inclination of classifying this response as indicative of deep learning. In cases such as this, there was no classification made, reflective of the researcher’s neutral stance towards the response.

Data Analysis

After classifying the individual responses as either deep/surface/neutral, there was the additional dilemma of making an overall classification from the tally of individual deep and surface classifications. However, an analysis of the tally of deep and surface scores for each student revealed a discernable difference between the scores for each classification. This observation simplified the task of making an overall classification. A ‘snapshot’ of the deep and surface tallies is presented in Figure 1:

◇	F	G	H	I	J	K	L	M	N	O	P
1	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12			
2									Deep	Surface	Neutral
3	neutral	deep	deep	deep	deep	deep	deep	neutral	10	0	2
4	neutral	surface	surface	surface	surface	surface	surface	neutral	1	9	2
5	surface	surface	surface	surface	surface	surface	surface	surface	2	10	0
6	surface	surface	surface	surface	surface	surface	surface	surface	0	10	2
7	deep	deep	deep	deep	deep	deep	surface	neutral	10	1	1
8	surface	surface	surface	surface	surface	surface	surface	neutral	3	8	1
9	surface	surface	surface	surface	surface	surface	surface	neutral	1	10	1
10	deep	deep	deep	deep	deep	deep	surface	neutral	10	1	1
11	surface	deep	deep	deep	surface	surface	surface	neutral	6	5	1
12	surface	deep	surface	surface	neutral	surface	surface	surface	4	7	1
13	surface	surface	surface	surface	surface	surface	surface	neutral	2	8	1
14	deep	deep	deep	deep	deep	deep	deep	deep	12	0	0
15	deep	deep	deep	deep	surface	neutral	surface	neutral	8	2	2
16	surface	deep	surface	deep	neutral	surface	surface	surface	5	6	1

Figure 1: ‘Snapshot’ of the Deep and Surface Data Tallies

In the instances where this difference was not that discernable or there were a significant number of neutral responses to individual questions, an overall classification of neutral was made. A graphical summation of the classifications is shown in Figure 2.

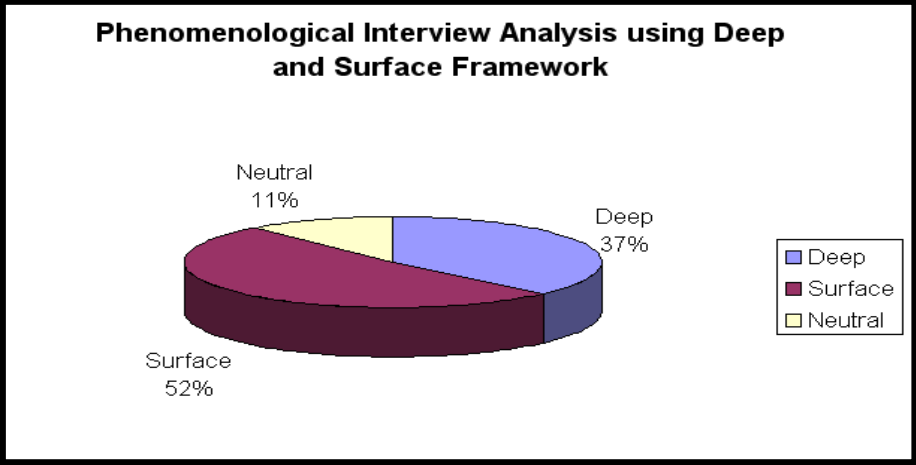


Figure 2: Results of the Interview Analysis using the Deep and Surface Protocol

Responses from 4 of the interviewees were classified as neutral. Hence, this leaves a complement sample of 31 as the focus of some descriptive statistical analysis. Looking at the graphical summary in Figure 2, it is evident that the majority of the students from the sample (52%) exhibited a surface approach to the learning of computer programming. Adopting a comparative stance, it is interesting to note that the proportion of deep learners turned out to be 42% and the proportion of surface learners was 58%. A by-product of this analysis is an inquiry into the feasibility of conducting an extrapolation from the sample onto the population.

An Inferential Dimension

The qualitative nature of this study precludes any adherence to the norms of quantitative methodology. However, in order to expand the potential of this study, an incursion into inferential statistics is undertaken. It should be noted

that this may justifiably be viewed with suspicion since it is not the intention of the study to make inferences about the population on the basis of the sample used. In the case in discussion, the sample size is 35. Lind *et al.* (2005: 273) remark that:

statistical theory has shown that samples of at least 30 are sufficiently large to allow us to assume that the sampling distribution follows the normal distribution.

The underlying qualitative ethos of the data gathering activities meant that with a sample size of approximately 12%, a confidence interval could be constructed for the population proportion. Applying the formula for a population proportion, $p \pm \sqrt{\left(\frac{p(1-p)}{n}\right)} = 0.58 \pm 1.96 \sqrt{\frac{0.58(1-0.58)}{261}}$ and using a 95% confidence interval, we obtain the interval range to be between 50% and 62%. This inference is that at least 50% (with a 62% worse-case scenario) of the population will display a surface learning demeanour towards computer programming.

A Correlative Analysis with Formal Assessment

A correlation between the students' learning styles (deep or surface) was drawn with their performance in a computer programming examination. This correlation entailed a comparison between a dichotomous variable (learning style) and a continuous variable (examination mark) thereby necessitating the implementation of point bi-serial analysis. It is suggested in Glass and Hopkins (1996) that the point bi-serial correlation is mathematically equivalent to the Pearson product moment correlation. The result of this correlation is shown in Table 1.

		Exam-Mark	Deep-Surface
Exam-Mark	Pearson Correlation	1	.896 (**)
	Sig. (2-tailed)		.000
	N	34	34
Deep-Surface	Pearson Correlation	.896 (**)	1

Sig. (2-tailed)	.000	
N	34	34

** Correlation is significant at the 0.01 level (2-tailed).

Table 1: Point Bi-serial Correlation of Examination Mark and Learning Style

Answers to the Research Questions

The first sub-question of the current study entailed an inquiry to ascertain the pre-dominant learning style adopted by students in their learning of computer programming. The summary of results obtained (shown in Figure 2) indicate that at least 50% of the students adopt a surface style of learning in their efforts to acquire computer programming knowledge.

The second sub-question entailed an inquiry to ascertain a possible correlation between the learning style adopted and students' performance in computer programming assessment. The results of the correlation analysis (shown in Table 1) depict a strong relationship (0.896) between student performance in computer programming assessment and the learning style adopted. Students who adopt a deep approach to the learning of computer programming score significantly higher marks in computer related assessment than students who adopt a surface approach to the learning of computer programming.

The main research question entailed an inquiry to establish the impact of learning styles on the acquisition of computer programming knowledge. The evidence provided by the answers to the 2 sub-questions indicates that students who adopt a surface strategy towards the learning of computer programming will not acquire mastery of computer programming skills. This may be reflected by a poor performance in computer programming assessment. The strong correlation between learning styles and performance in computer programming assessment indicate that the reverse is also true i.e. students who adopt a deep strategy towards the learning of computer programming will acquire mastery in computer programming. This may be reflected by a very good performance in computer programming assessment.

The current study indicates that the learning style adopted by students does have an impact on computer programming performance. However, it should be noted that this assertion does not necessarily constitute a causal relationship. The answers to the research questions were obtained via abductive reasoning, defined by Klopper (2008) as an approach where:

the researcher accounts for her/his own inter-subjective influence on subjects' responses and how s/he interprets the results.

Conclusion

This study was conducted in the context of poor student performance in computer programming. This study has established that a possible cause for poor performance is a lack of deep understanding of fundamental concepts that underpin the discipline of computer programming. The statistical inference from this study reveals that at least 50% of the population of students who will be enrolled in computer programming courses will adopt a surface approach towards the learning of computer programming. The implication is that these students will adopt an approach that entails the learning of programming code from a syntactic and semantic perspective in order to pass the course. This implication needs to be noted from a pedagogical perspective, necessitating the use of teaching and assessment strategies that encourage the inculcation of deep learning traits thereby minimising the prospect of superficial learning with the explicit purpose of passing a course.

Previous research in the pedagogy of computer programming has focused on the effect of quantitative variables such as gender, mathematical ability, previous programming experience and culture as possible predictors of programming performance. However, none of these studies have been conclusive in providing a definitive explanation for poor performance in computer programming related assessment. A significant, peripheral observation from the current study is that the teaching and learning of computer programming is a social phenomenon and the qualitative approach should be viewed as a viable option for future research efforts in this area. The deep and surface framework used in this study proved to be a reliable predictor of computer programming performance.

Recommendations

An obvious recommendation from this study is that computer programming instruction has to be delivered in an environment that facilitates the adoption of a deep learning approach. However, the presentation of computer programming instruction at many institutes, including IS&T at UKZN is done on a platform that consists largely of complex visual development environments. This seems to be contrary to the requirements of a framework that promotes deep learning of computer programming. The complexity of the environment adds to the cognitive burden of learning the fundamentals of computer programming. In order to obviate this unwarranted complexity, a development environment consisting of an editor and a compiler will be sufficient to re-direct student focus onto obtaining a deep understanding of the principles that underpin computer programming.

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Some Philosophical Assumptions Underpinning Academic Research

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Abstract

Many researchers take for granted that they can apply research methodology principles and research methods without first carefully examining the assumptions underpinning their chosen methods. However, the practice of rigorous research should be informed by a philosophical position. There are a number of philosophical assumptions that need to be known and considered before research begins. Without being aware of these assumptions and understanding their implications research cannot proceed effectively. This consequently would lead to inadequate research outcomes. This paper describes some of these philosophic assumptions and explains their implications.

Keywords: Academic research, philosophical assumptions underpinning research, logic of research, rational argument in research, research objectivity, research models, research variables

Background

From a scientific perspective, philosophy is primarily concerned with the way in which scientists rigorously establish, regulate and improve the methods of knowledge creation in all fields of intellectual endeavour (Chia 2002). The first step in understanding the implications of the methodological options in any research undertaking is to review the main features of the principal philosophical schools of thought. Having knowledge of these different options has become an integral part of the study of social science research.

Scientific research is one of the main drivers of the success of our society (Smith & Marx 1994). It has been described by Medawar (1985) as ‘incomparably the most successful enterprise human beings have ever engaged upon’. Research has delivered knowledge over a wide range of intellectual domains from physics to anatomy to astronomy, to mention only a few fields of study. In the social sciences success has also been achieved in fields of study such as psychology, education, economics, business and management studies. With such a fine record of achievement it is ironical that some research scientists are either not fully familiar with the basic philosophical assumptions which underpin all research activities, or alternatively knowingly conduct research in a philosophical vacuum. During a series of research seminars, the first author of this paper asked academic researchers, ‘What philosophical assumptions should underpin research?’ Answers included, inter-alia, assumptions concerning the type of research question, the equipment used to capture the data or evidence, and the statistical procedures employed. Although these are all relevant issues for competent research they are all operational in nature and thus do not address the more philosophical side of research.

The practice of academic research is fundamentally driven by an epistemic imperative or the quest for the creation of knowledge. Epistemology¹ derives from *episteme*, the Greek word for ‘knowledge’. Henning (2004) avers that epistemology is the philosophy of knowledge or ‘*how we come to know*’. A scientific inquiry involves the pursuit of knowledge in which we seek as close an approximation of the truth as possible (Babbie & Mouton 2001). The epistemological positions of researchers are influenced by their ontological stance which, literally translated from its Greek derivative, means ‘*the study of being*’. Epistemology and research methodology are intimately related. The former involves the *philosophy* of how we come to know the world, and the latter involves the *practice* of coming to know and how we study this practice

¹ Epistemology, or theory of knowledge, is the branch of philosophy that studies the nature and scope of knowledge. The term ‘epistemology’ is based on the Greek words *episteme* (knowledge) and *logos* (account/explanation); it is thought to have been coined by the Scottish philosopher James Frederick Ferrier.

(Henning 2004:15). Thus an innate understanding of philosophy is a cornerstone of knowledge creation. As such the researcher must make an informed choice in respect of a number of philosophical assumptions.

A philosophical assumption is a vision of the world; it is a belief that a basic condition will be present which is needed for an activity to function in the way that is required. The words *basic condition* are important as philosophical assumptions involve intellectual conditions rather than practical ones. Thus the belief that the researcher will be able to understand and interpret the evidence gathered via a knowledgeable informant, or from other sources is a philosophical assumption, while a belief that the researcher will be able to make contact with organisations which have adequate experience to be able to offer information about the research question is a practical assumption. Philosophical assumptions are made continuously throughout life, and are akin to having an ingrained set of principles, values and mores as to how one interprets activities in everyday life. For example we assume that democracy delivers a more just society than one controlled by a dictator; we assume that education will lead to an enriched² life style; we assume that obeying the law will kept us out of difficulties with the criminal justice system. The more abstract the ideas we are working with the more philosophical assumptions there are likely to be. It is worth noting that different researchers will have different views as to which assumptions are more important. There will also be controversy as to the nature of a philosophical assumption itself. As Ewing (1965) pointed out 'philosophy, is a subject where very wide differences of opinion exist between competent authorities'. These differences may be seen as a function of basic values which can be difficult to reconcile.

Academic research is rooted on a number of philosophical assumptions and this paper will discuss only some of them. Although the following philosophical assumptions are the principal ones that underpin academic research, it should be noted that this is not an exhaustive list. These include a belief that:

² In this context enriched is not synonymous with materially enhanced as it includes a wide ranging set of issues which could improve satisfaction with life.

Some Philosophical Assumptions Underpinning Academic Research

1. The world is understandable;
2. We want to understand the world about us;
3. We have an open minded approach to the research;
4. The researcher is capable of objective reasoning;
5. We can seldom if ever incorporate in our research all the issues or variables concerned with the phenomenon we are studying;
6. A simple model of reality may sometimes provide more understanding than a complex one;
7. Our cognitive capacity is limited and changes over time;
8. It cannot be said that our findings, or the theory produced therefrom, are indisputably correct.

Each of these assumptions can be explored in some depth. However, a more detailed discussion of each assumption is beyond the scope of a single paper, and thus a limited discussion of each point follows.

1. A Belief that the World is Understandable

In modern times it was Rene Descartes who pointed out that we need to question our senses and to doubt our cognitive abilities. He concluded that we cannot be certain of anything other than that which he expressed in his famous maxim, *Cogito ergo sum* – I think therefore I am. Descartes believed that everything else about our world should be subject to doubt. Today we do not usually take this idea of doubt to the extreme position used by Descartes but nonetheless we question what it is that we can understand about the world around us. As a result, and notwithstanding an element of doubt we largely take the view that the world about us is not the product of some evil genius whose purpose is to trick us. As such we assume that the world is, at least to some extent, understandable. This suggests that by and large most of us are not sceptics who would argue that we are unable to say that we know anything about the world. This does not mean that we are not cautious about any claim to knowledge.

The degree to which the world can be made understandable is a function of various philosophical choices which are available to the researcher. Researchers in the social science arena can be realists or constructivists; a theorist or an empiricist; a positivist or an interpretivist to

mention only a few possible positions or orientations which may be assumed. A realist positivist would claim a greater degree of knowledge in his/her research findings than a constructivist or an interpretivist. Of course the concept of degree of knowledge is itself problematic but in this context it is being used to indicate the extent to which the researcher would be able to recount facts about the entity being studied. But whatever choices are made about our approach to the creation of knowledge many researchers would normally agree that there is sufficient commonality in our experiences of the world to allow us to engage in a discourse concerning our understanding of how most things function. There are, of course, some individuals who would deny this proposition and would argue that these different stances or approaches to research produce results which are so dissimilar that there can be little or no meaningful discourse between the protagonists of these schools of thought. It is important to note that research usually tries to answer a specific question of how something, or some situation, or some individual functions and it does not often attempt to answer the question *why* which can provide a much greater challenge³. In fact some scientists would say that the *why* question is not always appropriate in their specific fields of science and might be better answered in some other field of study, such as those associated with the meta-sciences.

There have been some reservations about how much of the world around us is knowable, especially in the natural sciences, and to a lesser extent in some areas of the social science. There are fundamental problems in a number of fields of study such as particle physics and cosmology. The more particle physicists learn the more problematic the explanations of the nature of matter become. String theory which is the latest contender as an explanation of sub-atomic theory is regarded by some scientists as simply imagination. In order to make cosmology appear a coherent body of knowledge the concepts of dark matter and dark energy were created⁴. Now there is a need for another entity which is referred to as dark flux.

³ Feynman offers some insights about the difficulty in answering the ‘why’ question in a video available on TED.com at http://www.ted.com/talks/lang/eng/richard_feynman.html.

⁴ There is an interesting explanation of dark matter and energy available at <http://www.youtube.com/watch?v=pHXv-NuSnP0>.

In the social sciences, the fields of education, and business and management studies are but two areas in which there are disputes about what is really known and there is controversy about how well these aspects of our society function⁵. There are many theories in both these areas and not much ability for testing them. A scan of the average academic journal will indicate that as compared to papers which apply theories developed by others, the number of papers which develop new theories or test existing ones are far and few between. This points to a reluctance to forge ahead in creating new knowledge to understand the unknown. Rowland (2001) points out that there are many things which we do not know, and he uses the Latin word *Ignoramus* to describe this lack of knowledge. He goes on to say that there are things about which we will not know which he refers to as *ignorabimus*, the Latin future tense of *Ignoramus*. Thus, according to Rowland, humans may be described as *Ignoramus et ignorabimus*⁶.

The question which arises is what aspects of our lives is it reasonable to expect research to be able to study and thus produce for us useful knowledge? Medawar (1985) makes the point that science is not good at addressing issues related to where we came from and to where we may be destined when we cease to function in this world but for the main part of our lives Medawar sees scientific research as delivering all that is expected of it. This would appear to be reasonable enough.

Sacks (1991) also reflected on the fact that we should not believe that scientific research will provide all the answers we would like when he said:

You are also going to have to bow your head, and be humble, and acknowledge that there are many things which pass the understanding.

⁵ For example in the field of Information Systems management, there has been considerable difficulty in being able to measure success and it has been suggested that the search for appropriate metrics has resembled the proverbial search for the Holy Grail (Arnold, 1995).

⁶ The expression ‘*Ignoramus et ignorabimus*’ – ‘we do not know and will not know’ was used to describe the limits of knowledge by Emil du Bois-Reymond, in *Über die Grenzen des Naturerkennens* (‘On the limits of our understanding of nature’) of 1872. Wikipedia at http://en.wikipedia.org/wiki/Emil_du_Bois-Reymond.

There are many scientists who would disagree with Sacks. There are ‘optimists’, sometimes referred to as Panglossians⁷, who believe that we will eventually understand the entire universe and all that of which it is composed. Although we may never reach a stage at which we will actually agree that we understand *everything*, the average academic researcher can benefit from becoming bolder in his/her quest to pursue the unknowns rather than remaining in a comfort zone in which we test and apply a few theories. Alvesson & Sköldberr (2000:16) provide sound advice when they argue that:

... not only geniuses and theoretical capitalists⁸ can be creative in social science research. Even ordinary mortals can generate creative input as scientific entrepreneurs; they do not have to act as a verifying proletariat serving intellectual big business.

2. A Belief that We Want to Understand the World About Us

Our desire to understand the world, i.e. to acquire knowledge about it and how it works, is reflected in the efforts which are made by the scientific community. Hundreds or thousands if not millions of people are employed directly or indirectly in research activities. Internationally, billions of dollars are spent annually by universities, research institutes and by governments in the pursuit of new knowledge. Scientific research has become an industry and a big and powerful one at that. What needs to be considered when reflecting on the question of our desire to understand the world is the range of subject matter which we explore by way of this research. Within the confines of what we regard as ‘proper’ science as opposed to pseudo science we explore a substantial range of disciplines and topics. Considering the university environment alone, a university may have many different Faculties. Each Faculty could have several different Schools and each School could have a number of different research groups or even centres. Outside the university environment there are many research institutes making

⁷ *Panglossian* is a word derived from the philosophy of Professor Pangloss who is one of the principal characters in Voltaire’s *Candide*. Pangloss is an extreme optimist.

⁸ The use of the word capitalist here does not refer to any financial situation but rather to the accumulation of theories.

important contributions to the body of knowledge. In addition many large organisations including corporate entities and public sector organisations are committed to multiple research programs.

However, it is necessary to point out that some people would argue that the confines of ‘proper’ science are too narrow. Homeopathy, acupuncture, chiropractic therapy, herbal medicine and other complementary medical treatments are omitted from the main stream of scientific enquiry as are subjects such as extra-sensory perception, unidentified flying objects and communications with those who have passed away. In *Bad Science* Ben Goldacre, (2008) provides a detailed critique of some of these pseudo scientific domains and finds them lacking in credibility. Richard Dawkins of Oxford University has built an international reputation for what he believes to be the debunking of those who would inappropriately claim scientific backing for their beliefs⁹. Kathy Sykes¹⁰ of Bristol University is another champion in the struggle against pseudo science.

It is interesting to note that at the same time Simon Singh (2008) is being sued by the British Chiropractic Association for claims concerning the inefficacy of chiropractic therapy to deliver relief from certain ailments. The boundary between science and pseudo science is a difficult one. Some of the so-called pseudo sciences, such as homeopathy and acupuncture have a large and convinced following.

Within the scientific establishment there are other concerns about what areas are appropriate for scientific research. In the medical world there are a number of lines of enquiry which are highly controversial. The practice of embryonic stem cell research is not legal in all countries. It was only in 2009 that President Obama lifted the ban against this in the USA. Research into reproductive cloning of mammals was given a great boost when Scottish scientists at Roslin Institute created a lamb known as Dolly, in 1997.

⁹ Dawkins takes a narrow view of what constitutes science which he demonstrates by aggressively questioning people such as homeopaths as to whether they have proved the efficacy of their medicines through scientific experiments. Furthermore he enthusiastically refers to belief in the Genesis as nonsense. He also refers to claims of those with whom he disagrees as anti science.

¹⁰ Wikipedia at http://en.wikipedia.org/wiki/Kathy_Sykes

However cloning of human beings is not allowed and there are powerful objections to any suggestion that this type of research will ever take place. Of course it is not possible to know if this sort of research is taking place surreptitiously.

Whole body transplants and head transplants are regarded as morally unacceptable in most countries. Objections to this type of work are reminiscent of Mary Shelley's (1818) *Frankenstein*. Shelley cautions us against the inappropriate use of knowledge and this topic was considered so controversial that the first edition of the book was published anonymously. Another later Victorian author, Rider Haggard, explicitly stated his unease with acquiring 'too much wisdom' in his novel *SHE*, which was first published in 1887, Haggard (1995) comments:

Too much wisdom would perchance blind our imperfect sight, and too much strength would make us drunk, and over weigh our feeble reason until it felt and we were drowned in the depths of our own vanity.

This theme has been repeated by others over the years since Haggard. The question of nuclear science is another issue where there is controversy. Few disagree about the efficiency and effectiveness of nuclear power. All would agree that a nuclear war would threaten the future of the entire human population. However there is considerable debate among different parts of the community as to the wisdom of the extensive peaceful use and further exploration of this technology. The argument here is often expressed in terms of society's ability to contain harmful nuclear radiation in the event of an accident.

But there are also groups of people in our society which on principle do not honour scientific progress. These groups are normally religious in nature an example of which are the Amish. Such people do not constitute large parts of the population. Nonetheless these groups remind us not to take for granted that new knowledge is always welcomed by everyone.

Being open minded is nothing more than being prepared to consider new or different ideas and concepts. It also involves being able to work with others in such a way that new ideas will be generated. There are degrees of open mindedness and some researchers have said that being fully open minded requires a commitment to being prepared to actively seek evidence

which would challenge the researcher's own personal beliefs and values. However there is a potential paradox with regards to this issue. Being too opened minded will detract from the focus required for successful research and thus could lead to unsatisfactory results.

3. We Have an Open Minded Approach to the Research

Being open minded would also mean being aware of and attempting to counteract the confirmatory bias whereby researchers have a tendency to look for evidence to support their established ideas and theories. This is a major problem in academic research and the situation is exacerbated in social science research as the evidence collected can often be interpreted in multiple ways and as such the biases of the researcher may be unknowingly supported.

The opposite of open mindedness is the *not-invented-here* syndrome. In this case new ideas are rejected, not for their lack of value but rather for their origin. The *not-invented-here* syndrome can be triggered by insecurity which causes concern that ideas from the outside could disturb established processes, procedures and relationships. Of course it is seldom openly stated that a new idea is unacceptable because of the source from which it came and thus the *not-invented-here* syndrome may not be entirely obvious.

It is sometimes said that an excess of open mindedness is an indication of a lack of strength in one's convictions. If a researcher is prepared to change his/her mind continually this may imply that prior beliefs held minimal meaning for him/her. While this may not necessarily be the case at all times, too many changes of view may in any event be a source of concern or confusion.

Establishing and maintaining an appropriate balance between these two positions of open mindedness and resistance to change present difficult challenges to researchers. However without an open mind research can be very ineffective and inefficient. The grounding of the researcher's thought process within an appropriate philosophical position could be one way in which to maintain a suitable medium.

4. The Researcher is Capable of Objective Reasoning

The issue of a researcher's ability to reason objectively or think rationally is

a paramount consideration for valuable research. Without being assured in this regard it would be considerably more difficult to have confidence in the outcome of the research. However reason, judgement and objectivity are not often defined and thus there can be difficulties in knowing precisely what is being referred to when these words are used.

In the case of reason we are discussing the researcher's ability to construct a rational argument i.e. move from one concept to another in a logical fashion and to be able to draw deductions or inferences on the basis of data or evidence supplied. Such processes are based on judgement and the validity of judgements is often a matter of personal values and therefore will be viewed differently by each individual. It is difficult to keep values and judgements separate. There seems to be a natural tendency to project one's personal values into any arguments which one is developing and there does not appear to be a simple method of preventing this.

Objectivity offers similar challenges. We tend to say that an opinion is objective when it appears not to have been influenced by a bias or a prejudice. Reflecting on that proposition carefully, it might really mean that we consider an opinion to be objective if it agrees with our biases and prejudices. This sort of problem is tackled at least to some extent by the fact that research findings are subject to review and that their credence is only finally established when a substantial part of the research community supports the findings. Community support is one of the primary hallmarks of successful research. It should not however be thought that community support is exclusive proof of the validity of a scientific theory. History is replete with examples of theories which were completely accepted by the scientific community but were in fact wrong.

Returning to the notion of reason and that of arguments based on reason, it is possible to find that even those who have a reputation for excellence in these matters can make mistakes. There are several factors which directly affect any individual's reasoning ability. Errors can be made due to tiredness, forgetfulness, being rushed or just simply not fully understanding the issues involved. It is in this instance that the researcher who has carefully grounded his work in an appropriate philosophical position will mitigate many of these common errors.

5. An Understanding that We can Seldom if Ever Incorporate in our Research All the Issues or Variables Concerned with the Phenomenon We are Studying

The world about us is so complex that it is seldom possible to examine all the variables which have an impact on the entity/artefact/subject we are researching. It may not in fact be possible to grasp all the issues and variables involved. It is for this reason that the concept of *ceteris paribus* was established. The Latin phrase *ceteris paribus* is usually translated as *all other things (the variables which are not easily incorporated into our research design) being equal* and is frequently explicitly used in social science although it is fundamental to all scientific endeavours.

This complexity of the world and thus the situation facing scientists was eloquently expressed by Einstein (1950) when he said:

Science is the attempt to make the chaotic diversity of our sense-experience correspond to a logically uniform system of thought. In this system single experiences must be correlated with the theoretical structure in such a way that the resulting co-ordination is unique and convincing.

As conceived by Einstein science is a most complex and demanding endeavour and we have to be careful about claims which are made concerning our having added anything of value to the body of knowledge. By evoking the *ceteris paribus* principle we focus on what we consider to be the principal variables or issues under consideration and we do not pursue other, less important aspects of the situation being studied. The problem is that it is sometimes not easy to recognise the relative importance of all the variables.

With regards the power of science Einstein (Hoffman 1973) made the following remark:

One thing I have learned in a long life: that all our science, measured against reality, is primitive and childlike—and yet it is the most precious thing we have.

The lesson to be taken from Einstein is the need to be careful with

regard to our expectations from research. Referring to research as ‘primitive and childlike’ is, of course, a luxury which most researchers cannot afford but the point would be recognised by many. Russell (1925) who was also a scientist of international repute made a similar point when he said:

.... we know very little, and yet it is astonishing that we know so much, and still more astonishing that so little knowledge can give us so much power.

Both the Einstein and the Russell point of view are certainly intriguing and if they are correct, what an interesting life there may be in store for our progeny who will eventually acquire a considerably larger body of knowledge.

6. An Understanding that a Simple Model of Reality May Sometimes Provide more Understanding than a Highly Complex One

Simple models often work more effectively than large and complex models. They are easier to develop than large, complex models and they show more clearly what the model can tell us.

There are two main reasons why we need to strive for simple models. The first of these is that in any situation there are usually only a small number of important issues or variables which are central to the research and thus of significant importance. If these are identified and our research focuses on these issues or variables then our objectives are much more likely to be realised.

This notion of focusing on the important issues is an old one and is similar to the idea expressed in Occam’s Razor which states that a simpler explanation is often the better one. Hand in hand with this explanation is the fact that when complex models are operationalised mathematically they can exhibit unusual and difficult to explain results. Large models may crash when in computers which means that no result at all is achieved. The Pareto Principle, also known as the 80-20 rule, is another manifestation of the same sort of thinking regarding the need to keep models simple.

In this context, research philosophy provides the researchers with a basis on which to make better sense of the ontological perspective of the research. This in turn provides a lens through which one is able to hone in on the most critical aspects of a problem domain, and thence a simpler model and explanation of results.

7. A Belief that Our Cognitive Capacity is Limited and that it Changes

Our ability to understand any phenomenon is a function of our intellectual development which we refer to as our cognitive capacity. It is possible to envisage a personal cognitive capacity which considers how individuals see the world as well as a social cognitive capacity which refers to society's ability. Using this notion we can see that Copernicus' cognitive capacity was somewhat ahead of his time. Fortunately both individual and societal cognitive capacity develops and thus issues which are difficult to address today become more readily amenable to understanding tomorrow.

In *Critique of Pure Reason*, Immanuel Kant (1781) comments:

Perception relates not only to senses but to human interpretations of what our senses tell us; our knowledge of the world is based on understanding which arises from thinking about what happens to us, not just simply from having had particular experiences; knowing and knowledge transcend basic empirical enquiry; distinctions exist between scientific reason (based strictly on causal determinism) and practical reason (based on moral freedom and decision-making which involves less certainty).

Human cognitive capacity develops at different paces for different fields of study. What is clear is that it changes and so does our ability to learn (Latour 1990). Matching human and social cognitive capacity is important as, if the human capacity is ahead of society's, the ideas produced may be ahead of their time and just not recognised as being of value. It is important that the researcher does not rush ahead of the rest of his/her society (Stanovich 1999).

8. It Cannot be Said that our Findings, or the Theory Produced Therefrom, are Indisputably Correct

The notion of indisputably correct does not rest well with scientific researchers. Science operates on the basis that it attempts to provide the best possible explanation for the phenomena which it is studying. In other words, all research findings are presumed to be as best as possible an approximation of the truth, until such time it is proven otherwise. It cannot ever be presumed that all the facts which are pertinent to our enquiry are known to us and this is the reason why *ceteris paribus* is an important assumption. For this reason alone our findings cannot be ensured to offer 'the complete' picture. Competent researchers do not talk or think in these terms. Feynman (1995) expressed this as follows:

Each piece, or part, of the whole of nature is always merely an approximation to the complete truth, or the complete truth so far as we know it. In fact, everything we know is only some kind of approximation, because we know that we do not know all the laws as yet. Therefore, things must be learned only to be unlearned again or, more likely, to be corrected.

Feynman's caution is appropriate for all research but it is especially pertinent to social sciences where there can be a very large number of variables involved and where the context of the research is so important. The extent to which we may be confident that we are approaching the whole picture will of course vary from situation to situation. But even when we are reasonably sure that we have a comprehensive understanding of the situation we still have to recognise that any theory which we develop will not account for all the anomalies which regularly occur in normal life. A number of particularly insightful discussions on the subject of anomalies are provided on the internet. The first is by Noam Chomsky¹¹ and the second is by Imre Lakatos¹².

¹¹ Noam Chomsky anomalies on 9/11, at <http://www.youtube.com/watch?v=BzGd0t8v-d4>.

¹² Imre Lakatos on anomalies at <http://www.lse.ac.uk/collections/lakatos/scienceAndPseudoscienceTranscript.htm>.

Some Philosophical Assumptions Underpinning Academic Research

Taking a different approach Feyerabend (1993) commented on the universality of anomalies in science generally when he pointed out that:

Considering now the invention, elaboration and the use of theories which are inconsistent, not just with other theories, but even with experiments, facts, observations, we may start by pointing out that no single theory ever agrees with all the known facts in its domain. And the trouble is not created by rumours, or by the result of sloppy procedure. It is created by experiments and measurements of the highest precision and reliability.

Of course, the problem of anomalies is a thorny one which needs to be approached with caution. What one researcher might consider being a justification for rejection of the theory, as defined by Popper's falsification (Popper 2002), another scientist might consider being merely an insignificant anomaly. When a number of anomalies occur concerning the one theory then the thinking of Kuhn (2008) comes into its own. Kuhn pointed out that we tend to live with anomalies until some, difficult to define, point is reached where our theory has to be discarded and a new theory or paradigm accepted.

Another aspect of the issue of having confidence in the correctness of our research is that fact that both evidence itself and the way we understand evidence is subject to a process of evolution. There is continuous work undertaken to develop new ways of collecting data, processing it and understanding it. At the same time some of the assumptions mentioned above are being revisited to establish if they may be understood in different ways. Habermas (1993) lent his authority to these movements when he said:

Now we think more tolerantly about what might count as science.

It is reasonable to expect that our ability to engage in academic research will continue to develop in coming years and that there will be improvements to both its breadth and depth.

Conclusion

Most activities may be seen to be based on some sort of philosophical ideas and assumption. Recalling *Candide*, Voltaire (1947) made him behave optimistically as a result of Dr Pangloss' philosophy which could be

summarised as we live in the best of all possible worlds and everything which happens to us is always for the best. Voltaire shows these assumptions to be rather inadequate to equip the youthful *Candide* for all that is happening to him. The story does show how the philosophical assumptions are all pervasive in *Candide*'s life.

Another view which emphasises the importance of philosophical ideas is provided by Keynes (1936) who commented that:

The ideas of economists and political philosophers, both when they are right and when they are wrong, are more powerful than is commonly understood. Indeed the world is ruled by little else. Practical men, who believe themselves to be quite exempt from any intellectual influence, are usually the slaves of some defunct economist.

What is said here about economists is true of many other professions and activities. Philosophical considerations often provide the direction that individuals take even when they are not aware of them.

In research this is even more important. Philosophical assumptions are all pervasive in research. This was well summarised by Hughes (1990) when he remarked:

Every research tool or procedure is inextricably embedded in commitments to particular versions of the world and to knowing that world. To use an attitude scale, to take the role of a participant observer, to select a random sample ... is to be involved in conceptions of the world which allow these instruments to be used for the purposes conceived. No technique or method of investigation is self-validating ... they operate only within a given set of assumptions about the nature of society, the nature of human beings, the relationship between the two and how they may be known.

Hughes' comments cover a wide spectrum of issues which many researchers would not immediately see as having philosophical underpinning. They would consider, for example, the choice between a questionnaire and an interview as a practical issue or consideration. But this is due to the fact

that many researchers find these issues challenging and the way they cope with this is to ignore them. However research is generally improved by facing these issues even when the researcher is unable to comply with the assumptions. As Crossan (2003) points out, the indirectness and circular nature of philosophical questioning in itself is helpful, as it often encourages in-depth thinking, and generates further questions in relation to the topic under consideration.

This paper has covered a number of important philosophical assumptions which address the condition which should be present if competent academic research is to take place. It is appreciated that in practice it is difficult to ensure that these are operating in the way they should. Sometimes it is only possible to achieve the requirements of these assumptions in part. However without an understanding of these assumptions academic research may be less than satisfactory.

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Some Philosophical Assumptions Underpinning Academic Research

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Practitioner Research from a Critical Systems Perspective

Stan Hardman

Udo Richard Averweg

Abstract

This paper draws together the themes of the reflective practitioner, the learning organisation, critical systems thinking, communities of practice and the contract between the university and the community to advocate for a greater awareness of the potential of practitioner-research as a form of personally driven relevant professional development and the construction of socially robust and scientifically authentic knowledge.

Keywords: Critical awareness, Practitioner-research, Professional practitioner, Reflection and practice

Introduction

Robson's description of a practitioner researcher as 'someone who holds down a job in some particular area and is at the same time, involved in carrying out systematic enquiry which is of relevance to the job' (Robson 2002: 534) provides a foundation to this paper in which we intend to contextually enrich and conceptually inform his statement. To do this, reference is made to the works of Schön, Senge, Jackson, Schecter, Flood and Jackson, Wenger and Gibbons who have all made distinctive contributions to the thinking embedded in this paper. In so doing we recognise, Mintzberg (2004:10) who suggests that if you 'put together a good deal of craft with a certain amount of art and some science, and you end up with a job that is all about practice. There is no 'one best way' to manage; it all depends on the situation'.

In drawing these strands together the groundwork is set for an approach to learning within organisations by managing professionals within them to engage in self-managing structured learning processes which are academically defensible in relation to the improvement and integration of personal and organisational learning. These processes will include the clarification of problem situations, the selection of appropriate methodology, ethical soundness and contextual knowledge creation – a form of emergent leadership practice.

Our paper is structured as follows: Background to the research for the learning needs of the professional practitioner are introduced. An outline of the practice of the professional practitioner is then given. Reflection and practice in practitioner-research are discussed. Some reflections on practitioner-based inquiry research are then presented. Finally a conclusion is given.

Background to Research

The work of Donald Schön (Schön 1987) is seminal in emphasising the particular learning needs of the professional practitioner. This researcher prioritises the process of reflective practice through which the practitioner selects the appropriate theoretical constructs from his university academic studies to interpret and make sense of the practical application space in his professional context. Thereafter the practitioner can determine appropriate action on the assumption of practice – practice informed by theory and theory informed by practice. The emphasis is placed on the importance of a constructivist approach to knowledge in which the importance of the knowledge base residing within the individual, and his ability to utilise, extend and where appropriate re-learn is paramount.

The notions of reflection-in-action and reflection-on-action were central to Schön's (Schön 1983) work. Reflection requires space in the present and the promise of space in the future (Smith 1994: 150). Reflective practice is therefore enacted. Practitioners usually need to combine reflection and practice when addressing practice issues in organisational settings. According to Price (2004: 47), the purpose of reflection is threefold:

- To understand one's self, one's motives, perceptions, attitudes, values and feelings. Practitioners understand themselves and in so doing become more open to understand the different perceptions of others;
- Reflective practice is based on the notion that everyone constructs meanings for and explanations about events (and some of these may be misguided); and
- To reflect on the possible consequences of one's actions.

Schön (1983) brought 'reflection' to the centre of an understanding of what professionals do. In the epistemology of practice, 'the knowledge inherent in practice is to be understood as artful doing' (Schön 1983). Given the purpose of reflection and the characteristics of reflective practice, it is argued that they can be seen as an approach to encourage practitioner learning and practice development in an organisational setting.

Peter Senge's work (Senge 1990) is useful in constructing an understanding of practitioner knowledge through his pertinent advocacy of the learning organisation in which participants in the organisation play a significant role in shaping the future of the organisation through their participation in learning processes. In his later work, particularly with Sharmer (Senge *et al.* 2004), he draws out the importance of learning consciousness, especially through theory U.

Jackson conceptualised the construct of Critical Systems Practice (Jackson 2000; 2003) which provides a repertoire of methodologies and a framework for selection relating to particular interpretations of organisational challenges. This provides the practitioner researcher with a broad framework in which to interpret, refine and approach the design and application of research enquiries.

What is the Critical Systems Thinking (CST) perspective regarding practitioner research? There is no one simple answer and different perspectives can be found in the literature. Different writers have evolved different understandings and continue to develop their ideas in communication with other researchers (Midgley 1996). We contend that CST can be seen as an evolving 'debate' around a set of themes that are considered important by a significant number of systems practitioners.

Some (early) ideas about CST, a research perspective, embrace a set of fundamental commitments. Schechter (1991) and Flood & Jackson (1991) identify three such commitments:

- Critical awareness: This examines and re-examines taken-for-granted assumptions along with the conditions which have given rise to them;
- Emancipation: This ensures that the research is focused on 'improvement' (defined temporarily and locally) and by taking issues of power into account; and
- Methodological pluralism: This is using a variety of research methods in a theoretically coherent manner, noting their strengths and weaknesses to address a corresponding variety of issues.

Midgley (1996) notes that while these may be an oversimplification of the range of issues considered important by critical systems thinkers, they are still useful for indicating the general interests pursued by proponents of this perspective. Morgan (1997) points out that there is a need to develop and refine the strategies and tools of research appropriate to different paradigms and develop appropriate criteria for determining the quality of the research conducted.

In dealing with the commitment to *critical awareness* (which is the focus of our paper), Jackson (as cited in Midgley 1996) identify three interlinked forms of critical awareness:

- understanding the strengths and weaknesses and the theoretical underpinnings of available systems methods, techniques and methodologies. This involves critical thinking *about* methodology;
- understanding both the context of application and the possible consequences of using various methodologies once the context has been defined. This involves the critical *use* of methodology; and
- closely examining the assumptions and values entering into existing systems designs or any proposals for a systems design. This supports the commitment to emancipation. Jackson (as cited in Midgley 1996) suggests that CST is *dedicated to human emancipation* and seeks to achieve for all individuals the maximum development of their

potential. This is to be achieved by raising the quality of life and work in the organisations in which they participate.

The work of Wenger (Wenger 1998; Wenger *et al.* 2002) provides another rich source of ideas to inform the understanding of practitioner-research. The importance of this work is that it focuses on the growing recognition of participant self-selection into knowledge communities of relevance to them and in which they can shape a personal learning agenda in order to meet their own and often emergent inquiry.

There is a growing body of knowledge that acknowledges the need for a redefinition, through partnership, of the role that universities need to play in research. Gibbons (2005) speaks of a new social contract in which he prioritises the need for the creation of socially robust knowledge based on an emergent discourse of engagement between universities and industry. He places emphasis on the contextualisation of knowledge, the need for networks and above all, transaction spaces and trading zones where the discourse of the academy and the discourse of practice are inventive in permeable boundary crossing. This paper emphasises the importance of this new social contract between a university (such as the University of KwaZulu-Natal (UKZN)) and its communities of practice, which transcend the old.

Practice of the Professional Practitioner

This research acknowledges that there are many practitioners based and employed in organisational settings and their practitioner-based inquiry forms of learning are often not published in journals. This practitioner publishing ‘shortcoming’ does not encourage learning, which is relevant to real-life practice in organisations.

Thus, conceptually this paper reports on the methodological approach developed within the UKZN Leadership Centre, to inform the curriculum and process of engagement with a student body of Masters students – many in their mid-careers. It explores the process of moving from technical and professional competency to management and leadership influence; and contextually documents some reflections of a practitioner-based inquiry

research conducted by a Masters degree student from the UKZN Leadership Centre in a selected organisational setting of eThekweni Municipality.

Reflection and Practice in Practitioner-research

Practitioners often apply theories and exemplars to their own experiences and situations in organisational settings. What exactly is practitioner-research? Practitioner-research can be identified as ‘a systematic form of enquiry that is collective, collaborative, self-reflective, critical and undertaken by the participants of the inquiry’ (McCutcheon & Jung 1990). In a practitioner-research culture, individual inquiry is encouraged. The underlying question on the mind of a practitioner researcher is: Given the continuing technical change in an organisation, how can the researcher improve what is happening in a selected environment?

Schön’s seminal book, *The Reflective Practitioner* (1983), challenges practitioners to reconsider the role of technical knowledge in developing professional excellence. Given that the second author has a technical information and communications technology (ICT) background, is employed as an ICT Research Analyst at eThekweni Municipality in Durban, South Africa, is a *professional* member of the Computer Society of South Africa (CSSA), he actively participates in contents and contribution to academic conferences and journals, it is contended that he is ‘qualified’ to undertake practitioner-based inquiry that is relevant to real-life practice and for improving what is happening in the selected organisational setting of eThekweni Municipality.

Methodologies (e.g. action research (AR), case study, mixed methods) used in research provide a systematic approach to study the issues or problems in an organisational setting. AR, case study and mixed methods all emphasise the importance of the context and explicitly support the concept of practitioner research. The subject or area of study and the selected methodology are largely defined by the needs of the organisational work environment where the practitioner researcher is subject to a variety of personal, interpersonal and organisational influences (Costley & Armsby 2007: 132). Robson (2000) suggests that practitioners require a high level of flexibility in their choice of methods (e.g. primary or secondary data and

analysis) and tools to help ensure credibility and dependability in the complex and context-bound research situation.

Research and development undertaken for practice-led research projects are located within a real-life social and work-based organisational community and give tangible meaning rather than in a hypothetical or devised scenario (Costley & Armsby 2007: 132). In this case the focus is real-life research and a reflection on real-life practical and pragmatic activities, which makes work meaningful to practitioner researchers. Gray (2004) suggests that this meaningfulness and the implicit understanding of the organisational context are starting points for practitioner researchers to theorise and become more reflective in their practice to enable an outcome (e.g. an improvement to what is happening in a selected environment of an organisational setting) to emerge. It entails the practitioner to build new understandings in the situation that is unfolding. Schön (1983: 68) suggests that the ‘practitioner ... reflects on the phenomenon before him, and on the prior understandings which have been implicit in his behaviour’ (Schön 1983: 68).

Practice-led research projects usually involve a meshing of practical and intellectual capabilities that rely on the context of the community of practice in which the research practitioner is engaged (Costley & Armsby 2007: 132). It is within each research practitioner’s context that a pragmatic analysis and a synthesis of empirical and theoretical knowledge that a justification for the selected research methodology or approach should be made. In order to address the real-life problem in an organisational setting, the research design for practitioner-based inquiry is now discussed.

Some Reflections on Practitioner-based Inquiry Research

A detailed account of a practitioner’s inquiry research (a UKZN Leadership Centre Masters degree student) is reflected in Averweg (2007).

During the inquiry, the researchers were mindful that practitioner-research should be self-reflective and critical. From the notion of reflection-in-action, the practitioner reflected ‘on the phenomenon before him, and on the prior understanding, which have been implicit in his behaviour’ (Schön 1983: 68). The researcher made use of a theoretical lens or perspective to guide the selected study. The researcher used theory

inductively (as in qualitative research) and deductively (as in quantitative research). This pragmatic approach was to ensure that the researcher drew from both qualitative and quantitative assumptions. This act of reflecting-on-action enabled the practitioner to spend time exploring why he acted as he did. In doing so, the practitioner developed a set of questions and ideas about his activities and professional practice.

The survey on which the researcher reported was practitioner-oriented knowledge. The researcher's survey design, process and results were presented as an exemplar of practitioner-oriented knowledge and should be seen in the context of informing the researcher's study. While the study was a practitioner-based inquiry, the researcher was mindful of 'the threats to the quality of ... [the] data by being too close to ... [the] research setting' (Saunders, Lewis & Thornhill 2006: 99). This served as grounding of professional knowledge (as advocated by Schön). When the authors reflect thereon, the researcher was able to construct valid meanings from the research inquiry.

On reflecting-on-action, the researcher had to find a compromise between the ideals of good research and the numerous practical constraints that present themselves in real-life research settings (Terre Blanche & Durrheim 1999: 36). The researcher had to look to 'what' and 'how' to research the real-life problem. This implies that from the practitioner's professional experiences, meanings for the events and the consequences of the practitioner's actions were taken into account. There was a clear relationship between reflection in and on action. By the author reflecting thereon, there was an emphasis of learning through a practice episode experience. Furthermore this has resulted in this practitioner report documenting the reflection of a practitioner-based inquiry research.

From a critical systems perspective, the practitioner *had* to have an understanding of the strengths and weaknesses and theoretical underpinnings of the available systems methods otherwise his practitioner research may have been flawed. Furthermore the practitioner *had* to define the context of his study (in the eThekweni Municipality) and examine the assumptions he made (e.g. as a professional member of the CSSA) for future systems design. By doing so, we contend that the practitioner carried out a systematic inquiry which is academically defensible and which is relevant to the practitioner's job in eThekweni Municipality. This critical awareness can be seen as an

example of emergent leadership practice and which is embedded in the UKZN Leadership Centre.

In their work, Fox *et al.* (2007) explain ‘being a practitioner researcher is not the same as being an academic researcher. The practitioner researcher approaches research and embeds research within practice in ways that an academic researcher cannot’. However, these researchers point out that practitioner research is often undervalued as of less importance than ‘real research’. Thus the importance of this paper is in legitimating and prioritising practitioner research in universities.

Conclusion

It is in the interests of practitioner-based inquiry research to find ways of encouraging learning that is relevant to real-life practice and which does not require unduly tortuous and ideological debate about the merits of reflection. Practitioners are in essence, pragmatic. The wheel of learning consists of question, theory, test and reflection (Handy 1989).

Practitioner-generated research is the way a particular area’s content (such as ICT) will commonly be produced and out of which theories about practice can be formulated. Such academic theories about practice can then serve as a way for future practitioners to learn and apply new knowledge to current and future practice. The authors base their comments on their participation in contents and contribution to academic conferences and journals and this practitioner-based inquiry reflection. These are two different research traditions and it is contended that each field can learn from the other. When we reflect thereon, it is suggested that encouragement be given for more practitioner-based inquiry research.

From a UKZN Leadership Centre perspective this reflection integrates situated and responsible personal and organisational learning with innovation for improvement. It provides opportunity for the emergence of tacit knowledge. This is the ideal to which developing the practice of practitioner learning aspires. It underscores the need for universities in graduate professional development to embed practitioners in ways of thinking and ways of doing that they become apprenticed into the practice of practitioner-research.

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Villains and Victims: Image Schematic Role Relationship Theory in Narrative Analysis

Rembrandt Klopper

The fellow who you've got figured for a villain most probably is a victim¹.

Abstract

My primary objective with this contribution is to demonstrate how the theory of image schematic role analysis can be applied as a tool for narrative analysis in qualitative research. It is commonly accepted that qualitative research in general, and content analysis as well as narrative analysis in particular entail the conceptual processes of establishing valid categories, followed by the systematic analysis of texts in terms of identified lexical categories. This contribution extends the generally accepted approach to content analysis by demonstrating that role relationship analysis can foreground dynamic aspects of interpersonal behaviour that reveal much more of groups and organisations than straightforward categorical analysis.

Keywords: Content analysis, image schema, qualitative research, role relationship analysis, role relationship theory.

Conceptual Underpinning of Image Schematic Role Relationship Analysis

An image schema can be characterised as a general recurrent mental pattern

¹ David McCallum in the role of Ducky Mallard, the Coroner, speaking to Pauley Perrette in the role of Abby Sciuto, the Forensic Biochemist in the TV series NCIS, season 5, episode 10.

that provides structured understanding of experiences (Johnson 1987; Kloppe 2003; SIL 2004; St. Amant *et al.* 2006; Oakley 2007). Examples of a recurrent mental pattern is the semantically linked agent-patient role pair that denotes an active party whose actions affect a passive party during an event, as in: *the boy* (AGENT)² *ate all the chocolates* (PATIENT).

The theme of a text – the motif or underlying idea that provides coherence to any text – sets the scene for the event interactions that are portrayed in the text, and determines how generic roles like AGENT, PATIENT, INSTRUMENT, TIME, PLACE and EXPERIENCER are deployed in the text. For instance, in transactional events such generic roles form part of interactions that relate to manufacturing, buying and selling, and will be stipulated in greater detail as manufacturers, products, managers, salespersons and clients. In medical settings such generic roles will form part of medical intervention interactions and will be stipulated in more detail as doctors, patients, nurses and the like.

Image schematic role analysis is appropriate for qualitative case study because humans are particularly interested in human-related events, especially events that relate to interactions that involve humans controlling or experiencing the effects of events. In sentences, *verbs* encode whether or not participants are involved in cause-and-effect interactions. Therefore, verbs can be semantically graded in terms of the extent to which they express interactions between participants. Traditionally verbs that do not express causal interactions are termed *intransitive verbs*. Verbs that do express interactions are termed *transitive verbs*. The interaction continuum for events given below explains such degrees of interactivity.

The Event Interaction Continuum

The event interaction continuum relates to degrees of interaction between objects during a wide variety of events like a business transaction, a conversation, wage negotiations, a car chase or a robbery. Starting with verbs that express mere states of *existence* (being somewhere, being alive, being dead), the continuum progresses to *processes* (happenings like water

² Terms like AGENT and PATIENT that relate to the meaning of language forms are written in small caps.

running, ice thawing, organisms ageing), *activities* that entail non-interactions (sitting, sleeping or jogging), *causal interactions* (like eating, writing, slicing, slashing, healing or killing), and finally *processes, actions and interactions (stimuli) that cause passively involved parties to experience some sort of sensation* accompanied by an emotive awareness (feeling nauseous, excited, elated, pleased, puzzled, frightened terrified).

Being→Happening→Doing→Controlling→Competing→Experiencing

Figure 1: The Interaction Continuum

The BEING, DOING and HAPPENING schemas present relatively mundane, background scenarios, and are often used to set the scene for the more interesting interactions that involve active parties (*AGENTS*) and passive parties (*PATIENTS*), parties that cooperate with one another (*CO-AGENTS*), parties that oppose one another (*COUNTERAGENTS*), parties that benefit from interactions (*BENEFICIARIES*) and disadvantaged parties, (*VICTIMS*), and finally parties that are emotionally or conceptually affected during interactions (*EXPERIENCERS*) and the parties, objects or interactions that cause the experience (stimuli):

- With the exception of *BEING* scenarios where the focus is merely of the fact that an entity exists, and the *DOING* scenario where parties act on their own without affecting other parties, all other events entail interactions and therefore portray cause-and-effect relationships between entities identified in statements.
- 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 different varieties the *AGENCY schema* (sole agency, co-agency, counter-agency) to portray different forms of causal physical human interactions.

- We use the *STIMULUS-EXPERIENCER* schema (and its mirror pattern, the *EXPERIENCER-STIMULUS* schema) to portray the psychological effects of external stimuli on experiencers' mind states.

The semantic relationship between the different entities involved in an event can be characterised as a *role relationship image schema* for each type of interaction, often just abbreviated to *image schema*:

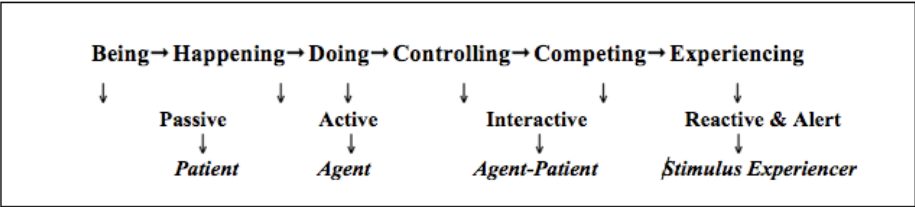


Figure 2: Semantic Roles mapped to the Interaction Continuum

Figure 2 implies the following:

- Verbs that relate to states of *BEING* and *HAPPENING* entail physical passivity for which the *PATIENT* role is appropriate.
- Verbs that relate to *DOING* entail physical activity of an entity on its own for which the *AGENT* role is appropriate.
- Verbs that relate to *CONTROLLING* and *COMPETING* entail physical interactivity for which the *AGENT-PATIENT* role pair is appropriate.
- Verbs that relate to physical reactivity accompanied by mental alertness entail mind-internal experiences for which the *STIMULUS-EXPERIENCER* role pair is appropriate.
- The *AGENT-PATIENT* and *EXPERIENCER* roles are associated with *CAUSATIVE* events.
- Optional roles like *LOCATION*, *PLACE OF ORIGIN*, *PATH*, *DESTINATION*, *INSTRUMENT*, *POSSESSION* and *TIME* are used to locate entities in space and time.
- Within specific event-contexts generic roles can be specified more specifically. In the law enforcement context agents could for instance be policeman or bank robbers. During standoff interactions

the detective and the bank robbers would be counteragents, and hostages would be patients, etc.

- In transactional scenarios, typically used to portray events in organisational and business contexts, roles like *AGENCY*, *CO-AGENCY*, *COUNTER-AGENCY* are commonly expressed more specifically with terms like general manager, manager, competitor, product, service, contract, etc. That managers are in fact *AGENTS* from a causality point of view is born out by the fact that they are legally accountable as *AGENTS* acting on behalf of their organisations.

Simply BEING SOMEWHERE Image Schema

An object exists/ is situated somewhere in three-dimensional space, but isn't interacting with other objects:

- *The vase (PATIENT) is on the table.*
- *Your clothes (PATIENT) are in the wardrobe.*
- *My car keys (PATIENT) must be somewhere.*

Things HAPPEN WITHOUT SENTIENT³ INTERVENTION Image Schema

A passive entity (patient) is involved in some process, but isn't interacting with other objects:

- *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.*

³ The term *sentient* relates to any organism that is conscious of its environment through sensory stimulation, and that actively responds to such sensations.

DOING THINGS ON ONE'S OWN Image Schema

An active entity (*AGENT*) is performing some sort of an activity that causes some self-reflexive 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 (AGENT) went hiking in the mountains (separately).*

CONTROLLING THINGS ON YOUR OWN Image 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).*
- *Charles (AGENT) ate all the bagels (PATIENT).*
- *John (AGENT) stole stamps (POSSESSION) worth R400 (POSSESSION) from Pete (DISADVANTAGED).*

CONTROLLING THINGS ALONG WITH OTHERS Image 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 R400 (POSSESSION)*
- *They (CO-AGENTS) went hiking in the mountains (together)*

COMPETING WITH OTHERS Image 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).*

STIMULATING AN EXPERIENCE or EXPERIENCING A STIMULATES Image 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) vomited when he saw the beheaded corpse (STIMULUS).*

Neurophysiologic Justification for Role Relationship Analysis

My proposal to use role relationship analysis as theoretical framework in qualitative content analysis is based on the epistemic principle that image schematic role relationships are grounded in actual human thinking. The Neurophysiologist Calvin (1996a; 1996b) considers the theory of image schemas to present a plausible account for the symbolic nature of human thought. I quote two 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
....

... 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 1996b: chapter 10).

From Calvin's analysis in the above two paragraphs of image schemas it is clear that image schemas form the basis of human cognition – of how neural impulses in the human brain are symbolically represented in human thought.

Sentences as Dynamic Role Relationship Encoded Mini-Narratives

Humans have an anthropocentric perspective of the physical world, being mainly interested in events that involve humans. We mostly take for granted the time and place of events, and the instruments that we use, and often leave them unspecified in sentences, which are the most basic mini-stories that we tell one another. We populate our sentences, and the narratives that we weave by combining sentences into paragraphs, 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 can be seen in *He sliced the cake* (^{TIME} *in the kitchen*) (^{PLACE} *with a knife*).

Promoting and Demoting Entities from One Role Category to Another

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*.

Narrators conceptually demote opponents by either *dehumanising* them as BEING one of a variety of animals (e.g., ‘snake, rat, monkey, baboon, pig, road hog’ or ‘arse fly’), or by *demonising* them (e.g., ‘ogre, beast, monster, troll’ or ‘the devil himself’). Shortly after the September 11, 2001 terrorist attacks on the USA (now commonly referred to as the 9/11 attacks) a prominent official in the Republican Administration famously dehumanised the attackers and their backers on CNN by declaring: ‘We will drain the swamp where they are hiding and eradicate them!’

How Image Schematic Role Analysis Can Be Used in Content Analysis

Image schematic role analysis provides a powerful and flexible framework to characterise interactions between individuals that are involved in the same event. Roles like AGENT, PATIENT, INSTRUMENT, BENEFICIARY and EXPERIENCER are conceptualised generally and value-neutral in order to capture common patterns in interactions, enabling the researcher to compare positions of rank across social domains – for instance by comparing organisational dynamics in families with those of small and medium enterprises (SMEs) to determine whether or not the owners of SMEs fulfil certain ‘parental’ functions for their employees.

Semantic role analysis in texts is a multi-layered process. It for instance does not entail that the CEO of a company is always the AGENT and the clerk the PATIENT. In a statement like *The CEO addressed his office staff* the CEO is the AGENT and the staff the PATIENT. However, in the context of wage negotiations, in the statement *The staff rejected the CEO’s wage offer* the staff collectively acts as AGENT, while the CEO is now the PATIENT.

By contrast, in an organisational context the CEO of a company constantly acts as a SOLE AGENT (major agent) while a manager and salesperson in the same organisation would be CO-AGENTS in relation to a client, which would be in the role of BENEFICIARY.

Because *generic* roles can be *generalised* across knowledge domains, role analysis provides a very powerful means of comparative analysis across

domains. It is also worth noting that *generic role specifications are value neutral*. In the domain of law enforcement an AGENT could be a policeman, detective, or a robber. At the beginning of a confrontation between law enforcement agents and villains, both parties would start out as COUNTERAGENTS. Whoever of the two parties gains the upper hand during an altercation would become the AGENT, with the loser being consigned to the role of PATIENT.

Reduced to its essence content analysis is a form of qualitative research during which one discerns particular semantic categories, or repetitive patterns of occurrence in a group of texts to be compared to establish patterns of similarity and difference (novels, newspaper reports, annual general financial statements, policy documents, magazine articles, scholarly texts, religious texts, including graphical ‘texts’ like paintings and statues). If one is for instance analysing power-distance relationships in an organisation the systematic analysis of semantic role relationships in texts emanating from the organisation could be a productive mode of analysis. However, in order not to get trapped into cherry picking data *ad hoc* from individual documents the content of individual documents has to be analysed for patterns of similarity and difference across documents by means of *content analysis* (Lubbe 1997; Krauss 2006), by means of a software program like QSR Nvivo that has built-in *auto coding and statistical category comparison routines* (Quilling 2008), or by means of *intercoder reliability analysis* for quantitative research (Hughes *et al.* 1990; Lombard *et al.* 2010), or qualitative research (De Reuver *et al.* 2009).

Analysis

In this section I utilise text from Gladwell (2009) and Kay (2010) to *briefly demonstrate* how people use image schematic role designations during actual thought and communication, and how role relationship analysis could benefit systematic text analysis. Both examples relate to the domain of traditional mass media product promotion. I provide summary interpretations rather than systematic interpretations of the text fragments because it is sufficient to demonstrate the principle of role relationship analysis in narrative analysis.

Gladwell’s material deals with TV advertorials and slogans scripted

to promote cosmetics and discomfort medications. Kay's material deals with a radio interview between an interviewer and an author to promote a forthcoming book.

Gladwell (2009)

PATIENTS and CULPRITS

In a personal interview with the Viennese-trained psychologist, Herta Herzog, who became famous as exponent of the Madison Avenue post-war product advertisement revolution (Gladwell 2009:91-100), Gladwell reveals how Herzog and fellow social scientists based advertising slogans on actual customer perceptions (on the newly developed research principles that later became known as industrial psychology), while working at the Tinker advertising agency, penning iconic phrases like:

- 'Does she, or doesn't she?' – the deliberately suggestive hair colour slogan that allowed females to openly colour their hair rather than do so covertly,
- 'Because I'm worth it', – a phrase used in an advertisement that taps into self-esteem issues to motivate buyers to justify expenditure on personal rather than on whole family toiletries at a time of austerity.

Gladwell (2009:96) gives Herzog's account of how the advertisement for product Alka-Seltzer was reconceptualised, based on customer perception research. It clearly demonstrates how people think image schematically and how customer perceptions can be manipulated by having them perceive themselves or a product differently:

'There is one thing we did at Tinker that I remember well', Herzog told me, returning to the theme of one of her, and Tinker's, coups. 'I found out that people were using Alka-Seltzer for stomach upset, but also for headaches', Herzog said. 'We learned that the stomach ache was the kind of ache where many people tended to say "It was my fault". Alka-Seltzer had been mostly advertised in those days as a cure for overeating, and overeating is something you have done. But the headache is quite different. It is something imposed on you'.

This was, to Herzog, the classic psychological insight. It revealed Alka-Seltzer users to be divided into two apparently incompatible camps - the culprit and the victim - and it suggested that the company had been wooing one at the expense of the other. More important, it suggested that advertisers, with the right choice of words, could resolve that psychological dilemma with one or, better yet, two little white tablets. Herzog allowed herself a small smile. 'So I said the nice thing would be if you could find something that combines these two elements. The copywriter came up with "the blahs"'. Herzog repeated the phrase, the blahs, because it was so beautiful. 'The blahs was not one thing or the other - it was not the stomach or the head. It was both'.

Summary Interpretation: In this section of the narrative Gladwell reports Herzog's recollection of how actual customer preference research led her to the insight that not all people perceived Alka-Seltzer as a medication (an INSTRUMENT) to relieve over-indulgence related stomach acid discomfort (the STIMULUS-EXPERIENCER role relationship) as the manufacturers had presumed, but that a significant separate group of clients perceived the product as a medication (an INSTRUMENT) to relieve headaches. Furthermore, clients who took Alka-Seltzer as medication for over-indulgence felt responsible for their conditions (AGENTS of sorts, known as culprits), while those that took Alka-Seltzer as headache medicine felt that the condition was imposed on them, therefore seeing themselves as proper PATIENTS. This left the advertisers with the quandary that there wasn't a generally recognised medical term to cover both ailments, leading to a copywriter creating a new non-specific, category of ailment, 'the blahs'. This recategorisation exercise blurred the line between ailments that resulted from over-indulgence and those that clients considered outside of their control. This fuzzy recategorisation of a feeling of personal unwellness no doubt persuaded clients to extend Alka-Seltzer's usage to relieve ailments like hangovers and early flu symptoms. The present-day wellness equivalent of Alka-Seltzer that exploits consumers' 'culprit' self image due to over-indulgence is any of a variety of 'detox' products available as powders, shakes and plasters.

Kay (2010)

CAPTIVES are VICTIMS

The online open source encyclopaedia, Wikipedia, recounts how in 2002 the Colombian senator and presidential candidate, Ingrid Betancourt, was captured by the guerrilla group/ terrorist group (keep in mind that one man's guerrilla could be another man's terrorist in role relationship analysis), Revolutionary Armed Forces of Colombia (FARC) and held hostage for more than six years, along with their captives – mostly changed to a tree or locked in a cage - until they were rescued by the Colombian security forces in 2008. In a radio interview in September 2010 on the USA based Dianne Rehm Show (Kay 2010), to promote her most recent book, *Even Silence has an End*, Betancourt recounts their mistreatment at the hands of FARC in graphic details, by using a dynamic *I said, He said* conversational role playing strategy. Betancourt recounts her interactions with the FARC leader, Juan Manuel Santos after their capture:

And I remember he had this very nasty comment, saying, I don't know why we're talking to politicians. And he was kind of, you know, harsh attitude against us. And then he said the only thing that we should do with them is to kidnap them. It's the only thing they will be useful for. *Transcript: 10:09:38*⁴.

Summary Interpretation: In this section of the narrative Betancourt role acts the FARC leader, Santos, as equating captive politicians to kidnap victims. Later in the interview Betancourt recounts a confrontation between her and a guard just before one of her four attempts to escape:

They had put us in a cage made of wooden boards with a thin roof. Summer was coming, and for over a month now we had not had any storms at night, and a storm was absolutely necessary. I spotted a half-rotten board in a corner of our cage. By pushing hard with my foot, I split it enough to make an opening. I did this one afternoon after lunch when the guard was dozing on his feet balanced on his

⁴ This notation means: 10 minutes, 9.38 seconds into the interview.

rifle, but it made a dreadful noise. The guard, edgy, walked all around the cage, slowly like a pacing animal. I followed him, peering through the slits between the boards, holding my breath. He stopped twice, put his eye up to a hole, and for a split second our eyes met. He jumped back terrified. Then, to regain his composure, he planted himself at the entrance to the cage. This was his revenge. He would not take his eyes off me. *Transcript: 10:14:16-10:16: 12.*

Summary Interpretation: In this section Betancourt suggests that the FARC was treating the captives like animals by keeping them locked up in a cage, and her plan to escape by, thereby changing her status from PATIENT (captive animal) to AGENT (escaper). She then dehumanises the guard by recategorising him as a pacing animal.

Betancourt then recounts how she watched the pacing guard (in the pacing animal role) through a gap in the cage (in the captive victim role), his terrified reaction (as EXPERIENCER) when their eyes met (with her being the STIMULUS of his reaction) and how he regained the emotional upper hand (as AGENT) by staring her down (making her feel like a VICTIM again).

From HUMAN CAPTIVE to CAPTIVE ANIMAL

The final aspect of Betancourt's interview that I would like to analyse is where, in response to a question from a listener who called in during the interview, she describes how she experienced the dehumanising treatment that she was subjected to by her captives:

I was chained to a tree by the neck 24 hours a day for years. And I remember, at one point, there was this huge storm. And they could have put a tent for me to just, you know, be dry, but they didn't. And I want to go to the toilet, and they didn't allow me to go to the toilet. I wanted to drink. They didn't allow me to drink. And I couldn't talk with my companions. I was like a dog, like a dog chained to a tree. ... Then I thought I lost everything. I lost everything. *Transcript: 10:46:37-10:47: 23.*

Summary Interpretation: In this section Betancourt reveals that she came to see herself as a captive animal, and that having been stripped from her humanity she felt that she had lost everything.

From CAPTIVE ANIMAL to HUMAN SURVIVOR

Betancourt reconceptualises herself from feeling like a captive animal to where she sees herself as a human survivor:

There's something that they will never, never take away from me, which is the freedom to decide what kind of person I want to be. And I decided I didn't want to be a murderer. I didn't want to be a beast. I didn't want to be a cockroach. I wanted to fly to the sky. And that has changed me in the way that's -- by just envisioning that woman that I wanted to be, I just decided I was going to begin being that strict now, not waiting for a transformation like, you know, a miracle. No. So that changed the way I looked at me, and it was very, very important because I was no more a victim. I was a survivor. *Transcript: 10:47:24-10:48: 21.*

Summary Interpretation: By using a series of animalistic metaphors (a beast, cockroach, and by inference a bird flying freely in the sky), Betancourt reveals how she envisioned her transformation from being a captive animal to being a human in control of her own destiny, free as a bird on wings - a survivor.

Conclusion

In this contribution I provided a succinct explanation of the theory of image schematic role relationship analysis, explained how it could be used in qualitative content analysis, and demonstrated what a powerful tool of narrative analysis it is by analysing sections of interviews presented in Gladwell (2009) and Kay (2010).

Employing the analytical principles of role relationship analysis outlined in this article would enhance narrative analysis in fields of research

as diverse as advertising, case study, literature reviews and the diagnostic analysis of interviews with patients in a variety of medical settings.

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ARTICLES

<i>Rembrandt Klopper</i> Introduction	1
<i>Kasturi Behari-Leak and Sandra Williams</i> Crossing the Threshold from Discipline Expert to Discipline Practitioner	4
<i>Yvonne du Plessis</i> Cultural Intelligence as Managerial Competence	28
<i>Msizi Mkhize, Rubeshan Perumal and Sadhasivan Perumal</i> A Survey of Accounting Firms' Managers' and Trainees' Perceptions of Diversity Management in KwaZulu-Natal, South Africa	47
<i>Shamim Bodhanya</i> The Application of a Concept Model to Illustrate the Tragedy of the Commons in the Sugar Cane Supply Chain	70
<i>Wilfred I. Ukpere</i> Mechanisms to Ameliorate Negative Impacts of Globalisation on Human Resources, Industrial Democracy and Humanity	88
<i>Micheline J. Naude and Charles O'Neill</i> The Quest for Survival in the South African Automotive Industry: A Supply Chain Perspective	111
<i>Natalie Astrup and Brian McArthur</i> The Relationship between Emotional Intelligence and Transformational Leadership in Information Systems Managers: An Exploratory Study	132
<i>Mari Jansen van Rensburg and Teresa Carmichael</i> Service-Learning: Business School Students Working for the Common Good	155
<i>E.J. Louw and T.J. Maubane</i> The Management of a Community Project – A Case Study	177
<i>L. Monji and K. Ortlepp</i> The Relationship between Organisational Trust, Job Satisfaction and Intention to Leave: An Exploratory Study	192
<i>Kasthuri Poovalingam and Suleman Docrat</i> Consumer Decision-making in the Selection of Shopping Centres around Durban	215
<i>Anesh Singh and Sam Lubbe</i> e-Lumination – Evaluating the Quality of Free Online Information for Decision-making	252
<i>Huibrecht M. van der Poll, Aletta McGee and Nico J. Booysse</i> Students' Perceived Ability in the Use of a Computer Application in a Community Outreach Project	276
<i>Indira Padayachee, Paula Kotzé and Alta van der Merwe</i> Course Management Systems from a Usability Perspective	297
<i>Neil Skea and Manoj Maharaj</i> Wireless Network Security	318
<i>Sanjay Ranjeeth</i> The Impact of Learning Styles on the Acquisition of Computer Programming Proficiency	336
<i>Dan Remenyi, Shaun Pather and Rembrandt Klopper</i> Some Philosophical Assumptions Underpinning Academic Research	354
<i>Stan Hardman and Udo Richard Averweg</i> Practitioner Research from a Critical Systems Perspective	374
<i>Rembrandt Klopper</i> Villains and Victims: Image Schematic Role Relationship Theory in Narrative Analysis	385
Contributors	403
Editorial Associates (1994 – 2011)	413