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Interdisciplinary Journal for the Study of the Arts and Humanities in Southern Africa

Themes in Management and Informatics

Guest Editor
Rembrandt Klopper

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Editorial

Johannes A. Smit

Starting its exponential growth in the 1990s, the Information Technology revolution facilitated the availability online of terabytes of researched knowledge, in addition to a universe of other forms and categories of knowledge and information. Technology has created the conditions of possibility for a knowledge and information revolution that previous generations could never have anticipated. This worldwide phenomenon simultaneously raised the curtain on the possibility of providing unlimited access to all humanly created knowledge to all people irrespective of class, race, creed or social or political motivation in radical democratic ways. It is because we live in the midst of this multi-faceted contemporary reality that themes such as management, knowledge and information management, and informatics are important.

Arguably one of the most significant events of the twentieth century was the birth and development of the management sciences. The Tuck School of Business (founded in 1900 at Dartmouth College) was the first to confer the Master of Science in Commerce in the world. The first Master of Business Administration (MBA) degree was initiated about 100 years ago at Harvard University in the United States of America—1908 to be precise—and the University of Chicago offered the MBA to working professionals as from 1940. Outside the United States the MBA was first offered by the University of Western Ontario in Canada since 1950, University of Pretoria in 1951, and The Institute of Business Administration in Karachi in 1955. The founding of management as scientific discipline aimed at addressing the need for educated and trained managers from diverse fields of industry, business and commerce. The main impetus for this drive for expertise came from the former colonies and also from the US's need for industrial expansion in the face of evermore raw materials arriving on its shores for

processing. As companies and businesses sought to become ever more competitive and successful, they could not continue to rely on charismatic leadership and entrepreneurial acumen alone but rather scientific analyses and approaches to management[1]. This nearly one hundred years development also impacted on the last few decades' separation of ownership and managerial control, allowing managerial classes to appropriate ever larger portions of profit preventing reinvestment while simultaneously externalising waste disposal costs, the ever greater search for raw materials and the cost of infrastructure development. This situation has now raised common collective global conscience levels that transcend national and continental divides in the direction of the internalising of costs. This requires governments taking the steps necessary to keep business and the entrepreneurial classes responsible for reinvestment, the costs of detoxification and waste disposal, resource renewal and infrastructure development[2]. If governments should be held accountable for the business and investment in countries with the resulting impact on management systems, this is equally true for public management expectations, e.g. at municipal levels.

These commonly shared concerns have also impacted on the Washington consensus of the 1990s that preferred (US-driven) market expansion and diminishing government intervention. In South Africa the last fifteen years have seen governance structures enlarged and expanded at a too rapid rate with not enough managerial acumen. One remedy is to drastically improve managerial responsiveness and responsibility through good governance policy, effective and efficient management systems and appropriate auditing. Without this the government will be unable to deliver the basic expectations of the twentieth century welfare state, guaranteeing 'education, health and life-long revenue flows'[3]. *Themes in Management and Informatics* provides important critical and scientific perspectives on management strategies in the current structural adjustment crisis.

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[1] See http://en.wikipedia.org/wiki/Master_of_Business_Administration,

[2] See Wallerstein, Immanuel. Crisis of the Capitalist System: Where do we Go from Here? Paper delivered as the annual Harold Wolpe lecture, November 5 2009, pp. 17 - 19.

[3] See Wallerstein p. 20.

Introduction

Rembrandt Klopper

This issue consists of seventeen articles, of which seven are in the field of Management, seven are in the field of Informatics, one is in the field of scholarly editing, and two are of an editorial nature.

Management Related Contributions

May *et al*., present the results of a study of export market performance. Two contributions report results of research in marketing, namely Poovalingam & Pillay who present the results of a study of brand optimisation of fast moving consumer goods in South African chain stores, and Vigar-Ellis *et al*., who present the results of a study on the positioning of luxury vehicle brands in the Pietermaritzburg environs.

Two articles focus on particular aspects of the Small and Medium Enterprise (SME) sector in South Africa, namely Naidoo *et al*,. who address the problem of business ethics in their contribution on ethical dilemmas in business practices of SMEs in South Africa, and Rajaram & O'Neill who present the results of research on whether managers in the SME sector in KwaZulu-Natal have the required accounting skills to be profitable and to contribute to job creation in the province.

Three articles focus on organisational matters, namely the contribution of Gareeb Sewcharan & Brijball Parumasur that deals with team behaviour as part of organisational culture, the contribution of Mazibuko that focuses on problems regarding knowledge management in present-day South African higher education within the context of transforming post-apartheid institutions of higher education, and Averweg's article that focuses on the use or organisational intranets to facilitate the management and sharing of

knowledge in organisations—a contribution that combines Organisational Management and Informatics.

Informatics Related Contributions

Quilling and Blewett focus on the use of the social media as instructional medium in a postgraduate Information Systems & Technology curriculum. Huibrecht van der Poll's contribution presents the result of qualitative content analysis of students' responses during assessment in a theoretical computer literacy course.

Two articles contribute to the field of research ethics in Informatics with studies that focus on plagiarism, namely Mkhize *et al.*, who present the results of a quantitative study of Information Systems & Technology students' perceptions of intellectual property right, including plagiarism and self-plagiarism, while Klopper presents a case for combining computer forensics and forensic linguistics to create a new forensic auditing interdiscipline, Cyber Forensic Linguistics, for training auditors in applying forensic audit procedures to determine plagiarism on semantic grounds in order to promote ethical academic writing. Caroll *et al.*, also contribute to the field of IT auditing with a study that establishes an Information Systems Auditor's profile.

Scholarly Editing

Finally, Smit opens the issue with an editorial and ends it with an insightful review of the vision, policies, procedures and outcomes of the first 15 years of editing *Alter*nation.

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An Empirical Study of the Effects of Firm Size, Export Marketing Strategies of Firms and Type of Industry on the Performance of Firms in Export Markets

Christopher May
Charles O'Neill

Abstract

Large firms, especially multinational firms, played a more dominant role in export markets in the past than today. During the last decade, especially in South Africa, small and medium sized firms have become major players in the international arena. This research study sought to examine whether there are any relationships or significant differences between the size of the firm and export performance, the size of the firm and export marketing strategies, and the size of the firm and perceptions of export marketing managers of these firms with regard to the export marketing environment. Furthermore, whether there are any relationships or significant differences between the firms operating in different types of industries with regard to the aforementioned dependent variables. This is a cross-sectional empirical research study and the presentation of the findings is more descriptive in nature and has mainly utilised ANOVA to analyse the data.

Keywords: Export market, export marketing strategies, export performance, firm size, multinational firms type of industry.

Introduction

The relationship between firm size and export behaviour is well documented (Calof, 1994: 369). Researchers have addressed research questions with regard to the relationships of firm size and propensity to export, firm size and number of markets served, firm size and the export stage and firm size and export attitudes. However, many of the studies had inconsistent results (Chetty and Hamilton, 1993: 31; Zou and Stan,1998: 333; Katsikeas, Leonidas and Neil, 2000: 493). Inconsistencies of results were attributed to different measurements used for size, for example, number of employees, sales, and intensity of exports. Furthermore, different sampling methods were used and data were collected differently.

The South African government is also particularly interested in the SMME sector with regard to the creation of employment and contributing to the economic growth of the country**.** The commitment of the South African government to the development of the SMME sector in general was already demonstrated by the Small Business Act of 1996, and the commitment to the promotion of SMME exports in particular was demonstrated by the SMME Export Incentive Scheme of 1997 (Department of Trade and Industry, 1997: 7). The criteria of the National Small Business Bill of 2000 were used to classify firms as being large, medium, small, or micro. It is therefore important to investigate which marketing strategies are employed by these firms in export markets, whether they are different or similar, and to determine their impact on the export performance of the firm.

A number of past research studies strived to determine whether the adaptation or standardisation of export marketing strategies affect the export performance of the firm. The objectives of this research study were to determine whether the export marketing strategies were different in terms of the size of the firm, and whether firms in different types of industries had different export marketing strategies (Albuam and Tse, 2001: 59; Samiee and Roth, 1992: 1; Melewar and Saunders, 1999: 583; and Schuh, 2000: 133). Furthermore, the perceptions of exporters regarding export markets were also investigated, as it could be reasonably assumed that perceptions regarding the export market would determine which strategies they will implement in the export market.

The literature review and development of the research questions are dealt with in the next section, followed by the research methodology, the

findings, limitations, directions for future research and the conclusion.

Literature Review and the Development of the Research Questions

Based on the objectives of the research study—to examine whether there are any relationships or significant differences between the size of the firm and export performance, the size of the firm and export marketing strategies, the size of the firm and its perceptions with regard to export markets, and whether there are any relationships or significant differences between the firms operating in different types of industries with regard to the aforementioned dependent variables—the literature review is summarised under the following headings, namely, export performance, standardisation and adaptation of export marketing mix strategies and perceptions with regard to the export market. The research questions are provided under each heading.

Export Performance

According to O'Cass and Julian (2003a: 56), export marketing performance is mainly influenced by four broad groups of variables, namely, firm-specific characteristics, product characteristics, market characteristics and export marketing strategies. Furthermore, the literature provides a number of factors of how export marketing performance can be measured, namely, in terms of export sales levels, export sales growth, ratio of export sales to total sales, ratio of export profits to total profits, increase of importance of export to total business, overcoming barriers to export, propensity to export, acceptance of product by export distributors, export involvement, exporter internationalisation and attitudes toward export.

Aaby and Slater (1989: 21) reviewed 55 studies and concluded that there is no clear-cut formula in developing a successful export programme. However, they also indicated that company size by itself was not an important factor for international performance, unless it was related to financial strength, or some other variables related to economies of scale. The research questions (RQ) therefore were:

RQ_1: Does firm size influence the export performance of firms?

RQ_2: Does the type of industry influence the export performance of firms?

Standardisation versus Adaptation of Export Marketing Mix Strategies

The whole debate with regard to the adaptation or standardisation of export marketing strategies boils down to the advantages and disadvantages of each alternative. For example, advantages of standardisation are cost savings, consistency of customers, improved planning and distribution, and more control of marketing activities in other countries (Zou, Andrus and Norvell, 1997: 109). A major drawback of standardisation is that the firm has more of a product orientation rather than a customer orientation (Zou, Andrus and Norvell, 1997: 109). Chung (2005: 1345) notes, that despite the 40 years of development in the literature with regard to the standardisation and adaptation strategy debate, many of the theories that were developed, still need to be established as conclusive.

Product and promotion are elements of the marketing mix that are adapted more than the other elements (Cavusgil, Zou and Naidu, 1993: 485). Product adaptations are normally the response of the firm to the legal and technical requirements of a particular country. According to Schuh (2000: 142), adaptations or adjustments occur mainly among the noncore elements of the product mix, for example, labelling content, package design, names of consumer products, and product instructions when translated. Factors such as differences in consumer needs, buying behaviour, cultural differences and variations in ability to afford would favour a strategy of marketing adaptation (Chee and Harris, 1998: 375). High costs of adaptation, scale economies in production and marketing, and the convergence of markets with regard to similar tastes would favour the standardisation of products. The research questions with regard to export product strategies therefore were:

RQ_3: Are the export product strategies of firms different as a result of the size of the firm?

RQ_4: Are the export product strategies of firms operating in different industries similar?

Elinder (1965) was the first to take up the debate in the 1960s of whether to standardise or adapt the promotion strategy. The proponents of standardisation argue that because of faster communication, there is a convergence of art, media activity, living conditions and cultures. Because of this convergence, advertising should be standardised (Kanso and Nelson, 2002: 79). The research questions with regard to export promotion strategies therefore were:

> RQ_5: Are the export promotion strategies of firms different as a result of the size of the firm?
> RQ_6: Are the export promotion strategies of firms operating in different industries similar?

Many scholars acknowledge that selecting channels of distribution is a complex and difficult task for a number of reasons (Rialp, Axinn, and Thach, 2002: 133; Vandersluis, 1999: 13; and Griffith and Ryans, 1995: 52). The following are some of the questions to be considered when deciding which distribution strategy to use: Firstly, what extent of control does the firm want to exercise over its channel members? Secondly, how selective should the distribution channel be? Thirdly, what types of channel members are to be selected? And fourthly, how many channels should be established for a given product? However, the research questions with regard to export distribution strategies therefore were:

> RQ_7: Are the export distribution product strategies of firms different as a result of the size of the firm?
> RQ_8: Are the export distribution strategies of firms operating in different industries similar?

Notwithstanding the fact that pricing is complex in domestic markets, it is even more difficult in export markets due to factors such as multiple currencies, the instability of economies of foreign countries, trade barriers, additional cost considerations and longer distribution channels (Raymond, Tanner and Kim, 2001: 20; Cavusgil, 1996: 67; and Samli and Jacobs, 1993/1994: 29). The research questions with regard to export pricing strategies below were:

RQ_9 : Are the export pricing strategies of firms different as a result of the size of the firm?
RQ_{10}: Are the export pricing strategies of firms operating in different industries similar?

Perceptions with Regard to the Export Market

As there are advantages to go international, there are also disincentives or barriers for firms not to do so. Market characteristics such as access to distributors, import control, government legislation, exchange rate fluctuations, cultural differences, language differences and unfamiliar business practices may impact negatively on export performance. Psychic distance is one of the factors that has been the subject of many research studies and firms tend to trade with countries that are 'physically close' (O'Grady and Lane, 1996: 309). The perception research questions regarding the export market therefore were:

RQ_{11}: Are the perceptions of export marketing managers regarding the export-marketing environment different given the size of the firm?
RQ_{12}: Are the perceptions of export marketing managers of firms in different industries similar with regard to the export market environment?

The research methodology that was used to address the research questions will be discussed in the next section.

Methodology

The research study made use of a self-administered mail survey. The objective was to select previously validated scales to obtain valid and reliable measures of the variables and therefore the development of the questionnaire was mainly based on the framework of Cavusgil and Zou (1994). While there are different export performance measures, the questions on sales growth and profitability for the last five years, actual sales for the last financial year, and satisfaction with regard to international sales and profits were the objective and subjective measures used in this research study to measure export performance. All the other scales were single item scales.

The single item scales were 5-point Likert scales where respondents had to indicate, for example, on a question 'that they customise products for the export market' as (1) never or (5) always.

The questionnaire was pre-tested, and content and face validity were established by consulting ten exporters and eleven academics at two universities. A number of changes were suggested and implemented. The multiple item export performance scale had a coefficient alpha value of .708. The address list (sample frame) of the Bureau of Market Research of UNISA was used to draw the sample. A sample size of 1 153 (50 percent), of a sample frame of 2 305, was randomly selected. A cover letter, the questionnaire and a pre-paid reply envelope were mailed and addressed to export marketing managers of firms. A total number of a 173 firms responded, 45.5 percent (77) were consumer firms and 55.5 percent (96) were industrial firms. A response rate of 15 percent was attained.

According to Armstrong and Overton (1977: 396), mail surveys have been criticised for non-response bias and have highlighted three methods of estimation, namely, comparisons with known values for the population, subjective estimates, and extrapolation. The extrapolation method was used to determine potential non-response bias. The extrapolation method entails the comparison of the data of late respondents with that of early respondents, and it is assumed that late respondents have similar characteristics to that of non-respondents.

The early respondents of this study were compared with the late respondents with respect to the following variables; consecutive years in export, firm by class size, international sales growth for the last financial year, total international sales for the last financial year, total domestic sales for the last financial year, satisfaction with international sales and satisfaction with international profits. Independent sample *t*-tests were used to determine whether significant differences existed between early and late respondents (Lages and Lages, 2004: 45; Morgan, Kaleka and Katsikeas, 2004: 95; O'Cass and Julian, 2003b: 375; and Morgan and Katsikeas, 1998: 168). Early respondents were considered as the first 70 percent of the returned questionnaires and late respondents as the last 30 percent. Both the Levene's test for equality of variances and the 2-tailed results had values of more than .05. The results therefore indicated that non-response bias was not a serious concern and it addressed the issue of sample representativeness.

Findings

Sample Distribution

Large firms and firms in the SMME sector constituted 38.73 percent and 61.27 percent respectively of the sample. The industries included in this research study were the food, clothing and textiles, paper and publishing, fuels and chemicals, machinery and household appliances, electrical and medical supplies, motor vehicles, ships and aircraft industries.

Relationships between Firm Size and Export Performance

One-way between-groups ANOVA was used to determine whether the size of firms had an influence on the export performance of firms, or otherwise stated, whether the export performance was significantly different compared to the size of the firm. One-way between-groups ANOVA determines whether the means of dependent variables are the same or different. Firm size was the independent variable and export performance the dependent variable. Table 1 provides some of the output results of a one-way between-groups ANOVA analysis.

The test of homogeneity of variance gives Levene's test for homogeneity of variances (Pallant, 2003: 190). It determines if the variance in scores is the same in each group. If the significance value is greater than .05, then the homogeneity of variance assumption has not been violated. If the significance value is less or equal to .05, then there is a significant difference somewhere among the mean scores of the dependent variable (Pallant, 2003: 190). Levene's test gave a significance value of .020, and based on this there was somewhere a significant difference among the mean scores with regard to the export performances of firms, which is the dependent variable for the 5 firm sizes. No significant differences were found between firm size and export performance, except in the case of small and large size firms (refer to Table 1). However, the homogeneity of variance assumption in this instance has been violated, as the test of homogeneity of variances had a significance value of .020, which was less than .05, and therefore the results should be interpreted with care.

Table 1: A Summary of Significant Differences between Firm Size and Export Performance

Firm by Class Size		**Mean Difference**	**Sig.**
Micro (5 and less)	Very Small (6-20)	2.90909	.954
	Small (21-50)	-4.78125	.671
	Medium (51-200)	-4.07500	.777
	Large (201 and more)	-5.19298	.563
Very Small (6-20)	Small (21-50)	-7.69034	.054
	Medium (51-200)	6.98409	.086
	Large (201 and more)	-8.10207	.022*
Small (21-50)	Medium (51-200)	.70625	.996
	Large (201 and more)	-.41173	.999
Medium (51-200)	Large (201 and more)	-1.11798	.962

* Significance value of less .05 as per the ANOVA table

Relationships between Firms in Different Types of Industries and Export Performance

No significant differences were found between firms in different types of industries and export performance, meaning that firms in different industries did not perform necessarily better or worse in export markets.

Relationships between Firm Size and Export Marketing Strategies

A summary of all the relationships between the dependent variables of international marketing strategies and the independent variable firm size is presented in Table 2. With regard to the dependent variable of adaptations to the marketing mix, it was found that micro and large firms had significant differences with regard to the degree of pricing adaptation, and medium and large firms with regard to the degree of adaptation of positioning. The variable regular overseas trips had the largest significant value in terms of size of firms employing this strategy. Large firms obviously have more financial resources to send people overseas. Table 2 also highlights the significant differences that were found under pricing strategies of firms.

Table 2: A Summary of Significant Differences between Firm Size and Export Marketing Strategies

Marketing Mix Categories	**Dependent Variable**	**Sig.**	**Firm Size Responsible for Differences (Mean Values)**
Adaptations to the marketing mix	Degree of pricing adaptation	.009*	Micro (2.1111) Large (3.0597)
	Degree of adaptation to positioning	.006*	Med 1.8571) Large (2.3881)
Product strategies	No significant differences		
Pricing strategies	Low prices used as a strategy	.027*	Med (3.4898) Small (2.7222)
	Long credit term	.010*	Large (2.5970) Micro (1.3333)
	Prices quoted in rand	.007*	Large (1.7910) Micro (3.2222) Large (1.7910) Small (2.1667)
Promotion strategies	Regular overseas trip	.000*	Med (3.5714 Micro (2.3333) Large (3.9104) Micro (2.3333) Large (3.9104) Small (3.1389)
Distribution strategies	No significant differences		

* Significance value of less than .05 as per the ANOVA table

Relationships between Firms in Different Types of Industries and Export Marketing Strategies

Significant differences were found between firms in different types of industries and their export marketing strategies with regard to adaptations of product, pricing and promotion strategies. This was not the case for export distribution strategies of firms in different industries (refer to Table 3).

Furthermore, independent samples *t*-tests were used to compare the mean values of responses of industrial and consumer firms with regard to differences in their export marketing strategies. The only differences that were significant were for promotion and distribution as export marketing strategies (refer to Table 4). Industrial firms make more use of the Internet. As can be expected, industrial firms make more use of direct channels and therefore have greater control over their distribution channels. It was found that consumer firms gave a higher rating than industrial firms with regard to the competitive intensity of the international market. Under product strategies, firms in the clothing and textile industry indicated that they produce more specialised and customised goods compared to the food, paper and publishing, machinery and household industries.

Under pricing strategies, firms in the food industry indicated that higher prices were set as a strategy in the export markets, compared to that of firms in the machinery and household industry, but lower prices compared to firms in the paper and publishing industry. Under promotion strategies, firms in the clothing and textiles industry focused less on building brand awareness compared to firms in a number of other industries. Firms in the food industry participated more in trade shows compared to firms in a number of other industries.

Table 3: A Summary of Significant Differences between Firms in Different Types of Industries and Export Marketing Strategies

Marketing Mix Categories	**Dependent Variable**	**Sig.**	**Industries Identified as Having Significant Differences and Mean Values per Industry**
Product strategies	Unique product features	.018*	Fuels and Chemicals (4.1852) Machinery and H/holds (3.3947)
	Speciality goods	.001*	Machinery and H/holds (2.1053) Clothing and Textiles (3.3226) Clothing and Textiles (3.3226) Paper and Publishing (1.1750)

	Customised goods	.002*	Clothing and Textiles Food	(4.0968) (2.7778)
			Machinery and H/holds Clothing and Textiles	(3.0263) (4.0968)
Pricing strategies	High prices used as a strategy	.004*	Machinery and H/holds Food	(1.8684) (2.9630)
	Low prices used as a strategy	.010*	Paper and Publishing Food	(3.8750) (2.5556)
Promotion strategies	Build brand awareness	.000*	Clothing and Textiles Food	(2.3548) (3.4074)
			Clothing and Textiles Fuels and Chemicals	(2.3548) (3.3704)
			Clothing and Textiles Machinery and H/holds	(2.3548) (3.2632)
Promotion strategies	Participate in trade shows	.006*	Paper and Publishing Food	(2.3125) (3.5556)
			Fuels and Chemicals Food	(2.4444) (3.5556)
			Machinery and H/holds Food	(2.6316) (3.5556)
			Vehicles and Other Food	(2.2222) (3.5556)

* Significance value of less than .05 as per the ANOVA table

Table 4: A Summary of Significant Differences between the Export Marketing Strategies of Industrial and Consumer Firms

Marketing Mix Categories	**Dependent Variable**	**Sig.**	**Significant Differences and Mean Values of Industrial and Consumer Firms**
Promotion strategies	Use the Internet to advertise	.028*	Industrial (3.0521) Consumer (2.5844)
Distribution strategies	Direct sales to end users	.000*	Industrial (3.2396) Consumer (2.3247)
	High levels of control	.023*	Industrial (3.5208) Consumer (3.0779)

* Significance value of less than .05 as per the ANOVA table

Perceptions of Export Marketing Managers of Firms of Different Size with regard to the Export Market Environment

Export marketing managers of large firms indicated that the competitive intensity of international markets was high, while export marketing managers of micro firms did not have the same view (refer to Table 5). However, responses from micro firms and large firms viewed the exchange rate risk as very high. There were no significant differences between the size of the firm and the perceptions of export marketing managers of the respective sizes of firms with regard to import controls, foreign legislation requirements, cultural barriers, channel accessibility and language barriers. The average group mean values were 3.0 (on the 5-point Likert scales used), meaning that these barriers were perceived as neither too high nor too low.

Table 5: A Summary of the Perceptions of Export Marketing Managers of Firms of Different Size with regard to the Export Market Environment

Dependent Variable	**Sig.**	**Firm Size Identified for Differences and Mean Values**
Competitive intensity (1=Very low; 5=Very high)	.003*	Micro (3.4440) Large (4.4330)
Exchange rate risk (1=Very low; 5=Very high)	.000*	Very Small (3.0000) Micro (4.2500) Medium (4.0204) Micro (4.2500) Large (4.4478) Micro (4.2500) Large (4.4478) Small (3.8056)
Foreign tariffs (1=Very low; 5=Very high)	.059*	Micro (2.2222) Large (3.3134)

* Significance value of less than .05 as per the ANOVA table

Perceptions of Marketing Managers of Firms in Different Types of Industries with regard to the Export Market Environment

Export marketing managers in the motor vehicle industry viewed the export market as very competitive (an average mean value of 4.5560), while export marketing managers in the electrical and medical industry gave the lowest

average mean rating regarding the competitiveness of the export market (refer Table 6). Export marketing managers in the clothing and textile industry viewed the exchange rate risk as very high, and this is evident in terms of the many clothing and textile firms that have closed down.

Table 6: A Summary of the Perceptions of Export Marketing Managers of Firms in Different Types of Industries with regard to the Export Market Environment

Dependent Variable	**Sig.**	**Industry Type Identified for Differences and Mean Values**	
Competitive intensity (1=Very low; 5=Very high)	.037*	Clothing and Textile Electrical and Medical	(4.1480) (3.6250)
		Vehicles and Other Electrical and Medical	(4.5560) (3.6250)
Exchange risk (1=Very low; 5=Very high)	.005*	Clothing and Textile Electrical and Medical	(4.6129) (3.5000)
Channel accessibility (1=Very low; 5=Very high)	.016*	Clothing and Textiles Food	(2.3548) (3.3704)
Cultural differences (1=Very low; 5=Very high)	.019*	Clothing and Textile Paper and Publishing	(2.4516) (3.2813)

* Significance value of less than .05 as per the ANOVA table

Firms in the clothing and textile industry did not see channel accessibility as a problem and firms in the paper and publishing industry had the highest rating for cultural differences that they experience. Overall, foreign tariffs, import controls, foreign legislation and cultural differences had average mean ratings of approximately 3.0, which indicate that the firms in these industries do not view these variables as either too high or too low. Language was not seen as a major barrier, as it had a low average mean rating of 2.0.

Research Limitations of the Study and Directions for Future Research

The qualitative dimension of the research was constrained due to the fact that a mail survey was conducted to collect the information, and not personal interviews. If personal interviews had to be conducted, it would have provided more opportunities to probe respondents and collect more qualitative information. A major challenge in conducting research is that of getting reliable and objective information. Many firms are not prepared to provide exact figures on export profits and sales, as these are viewed as confidential or sensitive. Because of these concerns of firms, researchers are therefore obliged to pose questions in a less sensitive manner to overcome this problem, for example, the question on export sales had to be presented on a scale with seven categories or levels of export sales. This influences the analysis of the study in a negative way, as the analysis could have been more reliable with objective and exact information. There are many export performance scales that were used in other research studies (Shoham, 1998: 73). The challenge lies in the development of a reliable international/export performance scale that can be used internationally for comparison purposes. However, the scales to be used should also be of such a nature that it will allow the researcher to get the necessary information without any difficulty.

Mainly single item scales were used which impacted on the richness of information collected. Furthermore, the research questions were very specific, but also restictive in allowing for more analysis of firms operating in the export market. There are many more opportunities for other research areas, for example, to determine whether the standardisation or adaptation of export marketing programmes result in greater export performance, or to ascertain the export marketing strategies of high performing export firms compared to that of low performing export firms.

Conclusion

The research study has shown that the only significant difference between firm size on the export performance of firms was in the case of very small and large firms, whereas no significance differences were found between any of the large, medium and micro enterprises. Therefore, there are opportunities for firms in the SMME sector to expand their operations in the

export market. There were also a number of significant differences with regard to the product, pricing and promotion strategies that firms employ, while this was not the case with regard to the distribution strategies being employed by firms. Firms are much dependent on intermediaries when it comes to distribution strategies in export markets. The perceptions or views of export marketing managers with regard to the exchange rate risk differed significantly. Since firms are exporting to different continents it could have been an influence on this finding. Firms wanting to enter particular export markets therefore need to identify which are the major external influences impacting on the performance of the firms as to determine which exporting marketing strategies would be the most appropriate.

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Brand Equity Optimization of Fast Moving Consumer Goods among Retail Chain Stores in South Africa

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Abstract

This study probes the perceptions of consumers as well as store managers with regard to the branding of fast moving consumer goods in South African retail chain stores. While much research has been conducted on branding, this investigation will focus on the extent to which marketers' perceptions and consumers' perceptions converge with a view to maximizing the mutual benefits to be derived from marketing strategies within a contemporary South African environment. The fieldwork for this survey was conducted nationally among store managers based at three major retail groups in South Africa and among consumers living in the province of KwaZulu-Natal. The findings from the literature survey indicate that both local and international companies have realized the potential of investing resources in brand building activities. These findings have provided strong evidence to suggest that building brand equity for fast moving consumer goods impacts positively on the sales and popularity of these products. The findings of the empirical research illustrates that the typical South African consumer has become extremely brand conscious and brand building activities encourage them to purchase these products. The results of both surveys conducted among store managers and consumers provide strong evidence that retail chain store managers and consumers share similar viewpoints with regards to the branding, packaging, pricing, promotions and quality attributes of fast moving consumer goods in terms of optimizing brand equity.

Keywords: Brand equity, Brand equity optimization, branding, fast moving consumer goods, geographic location, perceptions, retail chain stores.

Introduction

The fundamental objective of this investigation is to determine the extent to which the perceptions of South African marketers and consumers converge to promote brand equity in respect of fast moving consumer goods in retail chain stores. Branding and its integral aspects of packaging, pricing, promotion, and the quality of fast moving consumer goods have had a significant impact on the purchasing patterns of consumers in South African retail chain stores. Fast moving consumer goods are typically non-durable products that are consumed over a short period after which they would need to be replaced. According to Brassington and Pettitt (2000:265), these types of products are usually frequently purchased and are low priced, thus, requiring mass distribution and marketing communication focusing on their functional and psychological benefits. Since the onset of democracy, South African consumers are continuously seeking quality, reliability, and consistency in the products that they consume on a daily basis. Moreover, consumers are increasingly experiencing what they perceive as an enhanced image from the consumption and possession of branded products (Formby and Pile 2007:52). These factors translate into opportunities for marketers, especially if the needs and wants of an enterprise's target market are properly researched and appropriately addressed. Consequently, marketers need to plan and structure the various elements of the marketing mix in order to have the desired effect on their target audiences. The extent to which the optimum synergies accrue to the various chain stores will depend on their emphasis on one or more of the components of the marketing mix. Traditionally, the strategies employed by most marketers have focused on competitive differentiation and the emotional attributes of a brand. Additionally, the contemporary business environment requires a strategic shift in the construction of brand plans as consumers become more discerning in terms of their needs and wants. It is inevitable that a critical component of building brand equity is to ensure consistently brilliant products and services. Keller

(1994:RC-4) makes the following statement to illustrate this argument: 'Today, brands must learn to aspire to the consumer'.

Motivation for the Study

The branding of fast moving consumer goods has become an integral part of the lives of consumers not just in South Africa but internationally as well. Consumers are literally confronted with hundreds of brands on a daily basis and are, therefore, spoilt for choice. From a business's perspective, Doyle (2002:157) believes that brands are central to an entity's marketing and business strategy. Establishing a brand that has earned the respect and admiration of consumers is of fundamental importance in attempting to build market share and profitability, as well as challenging competitors for market dominance. The viewpoints presented by Barnard and Ehrenberg (1997:21), and Rabuck and Rosenberg (1997:17) who maintain that popular brands that enjoy a great deal of consumer loyalty have a huge and very positive impact on the company's market share and profitability, is also supported by Doyle (2002:157). Since the marketers of fast moving consumer goods collectively spend billions of rands on the marketing and development of new and existing products each year and since the objective of most marketers of fast moving consumer goods is to maximize the wealth of their shareholders by increasing turnover through innovative marketing campaigns, this study investigates the extent to which the perceptions of South African marketers and consumers converge to promote brand equity in respect of fast moving consumer goods in retail chain stores. The role and impact of branding and its integral aspects of packaging, pricing, promotion and quality will be interrogated to establish how these variables contribute towards this convergence of perceptions which determine the brand equity of fast moving consumer goods. Evidently, the turnover generated from the sales of fast moving consumer goods forms a significant portion of all sales generated by retail chain stores. The information gathered on the branding of fast moving consumer goods will prove useful to store managers in terms of allocating shelf-space to the various brands of fast moving consumer goods. The improvements that should arise in retail chain stores as a result of the better management of the fast moving consumer goods category should provide the consumer with a more pleasurable shopping experience.

The Problem Statement

Since the intangible asset of brand equity provides a company with its competitive advantage and its profitability, it is essential to ensure that brand equity remains at the forefront of strategic marketing management. Exactly what contributes to brand equity for fast moving consumer goods in retail chain stores needs to be ascertained as the first step towards a strategic marketing plan. This leads to the main problem statement, namely,

The extent to which South African marketers' perceptions and consumers' perceptions converge to promote brand equity in respect of fast moving consumer goods in retail chain stores needs to be assessed.

In attempting to address the main problem statement, it will also be necessary to address the sub-problems as they relate to the extent to which:

- manufacturers and marketers of fast moving consumer goods are confronted with a number of options when formulating marketing strategies to brand their products;
- the increased popularity of branded fast moving consumer goods result in consumers choosing manufacturer brands as opposed to house brands;
- investing resources in the branding of fast moving consumer goods can contribute positively to brand equity;
- packaging is used by marketers to improve the image and popularity of their products;
- pricing is understood as a strategic marketing tool to improve the sales performance of their products;
- promotion is used by the marketers of fast moving consumer goods to influence the purchasing behaviour of consumers;
- investing in the quality attributes of their products impacts on their market share; and
- demographic variables of age, gender, home language, race group, level of education and work experience have an impact on the purchasing behaviour of consumers of fast moving consumer goods in South Africa.

Having outlined the main problem statement and the sub-problems, the objectives of this study are now stated.

Research Objectives

The main research objective is to determine:

The extent to which South African marketers' perceptions and consumers' perceptions converge to promote brand equity in respect of fast moving consumer goods in retail chain stores.

The secondary objectives are as follows:

- to identify the options which manufacturers and marketers of fast moving consumer goods are confronted with when formulating marketing strategies to brand their products;
- to determine if the increased popularity of branded fast moving consumer goods results in consumers choosing manufacturer brands as opposed to house brands;
- to establish whether an investment in the branding of fast moving consumer goods contributes positively to brand equity;
- to determine whether packaging is a valuable tool used by marketers to improve the image and popularity of their products;
- to determine if the marketers of fast moving consumer goods understand the importance of pricing as a strategic marketing tool;
- to assess whether promotion is used by fast moving consumer goods companies to influence the purchasing behaviour of consumers;
- to establish if the marketers' investment in the quality attributes of their products impacts on their market share; and
- to investigate whether the demographic variables of age, gender, home language, race group, level of education and work experience have an impact on the purchasing behaviour of consumers of fast moving consumer goods.

The Main Research Question

The impact of branding on fast moving consumer goods needs to be explored through a study incorporating both secondary and primary research tools

which are designed to gather data to respond to the problem statements and objectives discussed above. This discussion then leads us to formulate the main research question as follows:

Do South African marketers' perceptions and consumers' perceptions converge to promote brand equity in respect of fast moving consumer goods in retail chain stores?

Subsidiary Research Questions

In quantifying the impact of branding on the popularity and sales of fast moving consumer goods through retail chain stores, the following questions also need to be posed:

- What options are manufacturers and marketers of fast moving consumer goods confronted with when formulating marketing strategies to brand their products?
- Does the increased popularity of branded fast moving consumer goods result in consumers choosing manufacturer brands as opposed to house brands?
- Does the investment in resources in the branding of fast moving consumer goods contribute positively to brand equity?
- Is packaging used by marketers to improve the image and popularity of their products?
- Do the marketers of fast moving consumer goods understand the importance of pricing as a strategic marketing tool?
- Are promotions widely used by fast moving consumer goods marketers to influence the purchasing behaviour of consumers?
- Do marketers invest in the quality attributes of their products in order to gain market share?
- Do the demographic variables of age, gender, home language, race group, level of education and work experience have an impact on the purchasing behaviour of consumers of fast moving consumer goods?

While much research has been done on branding, this investigation will focus on the extent to which marketers' perceptions and consumers'

perceptions converge with a view to maximizing the mutual benefits to be derived from these strategies from a South African perspective.

Research Design

The research methodology used in this study comprises two separate, but complementary sources of data, namely, secondary data and primary research based on two structured questionnaires. One was administered to store managers of South African retail chain stores and the other to consumers that purchase fast moving consumer goods from retail chain stores.

The Secondary Data

The findings of numerous international and local researchers together with the viewpoints of successful marketers of fast moving consumer goods in South Africa assisted greatly in establishing the factors that motivate consumers to purchase fast moving consumer products and also contributed to the development of the structured questionnaire employed in this study.

The Primary Data

The empirical research involved the collection of primary data through the use of two sets of structured questionnaires, one to a sample of store managers and the other to a sample of consumers. The universe that was sampled in this study consisted of firstly, the total number of store managers employed by the three major chain stores in South Africa and secondly, consumers in KwaZulu-Natal. These two separate samples were presented with similar questionnaires relevant to each set of circumstances. The data from these surveys provided some unique insights into the purchasing patterns of consumers of fast moving consumer goods at retail chain stores in South Africa.

Limitations of the Study

In undertaking this research, certain limitations became apparent. These limitations include the following:

The Geographic Location of Store Managers and Consumers

The study consisted of two samples, namely, store managers based in three of the largest retail chain store groups that are located in the various provinces in South Africa and consumers who were only selected from KwaZulu-Natal. While the consumer sample was representative of the various race groups that exist in South Africa, consumers based in other provinces may have different amounts of disposable incomes and attitudes towards fast moving consumer goods to that of the consumers from KwaZulu-Natal.

The Product Selection in the Investigation

The products chosen for this investigation were classified as fast-moving consumer goods that are typically found in retail chain stores which are purchased by consumers as part of their weekly or monthly grocery purchases. The results of this research are, therefore, not applicable to other types of products, for example, shopping goods, specialty goods and unsought goods, even if they are purchased regularly.

The Sample Chosen for the Investigation

The sample chosen for this investigation consisted of store managers of three of the largest retail groups dealing primarily in fast moving consumer goods. While store managers are expected to have extensive experience in dealing with fast moving consumer goods, brand managers who are able to provide greater insights into the branding, packaging, pricing, promotions and quality aspects were omitted since brand managers are predominantly found at manufacturing companies rather than at retail chain stores. This study focused on 176 stores located throughout South Africa. These retail chain stores are located in well-developed urban areas. No stores located in rural and inaccessible areas were included in this study. Other types of retail establishments such as independent retailers, wholesalers and general dealers that are located in rural areas should also be probed as well as consumers from these areas to gain a more comprehensive understanding of all types of etailers and consumers.

The Significance of Branding in the Market Place

A striking phenomenon in the contemporary business environment is the magnitude and importance of brands in the minds of consumers as well as investors, both locally and internationally. Branding had its roots in the fast moving consumer goods segment through the innovative work of Messrs. Procter & Gamble and Lord Leverhulme. In essence, a valued brand is indicative of trust and goodwill. Nilson (1998:5) and Doyle (2002:157) agree that well-established and successful brands have the unique ability to enhance shareholder wealth not just by capturing new market share but also by retaining existing loyal customers and by increasing a company's financial performance and long-term competitive position (Mudambi 2002:528). Successful brands, therefore, impact on an entity's fortunes in three ways, namely, by developing a healthy market share, by maintaining competitive price levels and by ensuring steady cash flows. For this investigation, the following definition by De Chernatony & McDonald (1998:20) encapsulates the essence of a brand:

> *'A successful brand is an identifiable product, service, person or place, augmented in such a way that the buyer or user perceives relevant, unique added values which match their needs more closely. Furthermore, its success results from being able to sustain these added values in the face of competition'.*

Evidently branding is a dynamic and constantly evolving phenomenon that demands a continuous assessment. Perhaps, the best way to take note of the role and importance that brands have taken on is to consider the following quotation by John Stuart, the former chairman of Quaker Oats Ltd.:

> *'If this business were to be split up, I would be glad to take the brands, trademarks and goodwill and you could have all the bricks and mortar— and I would fare better than you' (De Chernatony 2001:3).*

There are three basic components that constitute a brand, namely, brand strategy which originates from the position of the brand within the broader portfolio of the entity that has possession of the brand; brand positioning,

where brands are likely to be positioned close to one another in mature markets, while in a new and innovative market, there is likely to be a greater diversity in the features offered by the different brands; and brand personality which relates to the perception which consumers have of the brand in question. There are three types of appeals, namely, sensual, rational and emotional that help to shape the personality of the brand.

Brand Equity

Etzel *et al.* (2001:276) and Shiffman and Kanuk (2000:193) view brand equity simply as the value that a brand is able to add to the product it was meant to represent. Keller (1993:8) maintains that brand equity is the differential effect that brand knowledge has on the consumer's response to the marketing of a brand especially when the consumer possesses favourable, strong and unique brand associations. The Customer-Based Brand Equity (CBBE) model, developed by Keller (2001) illustrates the four sequential aspects, namely, identity, meaning, response and relationships, which represent a 'branding ladder'. These aspects are further divided into six brand building blocks of salience for identity, performance and imagery for meaning, judgments and feelings for response and at the pinnacle, resonance for relationships. From the marketer's perspective, brand relationships are the desired step since it results in an intense, active, loyalty relationship between the customers and the brand. De Chernatony and McDonald's (1998:397) definition that 'brand equity consists of the differential attributes underpinning a brand which give increased value to the firm's balance sheet' is also relevant to this study.

Brand Equity and Quality

When developing and sustaining brand equity, an important consideration, according to Etzel *et al*. (2001:277), is to ensure that the product quality is always of a consistent level, in line with consumer expectations. Mowen and Minor (2001:201) further expand upon the issue related to product quality by identifying the following dimensions of quality, namely,

- Performance, which focuses on the extent to which a product is able to satisfy the expectations of the consumer;

- Employee interactions, where consumers tend to value qualities in employees such as courtesy and empathy;
- Reliability, which refers to the ability of a product to consistently deliver good performance with little or no malfunction;
- Durability, where the average life span and overall structure of the product are particularly important when the consumer is planning on using the product for a significant period of time;
- Aesthetics, where consumers are quick to pick up on value-added benefits such as well-designed and packaged products or stores that have undergone refurbishments to make them more contemporary or user-friendly; and
- Timeliness and convenience, where consumers value timely, efficient and convenient service.

Brands, which enjoy favourable equity, are able to earn good returns for their shareholders and promote brand loyalty among consumers. Brand loyalty is a concept that is of fundamental importance to all stakeholders in the business entity and deserves a significant amount of resources to ensure future success. This argument is supported by Hoyer and MaCinnis (2001:108) who point out that a brand loyal consumer market provides a steady base from which to build good profits. Jobber (2001:230) suggests that this attempt to generate better returns on investment is dependent on an entity being able to ensure that its target market maintains loyalty towards its brand or portfolio of brands. Investing in a brand can yield rich rewards in terms of premium pricing, wide distribution and sustaining optimum sales and profits through brand loyalty. Jobber (2001:232) suggests that seven factors should be considered when attempting to build a successful brand, namely, quality, positioning, repositioning, well-blended communications, being first, having a long-term perspective and focusing on internal marketing.

Brand Equity Optimization

In order to optimize brand equity, marketers must integrate five key variables into their respective market offerings, namely, branding, packaging, pricing, promotions and quality. Investing resources in a brand invariably results in

rich rewards (Keller 2003). Baldinger and Rubinson (1996:22) conducted research on 27 brands to establish the importance of brand loyalty on the purchasing behaviour of consumers as well as the impact that brand loyalty has on the market share of the brand. The findings of this research indicate that brands that were well known for their quality attributes had a strong following and these users were not willing to switch to competitor brands. Moreover, the money that the owners of these brands invested in building their respective brands was recouped through growth in market share. Brands are instantly recognized by their packaging and promotions and acknowledged in terms of their quality and pricing strategy (Baldinger and Rubinson 1996:22).

Packaging

Packaging that provides convenience, protection, durability and attractiveness will always prove to be popular among consumers who can instantly recognize a brand because of its packaging. This argument is supported by Waterschoot and Van den Bulte (1992:90), who maintain that a strong brand with its dynamic product packaging is a crucial and indispensable part of the marketing mix which influences the purchasing decisions of consumers.

Pricing

The price of a product needs to be carefully aligned to the value perceptions that consumers attach to the brand in their minds. It is critical that the price is acceptable to the target market. Grewal, Monroe and Krishnan (1998:46) conducted research into consumers' perceptions of price with regards to their beliefs of value for money in the exchange process. Their findings indicate that the price of a product has a direct impact on the fortunes of the product being sold. Consumers have internal reference prices which are used as a benchmark to evaluate the price of products. Their suggestion to marketers of fast moving consumer goods is to ensure that the price of the product is communicated to emphasize the value and unique features of the product that will help differentiate it from the offerings of competitors. The findings of Chang and Wildt (1994:16-27) are supported by the findings of Grewal *et al.* (1998:46), who also believe that consumers have a perception of the quality of the product in their minds and it is this perception that determines whether

the target market will be happy with paying the asking price for the product in question.

Promotions

Promotions have become a key instrument in maintaining brand equity. Advances in technology have assisted marketers to create more innovative and creative promotional messages. Wansink and Ray (1992:9-15) identify the two major objectives of promotions as being to get consumers to choose the brand and then to consume the brand. The most effective way to build the popularity of the brand, according to Anschuetz (1997:65), is to advertise as effectively as possible. Popular brands have been able to become part of the culture of the target market.

Quality

Delivering consistently good quality is a crucial requirement to optimizing brand equity. No consumer will remain loyal to a brand that fails to provide an acceptable level of quality when used on repeated occasions. It is also crucial to integrate quality and other features of the product to achieve a more impactful market offering. Langer (1994:RC-2), in presenting a discussion on the emerging trends in the contemporary business environment, emphasizes the importance of using the packaging and quality attributes of a product as a strategic marketing tool with which to differentiate one's product and maximize sales. Apart from ensuring that branding, packaging, pricing, promotions and quality are innovatively incorporated into the market offering, it is also imperative that marketers also ensure that each of these elements complement each other to optimize brand equity. Consumers are looking for all five elements to be abundantly present in fast moving consumer goods. Therefore, the key to optimizing brand equity is to ensure that the needs and wants of one's target market are appropriately addressed through the correct blend of branding, packaging, pricing, promotions and quality (Blythe 2006: 89).

Results of the Empirical Study

The extent to which the researchers were able to answer the research questions is the extent to which the objectives of the study were met, is the

extent to which the problems have been answered. In attempting to address the key question whether *'South African marketers' perceptions and consumers' perceptions converge to promote brand equity in respect of fast moving consumer goods in retail chain stores,'* an evaluation of the findings of each of the subsidiary questions identified in this investigation is necessary before an assessment may be made.

Subsidiary Question 1: *What options confront manufacturers and marketers of fast moving consumer goods when formulating marketing strategies to brand their products?*

In attempting to answer the question detailed above, the literature review reveals a consensus among both academics and marketing practitioners that investing in a brand can yield rich rewards in terms of premium pricing, wide distribution and sustaining optimum sales and profits through brand loyalty. Jobber (2001:232) suggests that seven factors should be considered when attempting to build a successful brand, namely, quality, positioning, repositioning, well-blended communications, being first, having a long-term perspective and focusing on internal marketing. Closely aligned to the generally accepted viewpoint of investing in the brand is the belief that the packaging of a product can also be a powerful tool in the marketing of fast moving consumer goods. According to Boone and Kurtz (2004:356) the packaging of a product should serve essentially three basic benefits, namely, protection against pilferage and damage; complement the branding of the product; and generate cost savings. Consumers of fast moving consumer goods expect these features to be abundantly evident in the products that they choose to consume on a regular basis and are quick to switch brands if these features are not consistently incorporated into the product. In essence the packaging of a product should perform the role of a silent sales-person. In addition, marketers must always carefully consider the role and impact of pricing when combined with other critical variables. Invariably, the price of a product is determined by the amount of money that the target audience is prepared to pay for the product. The cost of producing the product will then be carefully calculated to ensure that it is still possible to earn a healthy profit margin by charging a suitable price. Some markets will allow premium

pricing while it might not be possible to charge such high prices in other markets. Therefore, the costs of production must always be in relation to the price dictated by the market. The price of the product is also affected by its stage in the product life cycle. In the decline stage, marketers will need to drop prices and profit margins to ensure that the product remains competitive. In addition, the price of the product could be determined by means of product-line pricing which differentiates among a variety of different grades of products. Another determinant of price relates to consumer perceptions of the product. Consumers can, sometimes, attach a particular value or importance to a brand that they do not attach to other brands or products. Agres and Dubitsky (1996:21) maintain that a brand name assures the consumer of consistent quality and superior value. The consumer is, therefore, willing to be brand-loyal to the manufacturer and accept the price of the product that is being charged. This has been confirmed in this study as well, where consumers expect to pay higher prices for their favourite brands as indicated by the p significance value of 0.000. Marketers can sometimes use price as a method of positioning their products in the minds of consumers. For example, house brand fast moving consumer goods could be positioned on the basis of value for money while another premium manufacturer branded product can be positioned on the basis of superior quality that justifies their charging a higher price. Investing money in building the brand will help yield rich dividends in the longer-term and help position the product in the minds of consumers despite the higher price.

Many fast moving consumer goods are distributed through a traditional distribution channel, that is, from the manufacturer to the wholesaler, to the retailer and finally to the consumer. There are many parties in this distribution channel and the costs of the distribution will need to be built into the price of the product and, ultimately, all of these distribution costs must be recovered from the consumer. Despite this, the price will need to be competitive and profitable. The promotional mix consists of a variety of personal and non-personal communication techniques intended to increase the purchase of branded goods. These two basic forms of promotion are usually integrated into a coherent plan to achieve a company's marketing objectives. Boone and Kurtz (2004:499) believe that while personal selling is really about face-to-face contact with the customer, non-personal promotion is composed of advertising, sales promotion, direct

marketing, public relations, guerrilla marketing and sponsorships. In this modern technological era, personal selling can also be conducted over the telephone, through video conferencing, and through interactive computer links between the buyer and the seller. Advertising is particularly effective in communicating to audiences that are geographically dispersed. 'As brands progress through the product life cycle, managers plan to allocate proportionately less of their marketing communications budget to advertising, and more to consumer and trade promotions. In addition, lower relative price brands and family brands typically receive an allocation that emphasizes sales promotion relative to advertising' (Low and Mohr 2008). In addition, research conducted by Flynn, Goldsmith and Eastman (1996:137), indicate that marketers should not underestimate the power of opinion leaders, who have the power to sway consumer perceptions and purchase intention. While advertising is a powerful marketing tool, consumers place more trust in a reliable source. Word-of-mouth communication too, combined with an effective advertising campaign, can be used not only to encourage brand loyalty but also to promote increased consumption of a brand.

The study confirms the 1970 PIMS study (Wikipedia 2008) that there is a positive correlation between promotions and branded products where the p significance value was 0.000, while the Pearson correlation coefficient was 0.540, suggesting that promotions are significant to consumers when they purchase brands. The PIMS study, however, did not focus on fast moving consumer goods (Wikipedia 2008). While the literature study has been able to address the different marketing strategies that are generally utilized for the purposes of marketing fast moving consumer goods, the empirical study which focused on contemporary South African consumers, proved valuable in determining the extent to which branding, packaging, pricing, promotions and quality can optimize brand equity and, thus, lead to brand loyalty.

Subsidiary Question 2: *Does the increased popularity of branded fast moving consumer goods result in consumers choosing manufacturer brands as opposed to house brands?*

From the results achieved, it is apparent that both store managers and consumers prefer manufacturer brands as opposed to house brands. Consumers' preference for manufacturer brands as opposed to house brands extends to all five variables under investigation, namely, branding, packaging, pricing, promotions and quality. These results are detailed in the subsequent discussion.

- In both the surveys conducted among store managers as well as among consumers, manufacturer brands result in a higher rate of sales. When store managers were asked if manufacturer brands result in a quicker rate of sale, 73.30% of the sample agreed that manufacturer brands provided a higher rate of sales while 66.40% of the consumer sample agreed that they would choose manufacturer brands without any hesitation.
- Manufacturer brands are also viewed by both store managers and consumers as having more innovative packaging, since 75.00% of the sample of store managers agreed that house brands would enjoy a much higher rate of sales if their packaging contained more user-friendly features while 75.80% of the consumer sample believed that house brands would attract greater sales if their packaging contained more user-friendly features.
- Store managers and consumers believe that house brands are generally more competitively priced than manufacturer brands but this is not always a strong enough argument to convince people to choose house brands instead of manufacturer brands. When store managers were probed about the pricing of manufacturer brands versus house brands, 76.20% of the sample agreed that house brands were cheaper than manufacturer brands while 57.80% of the consumer sample agreed that house brands were cheaper than manufacturer brands. Well-established manufacturer brands should not attempt to compete with house brands purely on price as this will have a negative effect on the brand's future fortunes. However, premium brands risk losing their market share and share value if they lower the prices of their products.
- The findings of Rabuck and Rosenberg (1997:17) are further supported by Anschuetz (1997:63), who maintains that a brand that

is more popular at one point of the distribution chain is generally more popular at every other point in that distribution chain. The popular brands are not only purchased by a greater number of people but they are also purchased more often on average than less popular brands.

- It has also emerged from the empirical study that both store managers and consumers firmly believe that promotions impact on both the sales and popularity of fast moving consumer goods, that is, 94.90% of store managers and 66.40% of consumers believe that the promotional support directed towards manufacturer brands increases both the popularity and the rate of sales of these products in store.

It is evident from the empirical study that consumers certainly value the effort that manufacturers invest in the branding, packaging, pricing and promotions of their fast moving consumer goods. However, it has also emerged from the empirical study that consumers perceive that manufacturer brands are of a superior quality to house brands, that is, 73.90% of store managers and 69.60% of consumers believe that manufacturer brands provide superior quality to house brands. The findings of this investigation indicate that brands that were well-known for their quality attributes, had a strong following and their users were not willing to switch to competitor brands.

Subsidiary Question 3: *Does the investment in resources in the branding of fast moving consumer goods contribute positively to brand equity?*

A majority, that is, 91.50% of store managers agree that branding has a positive impact on the sales of their fast moving consumer goods while 62.70% of the consumers believe that branding has a positive impact on the sales of fast moving consumer goods. It is also interesting to note that, from the t-test results, both store managers and consumers of different gender groups agree that branding impacts positively on the market share and profitability of fast moving consumer goods. This finding is also evident in the ANOVA results, where both store managers and consumers of different race groups also agree that branding impacts positively on the market share

and profitability of fast moving consumer goods. These findings indicate that investing resources in brand building initiatives results in increased market share, profitability and brand equity. The results obtained in the empirical study support the research conducted by Keller (2003), who highlighted the importance of having a strong and well-liked brand. Two critical components in building a brand are trust and customer satisfaction. The chosen brand of the fast moving consumer product is linked to the perception that the consumer has of the brand being marketed. A favourable perception, especially with regard to the brand being able to deliver consistent quality, is likely to encourage the consumer to purchase the product on a regular basis.

Subsidiary Question 4: *do marketers to improve the image and popularity of their products use packaging?*

A majority, that is, 84.60% of store managers, agree that packaging has a positive impact on sales while 75.80% of consumers believe that packaging has a positive impact on the sales of fast moving consumer goods. These findings indicate that packaging is an effective tool that can be used by marketers to improve the image and popularity of their products. These results compare well with the results achieved by Langer (1994: RC2), who, in presenting a discussion on the emerging trends in the contemporary business environment, emphasizes the importance of using packaging as a strategic marketing tool with which to differentiate one's product and maximize sales. These value-added features can be physically incorporated into a product through innovative and dynamic packaging.

Subsidiary Question 5: *Do the marketers of fast moving consumer goods understand the importance of pricing as a strategic marketing tool?*

A majority, that is, 89.80% of store managers agree that pricing has an impact on sales while 67.20% of consumers believe that pricing has a positive impact on the sales of fast moving consumer goods. From the results achieved through the inferential statistical tests, it is evident that pricing is viewed by both store managers and consumers as a critical tool that has a direct impact on the sales performance of fast moving consumer goods.

These findings indicate that pricing is an effective tool that can be used by marketers to influence the sales performance and popularity of their products and are consistent with the findings of Grewal, Monroe and Krishnan (1998:46), who conducted research into consumers' perceptions of price with regards to their beliefs of value for money in the exchange process. Their findings indicate that the price of a product has a direct impact on the fortunes of the product being sold. Consumers have internal reference prices and these reference prices are used as a benchmark to evaluate the price of products. Their suggestion to marketers of fast moving consumer goods is to ensure that the price of the product is communicated to emphasize the value and unique features of the product that will help differentiate it from the offerings of competitors. In addition, marketers need to be fully aware of the quality perceptions that consumers have of their products and link the price to the perceptions that consumers have of the product. The findings of Chang and Wildt (1994:16-27) are supported by the findings of Grewal, Monroe, and Krishnan (1998:46), who also believe that consumers have a perception of the quality of the product in their minds. This perception determines whether the target market will be happy with paying the asking price for the product in question.

Subsidiary Question 6: *Are promotions widely used by fast moving consumer goods marketers to influence the purchasing behaviour of consumers?*

An overwhelming majority, that is, 92.70% of store managers agree that promotions have an impact on sales while 70% of consumers believe that promotions have a positive impact on the sales of fast moving consumer goods. These findings, from the quantitative analysis of the data, indicate that promotions are an effective tool that can be used by marketers to influence the sales of their products and support the findings of Wansink and Ray (1992:9-15) who concluded their investigation by pointing to the fact that consumer promotions do influence both current users to consume more of the brand and also encourage new users to try the brand for the first time. Focusing on unique and innovative packaging attributes of the product through consumer promotions will also have a favourable impact on consumer purchasing behaviour.

Subsidiary Question 7: *Do marketers invest in the quality attributes of their products in order to gain market share?*

A majority, that is, 91.50% of store managers agree that quality has an impact on sales while 70.50% of consumers believe that quality has a positive impact on the sales of fast moving consumer goods. These findings indicate that quality is an effective tool that can be used by marketers to influence the sales of their products. The inferential statistics indicate that both store managers and consumers view quality as a vital ingredient when contemplating a purchase.

Subsidiary Question 8: *Do the demographic variables of age, gender, home language, race group, level of education and work experience have an impact on the purchasing behaviour of consumers of fast moving consumer goods in South Africa?*

The ANOVA test results reveal that there is a difference among store managers belonging to different age groups on the impact of branding on the sales of fast moving consumer goods because the p significance value is 0.002, which is below 0.05. This means that store managers belonging to different age groups have different perceptions towards the role of branding in terms of being able to influence the rate of sales of fast moving consumer goods. There is however no significant difference among the different age groups on the impact of packaging, pricing, promotions and quality on the sales of fast moving consumer goods. This means that different age groups have similar perceptions towards packaging, pricing, promotions and quality. There is also no significant difference among consumers of different age groups on the impact of branding, packaging, pricing, promotions and quality on the sales of fast moving consumer goods since the p significance values are all above 0.05 This means that different age groups have similar perceptions towards branding, packaging, pricing, promotions and quality. In the t-test conducted to determine the perceptions of male and female store managers on the impact of branding, packaging, pricing, promotions and quality on the purchasing behaviour of fast moving consumer goods, the p significance values are above 0.05. These findings reveal that there is no significant difference between gender groups towards these variables.

Therefore, the conclusion is that in both samples, that is, of store managers and consumers, there is no difference between males and females with regards to their perceptions of fast moving consumer goods. There is also no significant difference among respondents that speak a different home language regarding the impact of branding, packaging, pricing, promotions and quality in terms of the marketing of fast moving consumer goods since the p significance values are all above 0.05. This finding means that store managers that speak different home languages share similar perceptions regarding branding, packaging, pricing, promotions and quality. No significant difference exists among store managers belonging to different races regarding their perceptions of branding, packaging and pricing since the p significance values are above 0.05. There is a difference in terms of their perceptions regarding promotions and quality since the p significance values are below 0.05. In addition, there is also a difference among store managers' perceptions regarding packaging and promotions since the p significance values are below 0.05. No significant difference exists among consumers belonging to different race groups towards the impact of pricing and promotions on the sales of fast moving consumer goods since the p significance values are above 0.05. This finding means that different race groups have similar perceptions towards pricing and promotions. The ANOVA test results also reveal that there is a significant difference among the different race groups towards the impact of branding, packaging and quality on the sales of fast moving consumer goods since the p significance values are below 0.05. There is no significant difference among store managers and among consumers of differing educational levels regarding the impact of branding, packaging, pricing, promotions and quality in terms of the marketing of fast moving consumer goods since the p significance values are all above 0.05.

There is also no significant difference among store managers of varying lengths of service regarding the impact of branding, packaging, pricing, promotions and quality in terms of the marketing of fast moving consumer goods since the p significance values are all above 0.05. This finding means that, even though store managers vary in terms of their experience, there is no difference in their perceptions regarding the impact of branding, packaging, pricing, promotions and quality on the marketing of fast moving consumer goods.

Pearson's Correlation Coefficient

The Pearson's Correlation Matrix was utilized to determine the strength and direction of the relationship between the different variables being investigated. The results obtained for both the store managers' survey and the consumers' survey are presented in Table 1.

Table 1: Pearson's Correlation Matrix For Store Managers' And Consumers' Perceptions Of Fast Moving Consumer Goods

VARIABLES	STORE MANAGERS SURVEY	CONSUMERS SURVEY
Branding & Packaging	Pearson's = 0.323 Sig. (2-tailed) = 0.000	Pearson's = 0.572 Sig. (2-tailed) = 0.000
Branding & Pricing	Pearson's = -0.268 Sig. (2-tailed) = 0.000	Pearson's = 0.334 Sig. (2-tailed) = 0.000
Branding & Promotions	Pearson's = 0.126 Sig. (2-tailed) = 0.096	Pearson's = 0.540 Sig. (2-tailed) = 0.000
Branding & Quality	Pearson's = 0.151 Sig. (2-tailed) = 0.045	Pearson's = 0.693 Sig. (2-tailed) = 0.000
Packaging & Pricing	Pearson's = -0.007 Sig. (2-tailed) = 0.931	Pearson's = 0.494 Sig. (2-tailed) = 0.000
Packaging& Promotions	Pearson's = 0.332 Sig. (2-tailed) = 0.000	Pearson's = 0.588 Sig. (2-tailed) = 0.000
Packaging & Quality	Pearson's = 0.030 Sig. (2-tailed) = 0.690	Pearson's = 0.618 Sig. (2-tailed) = 0.000
Pricing & Promotions	Pearson's = 0.074 Sig. (2-tailed) = 0.332	Pearson's = 0.458 Sig. (2-tailed) = 0.000
Pricing & Quality	Pearson's = -0.262 Sig. (2-tailed) = 0.000	Pearson's = 0.497 Sig. (2-tailed) = 0.000
Promotions & Quality	Pearson's = 0.058 Sig. (2-tailed) = 0.446	Pearson's = 0.631 Sig. (2-tailed) = 0.000

Table 1 indicates that there is a significant relationship between branding and the integral aspects of packaging, pricing, promotions and quality with regards to consumers' perceptions of fast moving consumer goods. These results are also consistent with the results achieved for the store managers' survey. Therefore, all five variables, namely, branding, packaging, pricing, promotions and quality share a significant relationship and all five variables must be adequately addressed in any marketing plan to ensure that the product satisfies the needs and wants of the target market. The findings of the research illustrate that the typical South African consumer has become

extremely brand conscious with regards to the purchase of fast moving consumer goods. A significant percentage, (62.70%) of consumers agreed that brand building activities result in higher sales and encourage them to purchase the product. The findings from the consumer survey were supported by 94.40% of store managers who agreed that building brand equity results in increased sales and popularity for the product concerned. Consumers have a preference for manufacturer branded products. Feedback from consumers illustrates the point that house brands are selected primarily because they are cheaper. Manufacturer brands are viewed as having the most innovative packaging, excellent promotional support and consistently good quality. These findings are also supported by store managers who believe that manufacturer brands clearly lead the way in terms of brand building activities, packaging innovation, promotional support and quality. This study has been able to quantify the perceptions of consumers towards the marketing of fast moving consumer goods and also establish the perceptions of store managers towards the marketing of fast moving consumer goods.

The empirical survey together with the literature survey confirms the key question that South African marketers' perceptions and consumers' perceptions converge to promote brand equity in respect of fast moving consumer goods in retail chain stores. The results of both surveys illustrates that retail chain store managers and consumers share similar viewpoints with regards to the branding, packaging, pricing, promotions and quality attributes of fast moving consumer goods in terms of optimizing brand equity.

Conclusions

This study has focused on contemporary South African consumers as well as contemporary retail chain store managers with regards to the purchasing of branded fast moving consumer goods and its impact on brand equity. Previous studies have focused on a South African market place that was dominated by purchasing patterns that were dictated by the demographic variables of the consumer due to the legacy of apartheid. This study, however, has demonstrated that the purchasing patterns of consumers are not dictated by apartheid era demographics but rather by disposable income and an appreciation of the marketing mix elements that combine effectively and synergistically to optimize brand equity.

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Positioning of Luxury Vehicle Brands in the Pietermaritzburg Area

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Abstract
This article outlines research conducted to determine the attributes consumers consider when purchasing a luxury vehicle. Two hundred and ninety two questionnaires were distributed in the luxury car showrooms within Pietermaritzburg. The determinant attributes were found to be safety, reliability, comfort, performance, aesthetics and service. Positioning maps were constructed indicating how consumers perceived various luxury brands. While MBW and Volvo appear to have achieved unique positions in the minds of respondents, Mercedes-Benz occupies the position of best all-round luxury vehicle.

Keywords: Attributes, customer perceptions, luxury vehicle brands, positioning.

Problem Statement and Objectives
Customers make purchase decisions based on their perceptions of brands. The position of a brand is the place it occupies in the consumer's mind on key attributes and is relative to competitors. Brand positions in the luxury sector of the motoring industry are important as this industry is highly competitive including well established brands as well as new emerging brands. To be selected a brand must be perceived to be superior to competing brands on attributes that are important to the consumer. This article aims to determine which attributes consumers of luxury vehicle brands in the

Pietermaritzburg area consider important when making a brand choice. It also seeks to determine the positions that the various brands occupy in these consumers' minds.

Once positions have been established, organisations can put together strategies to either reinforce a desired position, or change the position.

The objectives of the research included:

1. To determine which attributes are important to consumers when choosing a brand of luxury vehicle, and
2. To determine how they rate selected brands on these key attributes.

Positioning: A Theoretical View

'Positioning is the act of designing the company's offering and image to occupy a distinctive place in the target market's mind' (Kotler, 2000: 298). 'Competitive positions combine a firm's choice of target market with the differentiated value proposition it intends to deliver to that target' (Burke, 2008:2).

Kotler (2000:298) mentions that Al Ries and Jack Trout, who were advertising executives, came up with the word 'positioning'. Ries and Trout (1981) state that positioning is purely a communications issue i.e., the product/service is given, the objective however, is to manipulate the customers' perceptions of reality (Kotler, 2000:298). It is 'not what you do to the product, but what you do to the mind' (Trout & Rivkin, 1996: ix). 'That is, you position the product in the mind of the prospect' (Kotler, 2000:298). Keegan (2002:339) says that positioning is a 'communications strategy based on the notion of mental 'space'. Positioning refers to the act of locating a brand in customers' minds against other products in terms of attributes and benefits that the brand does or does not offer.' These definitions support the notion of positioning being mainly a communications exercise.

Payne (1993: 95) however, defines positioning as being 'concerned with the identification, development and communication of a differentiated advantage which makes the organisation's products and services perceived as superior and distinctive to those of its competitors in the mind of its target customers'. It is thus more than merely a communications strategy. Van der Walt, Strydom, Marks and Jooste (1996:133) say that positioning relates to

finding the fit between a specific market offering and the needs of the target market. Kaul and Rao (1995: 293) indicate that literature suggests that " a firm should optimize its goals with respect to product attributes and then translate these attributes into characteristics and levels of marketing mix variables'. Lovelock and Wirtz (2007:195) state that positioning is much more than just 'imagery and vague promises. [It] entails decisions on substantive attributes that are important to customers, relating to product performance, price and service availability'. The position of a product is thus affected by various elements of the marketing mix including pricing, distribution and the product itself (Shostack, 1987:34, Tyagi, 2000:928). It is therefore important to manipulate the entire marketing mix to position the product rather than attempting to manipulate the customer's mind via advertising alone.

The authors support the argument that while the objective is to occupy a particular place in the mind of the consumer, all elements of the marketing mix are necessary to achieve this.

The Importance of Positioning

Tyagi (2000:928) indicates that positioning the product is a key marketing decision when a firm enters a new market. It underpins the entire marketing strategy (Payne, 1993:120) and 'is difficult to change in the short-run owing to high product repositioning costs' (Tyagi, 2000:928). Positioning focuses on differentiating products and services to ensure that they do not degenerate into a commodity (Payne, 1993:120). If a product does not hold a position in the mind of the consumer, they are unlikely to purchase it. A marketer needs to give the consumer a reason to purchase the product.

Lovelock (1996:169) also states that positioning plays a pivotal role in marketing strategy. Ries and Trout (2000:67) state that 'positioning enables marketers to establish what position they are currently occupying, where they would like to be and how exactly they will achieve this'. Payne (1993:120) suggests that 'knowledge of positioning enables companies to consider and possibly predict competitors' actions which can aid the planning of responses'.

The position a product occupies is central to the consumer's choice between competing products (Alford, 1998:67). Thus the position that a

product holds in the mind of the consumer is the way that a consumer perceives a particular product. The consumer's perception ultimately leads to the way that they behave and make decisions about the product.

Positioning is about Perceptions

'Positioning as a perception is a measure of how customers rate the offering in relation to other products considered in a purchase decision. It is ultimately this consumer perception of a position that matters as it the most fundamental aspect in a purchase situation' (Adcock, 2000:19). Perception is defined as 'the process by which an individual selects, organises, and interprets stimuli into a meaningful and coherent picture of the world' (Schiffman & Kanuk, 2004:158). It can be described as 'how we see the world around us' (Schiffman & Kanuk, 2004:158).

A stimulus is any unit of input to any of the senses: sight, hearing, touch, smell and taste (Kotler and Armstrong, 2004:193). These senses come into play in the evaluation and use of most consumer products. Examples of stimuli include product attributes, packages, brand names and advertisements. But, not everything that is detected by the senses is taken in, organised and interpreted to form a meaningful picture, just as a person who lives in a busy street with lots of traffic will not take notice of cars hooting (Schiffman & Kanuk, 2004:159). Therefore a person selects what stimuli they take in to form meaningful coherent pictures of the world (Schiffman & Kanuk, 2004:159). Therefore marketers are not guaranteed as to which stimuli will be selected by individuals to interpret. Marketers may use an advertisement to send a message, but an individual may not select the advertisement to interpret and may select other stimuli which may not be consistent with the advertising message. Garden (2000:2) provides the example that if through advertising, an organisation is aiming to communicate an image of professionalism, but the personnel provide less-than satisfactory service, it is not certain which perception any customer may retain as representative of the organisation. As mentioned, the position of a product is affected by various elements including pricing, distribution and the product itself (Shostack, 1987:34). Therefore it is crucial that the entire marketing mix is consistent so that the same message will be received no matter which stimuli an individual selects to interpret.

It is important that a company knows what its customers think; what they believe to be important attributes and how they perceive different brands to perform on those attributes, as this is directly related to what the company wants the customers to think about their product or wants them to perceive. Then the company may have to reposition itself by either physically changing its product or altering its promotional campaign to change perceptions of the company image.

Basis for positioning

Kotler (2000:302) identifies the following bases of positioning: attribute; benefit, use or application, user, competitor, product category and quality or price positioning.

Positioning Process

Payne (1993:117-118) gives the following five steps in the process of positioning:

Step 1: Determine the levels of positioning

This involves deciding on whether to position the industry as a whole (industry positioning), the organisation as a whole (organisational positioning), a range or family of related products offered by the organisation (product sector positioning), or the positioning of specific products (individual product or service positioning).

Step 2: Identify key attributes of importance to selected segments

The company needs to research and identify what needs are important to the specific target group. Payne (1993:117) says that the way in which the purchasing decisions are made should be considered. Individuals, as opposed to companies / groups, make different decisions for different reasons. The attributes that are important to the target market, need to be identified. Winner (2007, cited in Ostaseviciute & Silburyte 2008:98) proposes that marketers must ask 'What dimensions do consumers use to evaluate product offerings in the industry or category?'

Step 3: Locate the attributes on a positioning map

Mercer (1992:266) describes product-positioning/perceptual maps as maps that are drawn with their axes dividing the plot area into four quadrants, the parameters used in measuring position usually run from high to low or positive to negative. Hair, Bush & Ortinau (2006:531) define perceptual mapping as 'a process that is used to develop maps showing the perceptions of respondents. The maps are visual representations of respondents' perceptions of a company, product, service, brand or any other object in two dimensions'. 'The technique of perceptual mapping helps marketers to determine just how their products or services appear to consumers in relation to competitive brands on one or more relevant characteristics. It enables them to see gaps in the positioning of all brands in the product or service class and to identify areas in which consumer needs are not being adequately met' (Schiffman & Kanuk, 2004:184). A review of positioning articles in tourism and marketing in a study by van Wyk and Strydom revealed that perceptual preference mapping is the most common technique used.

Step 4: Evaluate positioning options

Once a brand or product's position has been determined, a company has 3 options (Payne, 1993:118):

a) Strengthen the current position against competitors
b) Identify an unoccupied market position
c) Reposition the competition

In determining the desired position, the company must also assess it's resources and capabilities. According to Burke (2008:26), 'the firm must determine whether there is a fit between the positional opportunity and organisational capabilities in terms of their ability to achieve the desired position in the market'. She goes on to say that this balance is critical. A position chosen on the basis only of what customers want and not what the organisation can deliver, is likely to be as ineffective in terms of marketing strategy as one that focuses internally on what the company can do, rather than what is important to the customer (Burke, 2008:27).

Step 5: Implement the desired positioning strategy
Once an option is decided upon and a position chosen, it needs to be delivered and communicated to the consumers. This involves using all the elements of the company, (staff, policies and image) to reflect a similar image, which together illustrates the desired position to its target market (Payne, 1993:118).

The Marketing Mix in Positioning

The marketing mix is defined as 'the elements an organisation controls that can be used to satisfy or communicate with customers' (Zeithaml & Bitner, 2003:23). Kotler (1997:88) defines the marketing mix as 'the particular blend of controllable marketing variables that the firm uses to achieve its objective in the target market'. The marketing mix needs to be adapted to meet the needs of the target market for the company to obtain a competitive position within the chosen market (Kotler, 1997:88). Hooley, Saunders and Piercy (2004: 52) suggest that 'each of the marketing mix elements—product, price, place, and promotion—should be designed to add up to the positioning required'. It is important to look at the marketing mix in positioning as there is no guarantee as to how an individual will interpret any individual element of the marketing mix (Garden, 2000:2). This is why it is so important that there is strong coherence in all aspects of the marketing mix. The entire marketing mix needs to be consistent with the image that the company is trying to portray in order to be effectively positioned in the mind of the consumer.

The traditional marketing mix for a product consists of the four P's which are product, price, place (distribution) and promotion (Zeithaml & Bitner, 2003:23). The automobile industry however does not just provide a product. They provide services including customer service, vehicle servicing, repair and finance. Therefore the automobile industry should use the expanded mix for services, in other words the seven P's which include the traditional marketing mix of product, price, place (distribution) and promotion as well as people, physical evidence and process (Zeithaml & Bitner, 2003:24).

Organisations face strong competition within the marketplace and ultimately marketers have to find a unique and defendable position for their goods and services against alternate choices. Organisations should target

those segments which they can serve better than all competitors on attributes important to those chosen segments.

Luxury Vehicle Brands

The image that a brand represents is very important in the luxury division of the motoring industry because consumers are not just buying a luxury car, but the image that a particular car holds. The different brands in the luxury division of the motoring industry are likely to hold different positions within the minds of consumers. This research looks specifically at 5 brands in the luxury vehicle market.

Lexus

Lexus is the luxury vehicle division of Japanese car maker Toyota Motor Corporation. The F1 project, which eventually became known as the Lexus LS 400, aimed to develop a luxury car that would expand Toyota's product line, giving it a foothold in the premium segment and offering both longtime and new customers an upmarket product (Rowley, 2006:4). 'The United States, more open to the idea of a high-quality Japanese `car, took to the Lexus quickly' (Simister, 2008:1). Lexus is now the top selling luxury brand in the United States (Burger, 2008:1) and in 2006 they sold 322434 vehicles in the United States, which was more than any other luxury brand in the United States (Cassidy, 2006:5).

Although Lexus has had success in the US since its introduction, it has had more modest success outside North America (Rowley, 2006:7). 'It took longer in Europe partly because early Lexuses were hardly objects of beauty' (Simister, 2008:1). L-finesse is used today to describe the Lexus' design features and 'today's range has a sharper, cleaner style and is more appealing' (Simister, 2008:1). Lexus have used the slogan 'Pursuit of Perfection' (Waterman, 2006). Lexus have also added the J.D. Power and Associates quality survey to their marketing campaign which they have 'won for a number of years in the United States' (Waterman, 2006: 8).

BMW

BMW (Bavarian Motor Works) began in 1918 as an aircraft engine manufacturer. The blue-and-white BMW logo first introduced in 1920, and

still used today, symbolize a spinning white propeller on a blue-sky background (BMW Drives, 2008:2).

BMW has always emphasised the performance of their cars in their positioning. The 3-series tagline in 1975 was 'Ultimate driving Machine' (Danzig, 2004), but more recently BMW have shifted their focus to the driving pleasure of their cars. The current slogan is 'Sheer Driving Pleasure' (BMW, 2008:1) and is communicated in all their advertisements and brochures. BMW have positioned themselves as a driver's car, giving the driver the best driving experience available (BMW World, 2008:10). 'BMW built its brand to be synonymous with performance and driving experience' (Danzig, 2004:1). The brand character and tone is 'serious, focused and engaged' and has achieved a 'highly coveted brand franchise by successfully cultivating an extremely loyal following of luxury-performance automobile customers' (Danzig, 2004:1).

Mercedes-Benz

South Africa is Mercedes-Benz's biggest market (after the US, Japan and Germany) for the C63 AMG 'with more than 4000 units sold between 2001 and 2007' (Stephenson, 2008:1). Mercedes-Benz labeling is that of the 'Mercedes Star'. This 'emblem, badge or star represents prestige, status and quality' (Schnetler, 2002: 20). Mercedes-Benz position themselves as being a world leader in automotive performance, engineering, safety and quality (Mercedes-Benz, 2008:1). They have become 'world renowned for their impeccable build quality, luxury and style' which is the base of the company's image which is portrayed to the world (Schnetler, 2002:57). Over the years they have been perceived as being an over-engineered automobile which exceeds expectations in every facet of an automobile (Schnetler, 2002), sometimes even by their own admission (Biggs, 2008:1). Mercedes-Benz emphasises it's long history as a foundation to the development of advanced technologies such as their night view assist and rear view monitor (Mercedes-Benz, 2008:1).

Audi

Audi has been positioned using the slogan 'Vorsprung durch Technik' which roughly translated means 'advancement through technology'. Audi describe these words as encapsulating the Audi philosophy of progress and innovation

and their 'forward thinking ability to anticipate the needs of rapidly changing times by consistently creating cars that evolve with human kind' (Audi, 2008:1**).** Audi has positioned itself as being on the cutting edge of innovation and technology (Audi, 2008). Their racing heritage and Quattro technology designed for racing and road holding which are used in their marketing (Audi, 1996:4). The LeMans 24 hour endurance race which Audi has won on a number of occasions (Audi, 1996:16) , is also used by Audi in their marketing (Schnetler, 2002:24).

Volvo

'The Volvo Group views its corporate culture as a unique asset, since it is difficult for competitors to copy' (Volvo Group, 2008:1). The values of safety, quality and environmental care are important components of this culture (Volvo Group, 2008:7). Volvo has positioned itself on the importance of the family and their comfort and safety whilst driving in a Volvo. Volvo has even incorporated an accident research team to ensure safety (Volvocars, 2008). This fact is communicated to the public in order to position Volvo as the safest car in the world. 'The global brand tagline 'Volvo for Life' is linked to the company's heritage' (Volvocars, 2008:2) and enforces their positioning of safety and the protection of human life. For the future, president of Volvo Cars, Stephen Odell says 'We intend to deliver more dynamic designs while maintaining our leading position in safety' (Motoring, 2008:1).

Research Methodology

Exploratory research was conducted using a questionnaire which included closed and open questions. The questionnaire allowed the researcher to obtain fairly large amounts of qualitative and quantitative data. The questionnaire was piloted on 10 students purposively selected at the University of KwaZulu-Natal. The pilot sample was selected to include both genders and all race groups to try to ensure representivity. It is acknowledged that this sample was not necessarily representative of the population and this is a limitation but it did indicate that there were no ambiguities or confusion regarding the questions. Respondents understood all questions, however font size and the layout of the questionnaire were

adjusted in order to improve reader friendliness. The questionnaires were then distributed at the showrooms of the selected brands (Volvo, Lexus, Mercedes-Benz, BMW and Audi) in Pietermaritzburg over a 2 month period.

Convenience sampling, a form of non-probability sampling was used and people were selected haphazardly until the sample size was reached. Time and resource constraints limited the sample size to 300. This yielded a usable sample of 292 people. Non-probability sampling was used because the researchers were unable to specify the probability of any element or member of the population being included in the sample (Welman, Kruger & Mitchell, 2007:68). Hair, Bush & Ortinau (2003:361) with reference to convenience sampling, state that 'it is not possible to accurately assess the representativeness of the sample'. This is obviously a limitation of this research as findings may not be generalised to the broader population with any degree of confidence. However attempts were made to improve the representivity of the sample by including all the dealerships in the Pietermaritzburg area that sell new cars of the luxury brands mentioned above. Thus the sample represented a census of the dealerships but not of the customers visiting these dealerships as this was not possible. Data were also collected over a 2 month period on various days including weekdays and weekends to try to ensure that all types of customers across a broad spectrum of age, race, gender and occupation was included.

Of the respondents, 67.5% were male. This uneven spread was likely because the research was done at the showrooms of the respective brands and the majority of the customers that walked in were males. The majority (88.7%) of the people were between the ages of 20 and 50. The majority of the respondents were White (63%) followed by Indian (18%) and Black(13%).

Data Analysis

The statistical programme SPSS was used to analyse the data. Descriptive analysis was the main form of analysis.

Chronbach's coefficient alpha was used as a measure of internal consistency for the questions related to the various attributes. Chronbach's coefficient alpha 'is a measure of the internal consistency of a measurement. This index shows the degree to which all the items in a measurement measure the same attribute' (Welman *et al.*, 2007:147). A coefficient alpha

of 0.615 was achieved. According to Hair *et al*. (2003:397), 'Values of less than 0.6 would typically indicate marginal to low (or unsatisfactory) internal consistency'. Simon (2007) states that some authors consider values as low as 0.6 acceptable for exploratory research.

Results

Respondents were asked to indicate their top three choices of luxury motor vehicles. There were a number of different responses namely Volvo, Mercedes-Benz, BMW, Audi, Lexus, Land Rover, Range Rover, Aston Martin, Bentley, Toyota Prado, Jaguar, Chrysler, Jeep, Alfa Romeo and Rolls Royce. The most common choices by the respondents however were BMW with 68% of respondents listing it, Mercedes-Benz (65%), Audi (56%) and Lexus and Volvo each with 21%. The other brands were only chosen by 1% to 4% of the respondents.

Important Attributes

The respondents were asked to rate attributes on a scale from 0 to 5 in terms of their influence on the customer when selecting a brand of luxury vehicle. Various factors were tested but those relevant to this particular article were comfort, reliability, aesthetics (including elegance and styling), safety, performance and image/status attached to the brand. These attributes were selected from promotional material on the various brands. As seen in Table 1, the most important attributes to consumers were found to be reliability (mean of 4.73), safety (mean of 4.7), comfort (mean of 4.61) and then performance (mean of 4.43). The rest of the vehicle attributes had means below 4.

Table 1*: Important Attributes*

	Comfort	Safety	Reliability	Performance
Mean	4.61	4.70	4.73	4.43
Std. Deviation	0.64	0.64	0.71	0.88

Rating of Selected Brands on Key Attributes

The respondents were asked to rate selected brands on various attributes using a scale of 1 to 5 where 1 = Very poor; 2 = Poor; 3 = Average; 4 =

Good; 5 = Very Good. The following table shows the means for each brand for each attribute.

Table 2*: Means of the brands in relation to the respective attributes*

	BMW	Mercedes -Benz	Audi	Volvo	Lexus
Reliability	4.13	4.47	4.05	3.96	4.24
Safety	4.30	4.55	4.23	4.68	4.35
Comfort	4.08	4.54	4.12	4.21	4.35
Performance	4.66	4.18	4.28	3.74	3.97
Technologically Advanced	4.48	4.46	4.28	4.14	4.37
Elegance	4.00	4.67	4.04	3.65	4.08
Style	4.25	4.19	4.31	3.44	3.89
Status	4.52	4.60	4.06	3.55	3.76

Table 2 indicates the mean scores of the 5 competitors on each of the factors measured. In terms of the 4 most important attributes :

Mercedes-Benz was rated the highest in reliability with 49% of respondents rating it very good (5out of 5) on reliability. Lexus followed closely with 46% of respondents rating it 5.

Volvo was perceived by the respondents as being the safest car with 74% of the respondents giving it a rating of 5. Mercedes-Benz is seen as the next safest car with 60% of the respondents giving it a rating of 5.

Respondents rated Mercedes-Benz as being the most comfortable vehicle of the 5 different brands with 64.2% of the respondents giving it a rating of 5.

BMW scored the highest in performance with 71.7% of the respondents giving it a rating of 5 out of 5.

On the less important attributes, Mercedes-Benz, BMW and Lexus were perceived to be very similar in terms of being technologically advanced with 60%, 58% and 57% of respondents respectively, rating them 5 out of 5. Mercedes-Benz was rated the most elegant vehicle with 72% of the respondents giving it a 5. Audi was rated the highest in terms of style with 54% of the respondents giving it a rating of 5. BMW was a close second with 51% of the respondents giving it a 5. Mercedes-Benz (67%) and BMW (65%) were rated highest in terms of status.

Positioning Maps

Positioning maps were drawn to show visually how the competing brands were positioned in the minds' of respondents on the key attributes. The means for the two most important attributes (reliability and safety) were plotted on the map as seen in Figure 1.

Figure 1*: Positioning Map of brands in relation to Reliability and Safety*

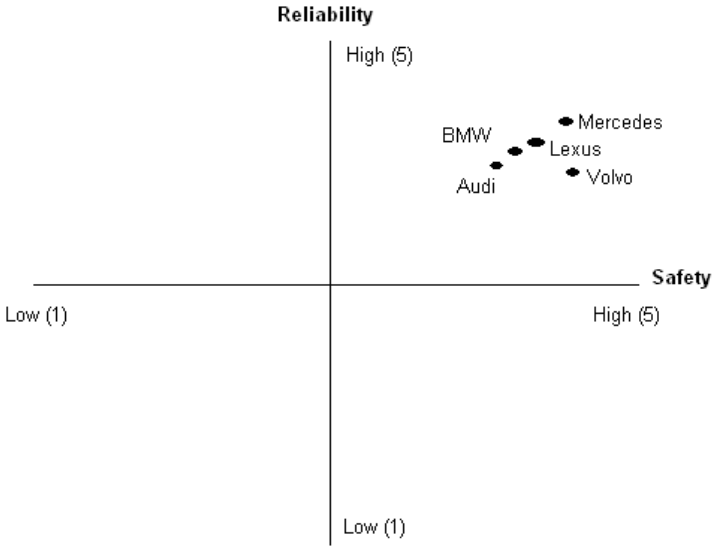
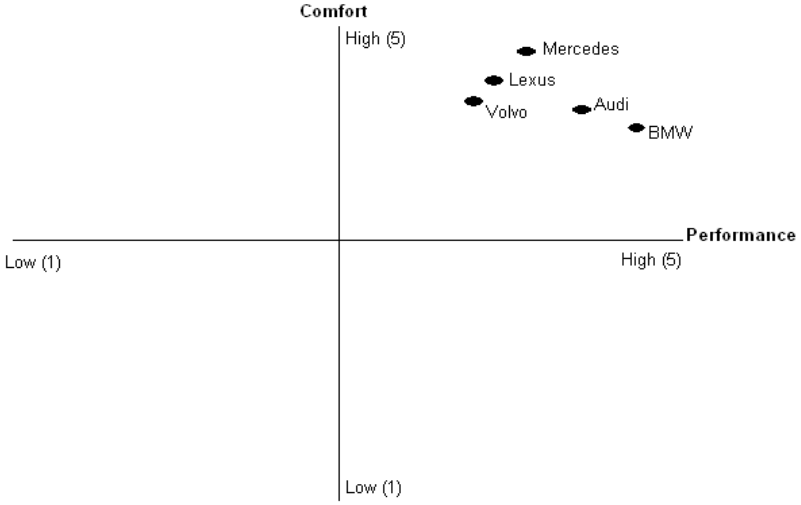


Figure 1 shows the positioning map of the respective luxury brands in relation to reliability and safety which were the two most important attributes to the respondents. The brands were fairly close but Mercedes-Benz was perceived as being the most reliable vehicle and Volvo was perceived as being the safest vehicle. Overall in terms of safety and reliability combined, Mercedes-Benz was the best positioned of the 5 brands with a high rating in safety and reliability with a mean of 4.55 and 4.47 respectively. This can be attributed to the fact that Mercedes-Benz has been positioned as an over-engineered car for a number of years in the pursuit of excellence and quality (Schnetler, 2002:58). Mercedes-Benz have even patented the solid 'thunk' sound of their doors closing which epitomises the solid build quality of their

cars (Schnetler, 2002:56). By being positioned as over-engineered they have thus become known as safe and reliable in the mind of the consumer.

Comfort and performance were the next two most important attributes and the brands were positioned as follows in relation to these attributes.

Figure 2*: Positioning Map of brands in relation to Comfort and Performance*



Comfort and performance were also important attributes to the respondents with means of 4.61 and 4.43 respectively. Mercedes-Benz was perceived as the most comfortable vehicle with a mean of 4.54 and BMW was perceived as having the best performance of the 5 brands with a mean of 4.66. Overall Mercedes-Benz has the best balance of the 5 brands as being perceived as being the most comfortable of the 5 brands and third in performance as seen in Table 2.

BMW were perceived by respondents as having the best performance of the 5 brands which can be attributed to their positioning strategy of 'sheer driving pleasure' which emphasises the performance and drive of their cars (BMW World, 2008:10). By being positioned as a sports saloon with the 3, 5 and 7 series, BMW is not perceived as the most comfortable car. Performance cars have a harder suspension for better handling on the road

and thus have a harder ride (BMW World, 2008:10). It is for this reason that BMW is not perceived as the most comfortable car.

Brand Descriptors

When asked to describe BMW in three words, the most common descriptors given were *performance* by 31% of respondents, *stylish* by 17%, *sheer driving pleasure* by 14%, and *status* by 7% of respondents respectively.

Mercedes-Benz was described as *elegant* (27%), *comfortable* (20%), *classy* (14%) and *sophisticated* (7%).

The most common responses for Volvo were *safety* (47%) and *family* (19%).

Audi was described as *stylish* (25%), *sporty* (10%) and *advanced* (9%).

The most common responses for Lexus were *I don't know* or *Don't have enough information on Lexus* (25%). *Luxury Toyota* was the description given by 9% of respondents.

Discussion and Conclusions

Attributes Consumers Use when Choosing a Brand of Luxury Motor vehicle

Van der Walt *et al.* (1996) say that positioning relates to finding the fit between a specific market offering and the needs of the target market; the better the fit, the larger the market share that can be captured. It is thus important for marketers to determine what attributes consumers look for in a luxury motor vehicle in order to effectively position the brand in the mind of the consumer.

The 4 most important attributes to the respondents in selecting a brand of luxury vehicle were reliability, safety, comfort and performance.

Positions Occupied by the Brands on Key Attributes

Most of the automobile companies position themselves through attribute or benefit positioning as a basis for positioning (Schnetler, 2002:50). Different attributes were looked at in order to see how the different brands were positioned in the minds of respondents in relation to the respective attributes which were found to be important. Reliability was an important factor to the

respondents and the brand Mercedes-Benz was perceived by the respondents as being the most reliable of the 5 brands with a mean of 4.47. Lexus was perceived as the second most reliable car with a mean of 4.24. Mercedes-Benz positioning strategy of being over-engineered (Schnetler, 2002:58) may be the reason for the brand being positioned in the mind of the consumer as being a reliable vehicle. Similarly, Lexus's use of the slogan 'Pursuit of Perfection' (Waterman, 2006:8) may have contributed to perceptions of Lexus being a reliable vehicle. The awards won by Lexus (Waterman, 2006:8) and Mercedes-Benz (Mercedes-Benz, 2008) in the J.D. Power and Associates quality survey may also have supported these positions. None of the brands were described as being reliable when respondents were asked for words that describe the brand.

In terms of safety, the second most important attribute to respondents, Volvo was perceived to be the safest vehicle with a mean of 4.68. Volvo was also described as being safe by 46% of respondents. This was the most commonly used term to describe any of the luxury vehicles. This was not surprising, considering Volvo have marketed themselves as having superior safety for a number of years (Schnetler, 2002:30). 'Positioning is the act of designing the company's offering and image to occupy a distinctive place in the target market's mind' (Kotler, 2000:298). Volvo has clearly achieved this distinctive place in the minds of the respondents.

Mercedes-Benz was perceived as the next safest vehicle with a mean of 4.55, followed by Lexus and BMW. Audi was perceived the worst of the 5 brands but still had a respectable mean of 4.23. All 5 of the brands were perceived as being safe with all of them having a mean greater than 4. Volvo being perceived as the safest of the 5 brands shows that their positioning strategy that emphasises safety as being the most important attribute, appears to be working.

Mercedes-Benz was perceived by the respondents as the most comfortable vehicle of the 5 brands with a mean of 4.54. It was also the only brand to have a substantial percentage of respondents describe it as comfortable. Lexus was perceived as the next most comfortable car with a mean of 4.35 followed by Volvo with a mean of 4.21. Mercedes-Benz and Lexus were perceived as the two most comfortable cars with both of their positioning strategies focusing on quality and comfort. Volvo may also have been perceived as being comfortable, perhaps due to their emphasis on the

family. Audi and BMW were not perceived to be as comfortable as the other brands most likely due to their positioning strategies focusing more on the performance and design of their cars.

On the attribute of performance, BMW was rated the best performance vehicle of the 5 brands with a mean of 4.66. Volvo was perceived to be the worst performance vehicle of the brands with a mean of 3.74. Of the four most important attributes to respondents, performance had the greatest variance in scores across the 5 brands. This may indicate that performance is a better determinant attribute than reliability, safety and comfort which may be seen as minimum requirements in this industry rather than differentiating factors. 'Determinant attributes are choice criteria that are both important and differentiating' (Hutt & Speh, 2004:288). Further research would be required to confirm this.

BMW's slogan 'Sheer Driving Pleasure' enforces the notion of BMW being a performance car built for driving. BMW's entire marketing campaign focuses on the attribute of performance and driving pleasure (BMW World, 2008:10). BMW have thus successfully positioned themselves as the ultimate driving machine in the minds of the respondents. BMW was described by 31% of respondents in terms of performance and by 14% as *sheer driving pleasure*. Like Volvo, BMW seem to have achieved a consistent position and distinctive place in the minds of respondents.

Audi was also rated fairly high in terms of performance which can be attributed to their racing heritage and their technology such as Quattro which was designed for racing and road holding and is used in their marketing (Audi, 1996:4). The LeMans 24 hour endurance race is also used by Audi in their marketing (Schnetler, 2002:24) which has resulted in them being positioned as having good performance.

Mercedes-Benz and BMW were the most popular brands in this study with most of the consumers choosing these two brands. The reason for this is that these brands are well established in South Africa and have strong marketing campaigns. The brands have been in South Africa for a number of decades and have thus become well positioned in the South African consumers' mind. Both the brands have production facilities in South Africa and produce cars for export.

The three brands with the clearest and most consistent positions appear to be BMW, Volvo and Mercedes-Benz.

BMW have used their slogan of 'Sheer Driving Pleasure' in their positioning strategy which has been effectively positioned in the minds of consumers with a large number of the respondents describing BMW with this slogan and with BMW being rated the best in terms of performance. Volvo have consistently positioned on the basis of safety. Volvo was perceived to be the safest vehicle of the 5 luxury vehicle brands and the descriptions of Volvo as being safe and family oriented align with this positioning. Hooley *et al.* (2004:52) suggest that 'each of the marketing mix elements should be designed to add up to the positioning required'. Thus there needs to be strong coherence in all aspects of the marketing mix in order to create this consistent position. For BMW and Volvo this appears to have been effectively achieved.

Mercedes-Benz was perceived to be the most comfortable and reliable of the 5 brands and 2nd safest vehicle. Thus on the 4 most important attributes, overall Mercedes-Benz was perceived to be the best all-round luxury vehicle. This is possibly due to its long history in this market and its reputation for being 'over-engineered'.

Lexus and Audi appear to have been less successful in their positioning. At least for this sample, they do not have a distinctive position aligned with the most important attributes.

Recommendations

Customers differentiate according to perceived differences between products or services (Payne, 1993:109). While actual differences in product features and attributes obviously affect those perceptions, ultimately it is the consumers' perceptions that influence their behaviour. Respondents indicated that the most important attributes considered in their selection of luxury vehicles are reliability, safety, comfort and performance. Luxury vehicle manufacturers need to keep these in mind when positioning their brands.

Dibb (1997 in Maringe, 2006:469) defines positioning as 'the process of designing an image and value so that customers within target segments understand what the company or brand stands for in relation to its competitors'. The luxury automobile industry is a highly competitive market and it is thus important for an automobile company to identify that distinctive

image, value or place in the consumer's mind that they wish their brand to occupy and then implement a full marketing mix to achieve the position.

Berkowitz *et al.* (1992:216) say that it is important for a company to emphasise important attributes where they have relative advantage to what the competition offers. The ability of a firm to differentiate itself from its competitors effectively is the essence of successful positioning (Payne, 1993:96). To differentiate themselves the automobile companies must offer superior value to their customers, thereby creating value in the mind of the customer which will be used when making purchasing decisions regarding their choice of vehicle. Success in positioning the respective automobile brands will come if the positioning is unique. They have to find a position that they can occupy where they consistently outperform the competitors in serving their respective markets on attributes that are important to the customers.

BMW appears to have achieved this in terms of the performance attribute, in that BMW was perceived by these respondents, to be the best of the 5 brands in terms of performance. This is aligned to BMW's positioning slogan of providing 'Sheer Driving Pleasure'. BMW must ensure that they maintain this position through continuing to focus their marketing mix on the creation of, and communication of the brands performance excellence. BMW should be mindful of Audi's actions as this brand was seen to be the closest competitor in terms of performance. Payne (1993:120) suggests that 'knowledge of positions enables companies to consider and possibly predict competitors' actions which can aid the planning of responses'. BMW was perceived to be 'good' on all of the top 4 attributes however BMW must ensure that perceptions regarding safety and reliability do not deteriorate as these attributes were perceived to be more important than performance by the respondents. While it is not suggested that BMW make these part of their positioning statement, they do need to keep the standards high so as to maintain the perception that these attributes are present in the BMW brand. Comfort is an area where BMW may consider making improvements as BMW was scored the worst of the 5 brands on this attribute.

Volvo also appears to have achieved their aim of positioning themselves on the key attribute of safety. As this is an important attribute to customers, this is a relatively good position to occupy. It is distinctive and it successfully matches a need of the respondents with a relative advantage of

the company. Volvo however, should attempt to change perceptions regarding reliability. Volvo was perceived to be the worst of the 5 brands on this attribute which was found to be the most important in luxury vehicle selection. Changes could relate to the actual features of the vehicle which affect reliability or to changing consumers' perceptions regarding the reliability. Either way Volvo should be sure not to dilute their occupied position of being the safest vehicle.

Mercedes-Benz appears to occupy the position of being the best all-round luxury vehicle with particular emphasis on reliability and comfort where it was seen to be the best of the 5 brands but occupied 2nd place in terms of safety. This position therefore needs to be defended. Although still scoring over 4 on the attribute of performance, this is the one area where Mercedes-Benz may want to try to change their position.

Audi and Lexus occupy less distinctive positions on attributes that are important to respondents. Audi positions itself as being on the cutting edge of technology with the use of the slogan 'Vorsprung durch Technik' (Schnetler, 2002:34). It is possible that the German slogan used in all marketing communication is not understood by South Africans as providing a strong basis for producing a reliable, safe and high performance vehicle.

Audi has also been positioned on performance through the use of the Quattro technology which was designed for racing, and their racing heritage such as the LeMans 24hour endurance race which Audi has won on a number of occasions (Audi, 1996:12). However the 'performance' position is 'occupied' by BMW according to this research, and thus Audi will need to decide how best to improve their relative standing in the industry so that they too can occupy a distinctive position. According to Payne (1993:118) a company has 2 options if it is unhappy with the current position. It can either identify an unoccupied market position or reposition the competition. Repositioning BMW may be more difficult than finding an alternative 'space' in the customers' minds. Audi will need to look carefully at its relative advantages and match these to what is important to customers.

This research shows that Lexus does not have a clear position in the minds of these respondents. Many respondents knew very little about Lexus and often associated Lexus with Toyota which is problematic in terms of creating a position as a luxury vehicle. The Lexus scores were generally good with Lexus being seen as second best on Reliability and Comfort and

3rd on Safety. However, this does not give Lexus a unique position and in fact, means that Lexus' closest competitor is the stalwart Mercedes-Benz. Simlarly to Audi, Lexus will need to find some unique position. Further research will be required to focus on the needs of a smaller target market so as to find some way of matching Lexus' relative advantages to target market needs.

It should be noted that this research was exploratory and looked at the general market for luxury vehicles. Further research should focus on the subsegments within this market and whether they have differing needs to the overall market and how this affects the relative positions of the luxury vehicle brands. This research was also limited to the Pietermaritzburg area and as non-probability sampling was used, should not be generalised to the broader South African population without further research.

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Ethical Dilemmas in Business Practices of Small and Medium Enterprises (SMEs) in South Africa

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> *The ultimate measure of a man is not where he stands in moments of comfort and convenience, but where he stands at times of challenge and controversy.*
>
> Martin Luther King, Jr.

Abstract

Following the scandalous behaviour of business persons, in a variety of different sectors and enterprises, the King Committee, provided a framework for supporting good governance and ethical conduct. However, the initiative to ensure compliance rests with the different participants in various sectors of business.

This paper argues that the SME sector is prone to unethical conduct and therefore must develop and define a practical and relevant model for implementation. Since no one model is aptly suited for this, the writers submit that an integrated model inculcating the basic human values that define the positive character traits of human behaviour be developed.

Keywords: Business ethics, corruption perceptions index, decision making models, ethical dilemmas, ethics, King Committee, SMEs.

Literature Survey

1. Introduction

In the World today, there is a growing acceptance that business cannot be successful if there are no sound moral values. Business needs ethics and ethics needs business. Prozesky (2001:7) states that business needs ethics if it is to be sustainable and profitable, and ethics needs successful businesses if it is to make a real difference to the things that trouble one's conscience. Since there is a logical connection between strong moral values and human well-being, it can be argued that the business world should now be seen as the new epicentre of ethical creativity (Prozesky 2001:7; Rossouw 1997:1539; Bradley 1998:5).

The current trend in business is that it is responsible to all its stakeholders; these being customers, employees, shareholders and investors, environment and community, suppliers and government (Chakraborty *et al.* 2004:109). It is also true that business people make difficult decisions which frequently demand ethical sensitivity without clear cut guidelines.

Owing to the global demands of business, corporate downsizing, increased legal regulations and new technologies, people at all levels of an organisation have to make decisions expeditiously and perform with the highest levels of accuracy, efficiency and success. Therefore, if the company's core business processes are not grounded in sound ethical values such as integrity, respect, trust and fairness these decision makers may be exposed to unethical behaviours that could lead to fraudulent and illegal activities (KPMG's Business Ethics website http://www.uskpmg.com/ ethics).

The Corruption Perceptions Index (CPI), published annually by Transparency Index to confirmed the stereotypical notion that corruption is predominantly a problem of the South. While the Scandinavian countries come out on top, most of sub-Saharan Africa ranks at the bottom. The objective of this report is to raise public awareness of the problem and promote better governance. Corruption is as much a problem of the North as it is of the South. Recent scandals in Germany, France, Japan, the US or the UK attest to that.

2. Definitions of Key Terms

2.1 Ethics

First and foremost ethics means operating within the law but it goes beyond

that. It means operating according to a set of standards that provides for fairness, respect and concern for the welfare of others (www. uic.edu— 13/3/05). According to Velasquez *et al.*, (1998:1) ethics refers to the study and development of one's own ethical standards and well based standards of right and wrong that prescribe what humans ought to do, usually in terms of rights, obligations, benefits to society, fairness, or specific virtues. Ethical standards also refer to the virtues of honesty, compassion, and loyalty and include standards relating to rights, such as the right to life, the right to freedom from injury, and the right to privacy. In addition to this ethics refers to the study and development of one's own ethical standards (Velasquez *et al.* 1998:2).

Ethics is a discipline that attempts to examine and understand ways in which choices are made involving issues of right and wrong. According to Goffee and Scase (1995:3) the field of ethics uses the 'raw material' of moral discussions to define two approaches which are (1) descriptive and (2) prescriptive. Descriptive ethics is concerned with examining and analyzing the reasons people give for moral beliefs and behaviour in different cultures. Prescriptive or normative ethics deals with what 'ought' to be rather than what 'is' giving reasons which are open to public scrutiny. What 'ought' to be reflects the highest vision for conduct which is not only morally acceptable, but morally best. It is a search for authorative standards which govern moral choices. Both of these components, which lack sharp distinctions, involve a definition of ethics requiring reflection about moral conventions and reasoning (Goffee and Scase 1995:3). The prime motive for business start up is often associated with financial rewards. There are a range of factors, many of which stem from personal needs for independence and self fulfilment. The personal motives for business start up will inevitably be a function of a variety of factors of which psychological influences will play some role ranging from no alternative, family tradition to making money (Goffee and Scase 1995:3).

The elements that inform ethical behaviour are (www.uic.edu— 13/3/05):

- the greatest good to the greatest number of people;
- ethical behaviour arises from the development of personal virtue such as truthfulness, fairness, courage and caring; and

- that which is based on rules which are followed.

Although there are concepts each one has its own merits and in fact any one of them or a combination of these should be an essential and integral part of every decision (www.uic.edu—13/3/05). On examination of the DNA of successful companies it was found that values and ethics which a company displays are actually an outcome of its organisational DNA—not an input to it (Verschoor 2004:2).

2.2. Business Ethics

Takala (2005:1) defines business ethics as follows:

- a research branch which tries to describe and explain phenomena from the moral viewpoint (empirical business ethics);
- it gives advice and instructions about how to develop and change the practices of business life so that the human values would be materialized better than before in business life (normative business ethics); and
- It studies the relations between the good and bad and the right and wrong and it means, applying the meta-analysis of moral conceptions, consideration of the phenomena of business life (meta-ethics of business life).

The importance of business ethics is based on the fact that businesses are playing a public role, business ethics can assist business in building a work ethos that will unify employees thereby boosting business performance and that business ethics help to overcome the discrepancy that individuals often experience between their individual values and the values pursued by business (Rossouw 1997:1542).

Ledgerwood and Broadhurst (2000: 210) state that there are three dimensions which must be appreciated in the literature on business ethics namely, the international dimension in which the research and analytical focus is on multi-national corporations with branches in many countries; the national dimension which targets businesses operating within a single country and the meta- ethical dimension which is composed of applying the classical and modern philosophy, theology, economic theory and political

theory to the question of determining what is ethical in business. In terms of global economy it is imperative that government plays the crucial role of facilitating concerted action over time of different individuals and organisations to contribute to the improvement of the moral quality of business activities (Kopperi 2005:3).

2.3 Ethical Dilemma

Factors that influence ethical behaviour are multidimensional; that is they are rooted in differences between individuals, variations in organisational settings, and the interplay between the two (Longenecker *et al.,* 2005:7). Ethical behaviour does not emerge from the value sets of individuals in isolation from external influences, which is the upshot of established models in the ethics literature (Longenecker *et al.,* 2005:7). According to Robinson (2002:44) any decision where moral considerations are relevant can potentially give rise to an ethical dilemma, for example;

- A decision that requires a choice between rules;
- A decision where there is no rule, precedent or example to follow;
- A decision that morally requires two or more courses of action, which are in practice incompatible with each other; and
- A decision that should be taken in one's self interest but which appears to violate a moral principle.

2.4 Small and Medium Size Enterprises (SMEs)

In South Africa the National Small Business Act No 102 of 1996 states:

> *A small business means a separate and distinct business entity, including co-operative enterprise and non-governmental organisations, managed by one owner or which, including its branches or subsidiaries, if any, is predominantly carried on in any sector or sub-sector of the economy mentioned in column 1 of the Schedule and which can be classified as a micro, a very small, a small or medium enterprise by satisfying the criteria mentioned in columns 3, 4 and 5 of the Schedule opposite the smallest relevant size or class as mentioned in column 2 of the Schedule.*

SMEs are recognised as playing a pivotal role in the advancement of prosperity in our communities. To ensure economic prosperity in our country, the number of entrepreneurs who successfully found and develop small and micro enterprises needs to increase significantly. However, SMEs face numerous challenges in South Africa. The challenges facing SMEs in our country include (www.bankseta.co.za):

- Access to start-up and expansion finance;
- Access to markets;
- Access to appropriate technology;
- Access to Information Technology; and
- Regulatory environment impacting on SMEs.

3. Significance of Ethics and the Nature of Ethical Dilemmas

There is a growing need to reassess ethical business practices, especially in light of the growing perception that business and individual values are significantly different. Ethics is an important code of conduct that directs all human behaviour and gives it its moral imperative. In fact one can argue that human values are the foundation that informs the comprehensive field of human behaviour of which ethics is a significant component.

There is a dearth of research on small business especially on the ethical dilemmas faced by small businesses. The study of the role and function of ethics in companies known as 'organizational ethics' has unfortunately focused primarily on larger enterprises. For long periods of time organizational scientists have not attended adequately to the problems of unethical behaviour with particular reference to small businesses. In the literature there are occasional articles, chapter or book on the broad topic of ethics; however, it should be of greater concern as there are human consequences attached to businesses and their representatives engaging in unethical behaviour of bribery, marketplace manipulations, fraud and deception and an array of other workplace violations, for example, racial discrimination.

In the case of small business or owner-managed business there would be an inherent conflict in terms of separating out the rights of the owner from those of the business where the business owner may be perceived of as the

same entity. It is this tension that makes research in small business different from large organizations.

It is universally accepted that a well functioning small business sector contributes to the economic and social growth of a country. It exerts a strong influence on the economies of all countries, particularly in the fast changing and increasingly competitive global market.

King Reports 1 and 2, were introduced in reaction to corporate scandals of 2002, but 'fixing the rules is not fixing the problem' (www.businessday.co.za: 21/2/05). There is still much to be done to ensure that organisations are held to higher ethical standards than in the past (Potts and Matuszewski 2004:177).

An important finding of an Ethics Survey conducted by Financial Mail in July 2000 was that most South Africans believed that dishonesty is the route to business success (www.businessreport.co.za: 21/2/05). According to the Ethics survey conducted jointly by the Public Service Commission, Transparency South Africa and KPMG, with a view to measure the extent to which South African public and private organisations have succeeded in establishing certain basic ethics management practices (Malan 2002:34), *…a basic ethics infrastructure exists in most organisations but that practices and mechanisms are too basic to be effective and in most cases merely indicate lip service to ethics without real commitment by leadership to ethics management.*

To be fully effective, ethics must be an integrative part of organisational culture rather than an appendage grafted on to management systems (Potts and Matuszewski 2004:177). Organisational culture should be defined by management's leadership in setting values of integrity and ethical behaviour (Verschoor 2005:5).

Human values are the core scaffolding of the character of a human being. Every business decision reflects the presence or absence of these core values (Biery 2001:3). Healthy ethical practices are not limited to financial reporting and top management structures but to the entire company. Applied from top down, good ethics should filter to every activity of a company making it second nature and part of the way business is done (Business Day, 19/10/2004).

Geraldine Fraser-Moleketi, Public Service and Administration Minister of South African government, stated that special attention was being

paid to reducing corruption in the public service and an anti-corruption summit was held to adopt a wide range of resolutions on ethics, awareness, prevention, oversight, transparency and accountability (Department of Public Service and Administration: Country Corruption Assessment Report: South Africa April, 2003).

It is common knowledge that corruption promotes the wrong developmental and investment choices. It encourages competition in bribery, rather than competition in equality and in the price of goods and services. It inhibits the development of a healthy marketplace and distorts economic and social development (Department of Public Service and Administration: Country Corruption Assessment Report: South Africa April, 2003).

According to the Headline Report by the Small Business Project, an independent advocacy group, the demands of compliance with government laws and regulation was costing South African firms R79billion a year, equivalent to 6.5% of gross domestic product. This figure is significantly higher percentage of GDP than in many developing countries (www.sbp.co.za).

Some recent ethical miscues were (www.businessday.co.za):

- The fraud and corruption trial of Durban businessman Shabir Shaik—convicted on charges of corruption and fraud.
- The KwaZulu-Natal Local Government Department has reported that it has found *prima facie* evidence of fraud and corruption against three municipalities—in the Umvoti, Uthukekela and Nongoma District Municipalities—out of a total of 16 which were being investigated.
- A multi-million rand fraud case against six SA Revenue Services (SARS) employees after the SARS approached the Commercial Crime Unit to investigate shortages of more than R21m.
- Four Gauteng and two Durban attorneys were fined for obtaining work from banks, bond originators or estate agents in return for cash as this is a practice that robs the consumer.

A healthy number of companies have admitted to paying bribes under a new World Bank disclosure programme which encourages firms that

have worked on bank funded projects to report corruption and fraud. Companies reported paying bribes in order to secure a contract, get a contract amended and to get paid (Sunday Tribune, 3/6/06).

This paper attempts to examine the ethical models with the view that South African SME managers are embedded with rich cultural diversity.

International Perspective

In Japan, there is a saying that 'the human factor is the key of enterprise'. The secret of enterprise management is the optimum combination of people, materials, money and information, but the most important element is people. According to Transparency International (www transparency.org):

- Eleven South Korean businessmen, bankers and politicians were convicted of embezzling funds and pressurizing banks to make illegal loans to a major South Korean conglomerate, Hanbo Group.

- In terms of weak minority shareholder protection, the Bangkok Bank of Commerce provides a well-documented case of expropriation by managers that worsened as the bank's financial troubles deepened.

- The experience of creditors in Hong Kong who lent to firms doing business in mainland China was similar: Hong Kong-based company liquidators were unable to recover assets from Chinese companies that defaulted on their loans. Very few debt defaults during the Asian crisis resulted in investors receiving liquidation value.

As the World moves towards a 'values centred' way of conducting transactions in business, only those who have made the effort to educate themselves about these human values and practices will be able to be successful in the business arena (Biery 2001:3).

4. Ethical Decision Making Models and Approaches

4.1 Fritzsche's Model (1991)

According to Fritzsche's model (1991:842) prior to the actual decision making one must understand the personal value system of the decision maker and therefore, the human values within an individual are the linchpin of ethical decision making. These values are formed and modified over a lifetime of experiences. According to Fritzsche (1991:843) decision makers' personal values provide the underpinnings for ethical decisions in private life, in professional life personal values are mediated by other forces inside organisational structures which may alter the role played by personal values in decision making. Fritzsche's model portrays the decision-maker with a set of personal values that are mediated by elements of the organisations culture.

Fritzsche's model of decision- making incorporates ethical values which are formed and modified over a lifetime. In terms of this model while a decision maker's personal values provide the underpinnings for ethical decisions in private life, in professional life personal values are mediated by other forces inside organisational structures which may alter the role played by personal values in decision making (Fritzsche 1991:842). These mediating organizational forces are embodied in the culture of the organization. Organisational culture in this model serves as the glue which binds the organization together in common identity and actions. Organisational culture is further differentiated by the organizational climate, organsiational goals and stakeholders (Fritzsche 1991:842).

The organizational climate component focuses on the relationships with superiors and peers who will affect the ethical behaviour while organizational goals refer to policy and reward structure and stakeholders refer to those groups, both internal and external to the firm, who can affect the ethical decision- making process (Fritzsche 1991:842).

Against this backdrop the recognition of a problem requiring action provides an opportunity for examining the role of ethics in decision-making. Fritzsche's model focuses on the understanding of the influence ethical issues in decision-making which will result in decision alternatives when searching for a solution to the problem. It is in the stage that decision alternatives are evaluated on the basis of the following environmental contexts of Economics, Political, and Technological, social and Ethical issues.

4.2 Vyakarnam *et al.'s* Model (1997)

In a study by Vyakarnam (1997:1630) on ethical dilemmas in small business four major themes on ethical dilemmas emerged. These are related to the following:

- The general ethos of entrepreneurial activity—is entrepreneurial activity fundamentally unethical?
- role in society or social responsibility;
- conflicts of interest(the separation of the person from the business, when they are actually the same entity, the rights of stakeholders and the rights of one's own business; and issues of personality.

There would appear to be an inherent conflict in the owner in terms of separating the owner's rights from the businesses' rights when they may be perceived of as the same entity. Vyakarnam *et al.,* (1997: 1627) refers to some of factors that affect small business as:

- in smaller firms shareholders can control managers;
- recessionary pressures and the size of the business could be the key factors when addressing ethical behaviour;
- although codes of ethics do influence the behaviour of employees it is unlikely that small firms have code of ethics; and
- organisational culture could influence ethical behaviour.

The main implications for this model are the improved understanding of what constitutes an ethical dilemma in small business and the frameworks used for resolving them. There is an overlap of a number of factors which influenced small business ethics with other business ethics literature. This overlap relates to culture of the owner of the business, the personal characteristics of owner, stakeholders concerns, economic imperative on the business and the codes of ethics.

According to Vyakarnam's model a web of filters in the decision making process were identified and encapsulated within four main headings, namely,

- situational ethics which means that one way of resolving an ethical dilemma seemed to be the use of context and time;
- quality of relationships with key stakeholders;
- consequentiality ethics which refers to the business's reputation and economic considerations, that is, risk taking in business; and
- reference to external sources of advice for the resolution of ethical dilemmas.

4.3 Wieland's Model (2001)

Wieland (2001) proposes a model which is on the ethics of governance. According to this model the decision making process will mean the incorporation of moral conditions and requirements in the management, governance and control structures of a firm (Wieland 2001:73-87). This is the contextual precondition for the long lasting and beneficial effects of the virtues of individuals within the organisation. The theoretical integration of codes of ethics, ethics management systems and other organisational measures from the implementation of moral claims in organisations requires a conceptual distinction between the moral values of an individual person (value ethics), the values of an individual in a given function or role of responsibility (management ethics) and the moral values of an organisation (governance ethics) (Wieland 2001:73-87).

4.4 Kenyon's Model (1998)

This model questions or redefines the following assumptions:

- The business (firm or company) can for be equated with persons or persons who manage it;
- The business is therefore a moral agent;
- Management team which runs the business has a collective set of values and commitments which is distinct from the value systems of its individual members;
- When the team makes judgements as between the interest of employees, customers, suppliers and the community it sees the

investors primarily as a group of people to whom the team owes duties analogous to trusteeship; and
- The business forms a continuity as it can rely on its accountability in future for its actions; and
- The business is a community.

Ethics is not concerned with legal responsibilities, but with moral choices and accountability. Kenyon (1998:220) states that for a legal entity to make such choices it must be a moral agent and thus the question whether a management team is a separate moral agent or a collective moral agent. The moral status of a collective management team is problematic in view of the following reasons:

- To hold a collection of people responsible for criminal misdeeds is wrong; and
- The individualist tendency to resist the pressures for conformity could be overwhelming.

In the model proposed by Kenyon (1998: 222) the manger is a central figure and the various relationships are mapped out in Figure 1 below.

Ethical dilemmas are for individuals as opposed to the moral status of the collective management (Kenyon 1998:221). The model maps out the relationships and linkages between the various parties and other commitments such as value systems and financial success. This model casts an unfamiliar light on the usual form of the stakeholder doctrine which suggests that businesses are excessively preoccupied with the interests of its investors as distinct from the interests of its employees, suppliers, customers and the wider community. It further draws the following conclusions:

- Only managers in legal entities or owner- managers can make choices in business;
- The survival of the business must rank before the claims of the other stakeholders like the employees; and
- There is a much stronger commitment by management to the prosperity of the business rather than the investors.

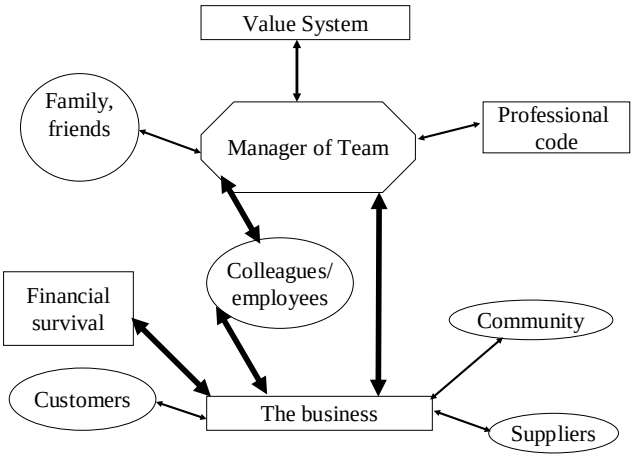

Figure 1 *The complex interactions between elements of ethical decision-making, from Kenyon, A (1998) Ethical model for managers*

4.5 Bradley's Model (1998)

In this model it was determined that to establish a positive ethical climate the following four actions have to be adopted and utilised:

- The establishment of clear ethical business values;
- The ethical behaviour must be given high priority;
- Consistently supporting ethical values; and
- Internalising ethical values within the organisation.

With regard to the first action it is important to note that simply stating desired ethical values will not adequately address the problem. Developing appropriate ethical values must involve more than ethical statements and the organisation must develop on-going series that will support the business values. Key owner support activities would include the reinforcing of those values during new employee orientation and training and in such setting the owner could convey his expectations regarding ethical behaviour.

In respect of the second action it is essential to give a higher ranking to ethical behaviour in relation to other business activities. With regard to the third action it is important that consistency of values occurs on two levels, namely, consistency throughout the entire organisation and consistency across a variety of business situations. The final action of fostering a positive ethical culture in the organisation is that there must be some type of reward and disciplinary system to reinforce desired values (Bradley 1998:8). According to Bradley (1998:8) in a small business the relationship between organisation culture and ethical values is one that is complicated and involved especially in the face of today's competitive pressures of nurturing an ethical business environment and at the same time competing to improve the bottom line.

4.6 Biery's Model (2001)

For any organisation the importance of values and ethics and an effective construct or system that captures all the key ingredients of the organisational value system cannot be over emphasised (Biery 2001: 3). Biery (2001: 2) proposes another model which is a synthesis of three core values which are justice/integrity; caring loyalty; and humility. This model is a tri-partite model based around a core set of human values from which all other values grow. These three values are held firmly and in synthesis with each other and reveal an unfolding of personal and organisational attributes. According to Biery (2001:2) this model affects everything an organisation does, that is, it

- affects organisational conduct in all aspects of business, for example, financial management, information management, marketing and media relations, human resources policies, quality improvement efforts,
- has applicability up the organisational ladder, down the organisational ladder and outside the organisational ladder; and
- determines the capacity of the organisation to improve and learn.

One has to investigate the deep consequences of the values implicit and embedded in the models of human behaviour and decision making when making conscious choices about what values one chooses to live by and inculcate in work organizations. Prominent Harvard Business School

Professor Lynn Sharp Paine wrote in Harvard Business Review (1994 March-April:106-117) that an organisation's 'integrity strategy' is one based on the concept of self governance in accordance with a set of guiding principles. Ethics is viewed as a determinant of compliance procedures and also seen as a component of sustainability of business. Therefore, ethics is considered a critical factor in an organisation's DNA (Verschoor 2005:19-20).

4.7 Model on Human Values and Decision-making (1990)

South Africa is a model of unity in diversity, and has been referred to as the 'rainbow nation'. Desmond Tutu (1999:5) refers to ubuntu as a 'human being through other human beings' and therefore it follows that what one does to others feeds through the interwoven fabric of social, economic and political relationships to eventually impact upon us as well.Although the concept long predates globalization, ubuntu has been proven in business management where it has been used as a strategy to build team spirit among employees. Ubuntu management approach incorporates many of the ingredients of the approach of finding soul in the workplace.

A person with ubuntu is open and available to others, affirming of others, does not feel threatened that others are able and good; for he or she has a proper self-assurance that comes with knowing that he or she belongs in a greater whole and is diminished when others are humiliated or diminished, when other are tortured or oppressed, or treated as if they were less than who they are (Tutu 1999:6). The existence of cultural diversity in a new democratic South Africa is impacting on the life aspirations, altitude and expectancy of everyone.

There are many ways in which the basic human values like truth, righteousness can be practiced There are different aspects of management such as marketing, finance, and industrial relations but most important aspect is 'man management' (Seminar-Faculty of Business Management, Sai Institute of Higher Learning; 10.02.1990).

The true meaning of education and human values has to be understood: education has two aspects; the first being education which relates to the external and worldly education which is acquiring bookish knowledge and the second aspect is 'educare' which is related to human values which are inherent in every human beings (Baba 2000:253). One

cannot acquire them from outside but have to be elicited from within. Therefore 'educare' means to bring out human values and to bring out means to translate them into action. What is needed is the stimulus and the encouragement to bring them out. If the feeling that the divinity that is present in everyone is one and the same is promoted among all, human values will sprout naturally in every person.

Mbigi and Mare (1995) point out that the rapid pace of change in South Africa demands that there be a change and makes the conventional management approach inadequate and calls for other management paradigms. African traditional practices and wisdom need to become the basis for management and institutional innovation. The integration of this ancient wisdom with the modern science of the present 'UBUNTU' becomes the dynamic energy, which is essential for undertaking the task of transformation required, if Africa is to catch up with the rest of the world.

4. Evaluation of Existing Models and the Postulation of an Integrated, Locally Relevant Model

A number of authors have proposed a variety of theoretical models in the effort to explain the process by ethical decisions are made. It is evident that factors that influence ethical perceptions and behaviour are multi-dimensional; that is, they are rooted in differences between individuals, variations in their organizational settings, and the interplay between the two. The ethical decision making models can divide the factors that impact on ethical behaviour into two broad categories, namely, individual and situational factors.

Individual factors

This category includes all those factors that are uniquely associated with the individual decision maker whose choice arises from personal variables like cognitive moral development, ego strength, locus of control.

Situational Factors

This category includes a variety of situational forces that are conceptually different from individual factors and include the individual's referent groups, the ethical values and practices of the supervisor, organisational culture,

industry norms, and overall social values. Some of these relate to the environment of the firm, while others are institutional or relate to the agency relationships that are established in organizations.

The missing link in these models is the process of the integration of 'ubuntu' and human values principles. The efforts of corporate cultural transformation in South Africa must encourage acceptance of the differences and the discovery of the similarities of its people. Mbigi and Maree (1995) contend that the process must emphasise similarities and the creation of a common survival agenda. This implies that the emancipating African concept of Ubuntu is imperative with its emphasis on human dignity, respect and collective unity. Mbigi and Maree (1995:98) further argue that Ubuntu could facilitate the development of an inclusive national and corporate vision based on compassion and tolerance as well as the will to survive in spite of the constraints of our history.

According to Mbigi and Maree (1995), the Afrocentric view of rewards is based on Ubuntu. One works for additional reward so that one's fellow man or woman can enjoy the fruits of one's labour. Whatever one earns is for the collective good of the community. The American conception is that if each person concentrates on accomplishing his personal best and on attaining inner fulfilment, this automatically contributes to the team's greater good. In the Afrocentric view one thinks in terms of collective survival and group loyalty is the key issue in building a team.

Mbigi and Mare (1995) point out that the rapid pace of change in South Africa demands that there be a change and makes the conventional management approach inadequate and calls for other management paradigms. African traditional practices and wisdom need to become the basis for management and institutional innovation. The integration of this ancient wisdom with the modern science of the present 'UBUNTU' becomes the dynamic energy, which is essential for undertaking the task of transformation required, if Africa is to catch up with the rest of the world.

In addition to this the value system of the individual or the decision maker in the decision making process is of paramount importance. The human being, be it a manager or staff is the important link in the ethical decision making process. For leaders to have an ethical behaviour in the business it is imperative for them to be practitioners of human values because by their practice a resonance is created in the business .The true meaning of

education and human values has to be understood (Baba 2000:253). Education has two aspects; the first being education which relates to the external and worldly education which is acquiring bookish knowledge and the second aspect is 'educare' which is related to human values which are inherent in every human beings. One cannot acquire them from outside but have to be elicited from within. Therefore 'educare' means to bring out human values and to bring out means to translate them into action.

For business management of the 21st century in South Africa with its rich diverse culture there has to be a 'rethink' on the management principles that guide businesses. A decision making model which integrates principles of 'ubuntu' and human values is being proposed. In the decision making process the situational and individual factors are underpinned by the human values of the decision maker.

Conclusion

Business people make difficult decisions each day that demand ethical sensitivity. Small businesses face numerous challenges in business. To remain sustainable is perhaps the most important objective in business. When operational and strategic failures continue, company survival and job security can become the overwhelming focus of business decision making, pushing employee and management concerns for ethical conduct into the background (Vyakarnam *et al.,* 1997: 1626).

This integrated model for decision making for SMEs in South Africa will improve the ethical behaviour of business owners and overall improve the business climate in South Africa. This means that the South African situation demands a more diverse approach which should be more encompassing than the models presented.

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Profit or No Profit—
Does the SME Sector Really Know?

Raj Rajaram
Charles O'Neill

Abstract
While the SME sector is continuously in the limelight with regard to its potential role to alleviate the unemployment problem in South Africa, questions arise whether the SME sector utilises its relatively scarce resources optimally. In order to determine whether resources are optimally utilised, the SME sector in general and each SME individually has to avail of the knowledge and accounting skills to confidently answer the fundamental question whether they are making a profit or not. In this article the literature with regard to the need for SME development in South Africa as well as the skills needed by the SME sector to function optimally, will initially be addressed. The objective of the article, namely to determine whether the ME sector in KwaZulu-Natal in particular, avail of the required accounting skills to operate profitably, will consequently be addressed in the analysis of the empirical research conducted among experts in the SME sector in KwaZulu-Natal. In the final instance the summary, recommendations, caveats and suggestions for further research will be dealt with.

Keywords: Accounting skills, disequilibrium, entrepreneurship, equilibrium, factors of production, profit, profitability, resources, SME development, SMEs, sustainability.

Introduction
South Africa has been confronted with a high unemployment rate for a long period of time. At present the narrow definition of unemployment stands at

23.1% (Labour Force Survey, 2008: v). The South African Government has identified the development of small, micro and medium-sized enterprises (SMME s) as one of the vehicles to address the unemployment problem (DTI, 1995: 2). They manifested their commitment to SMME development by acceptance of the 1995 White Paper on a National Strategy for the development and promotion of Small Business that became the Small Business Act No. of 1996 (DTI, 1996:). The Act was based on the recognition of the critical role that small, micro and medium-sized enterprises could play internationally in absorbing labour, penetrating new markets and generally expanding economies in creative and innovative ways (DTI, 1995: 2). In this regard the South African Government decided to stimulate SMME development through a large range of interventions (Ministry in Office of the President, 1994: 25).

The Small Business Act which has been reviewed since and currently known as The Integrated Strategy on the Promotion of Entrepreneurship and Small Enterprises (DTI, 2008: 4), has the following broad objectives:

- Increase supply for financial and non-financial support services
- Create demand for small enterprise products and services
- Reduce small enterprise regulatory constraints

These objectives resulted in the introduction of various interventions by government coupled with various private sector initiatives to promote SMME development in South Africa. In this regard government has acknowledged the need to improve the coordination among support agencies (DTI, 2008: 27).

In order for these interventions to be optimally implemented in the quest for sustained small business development, the ideal is that all objectives should be balanced and synchronised within the larger economy. The implication is that any barriers that could prevent success or result in unsatisfactory SMME development should be detected and addressed in the introductory stage already. One such potential barrier that is specifically going to be addressed in this article is lack of or insufficient accounting skills in the SME (small and medium-sized enterprises) sector. The rationale for the emphasis on accounting skills is that unless the SME sector is able to record and monitor their financial performance, they will not be able to

determine whether they are making a profit or loss, let alone being able to determine whether the small business development efforts have had a positive impact on their businesses or not. The choice of the SME sector instead of the SMME sector is based on practical reality as the micro-sized enterprises are often not registered or do not keep financial records at all.

Literature Review

Clarification has to be provided on the use of certain concepts and terms in this article. Entrepreneurship for the purposes of this article, and fully aware of the non-agreement on an internationally accepted definition (Nieman, Hough and Nieuwenhuizen, 2003: 9), is defined as follows: an entrepreneur is an individual that takes calculated risks (Du Plessis, 1992: 88), who finds new combinations for the other factors of production (land, capital and labour) (Schumpeter in O'Farrell, 1985: 568), is innovative (Drucker, 1985: 27; Bolton and Thompson, 2004: 16), achievement-driven (Bolton and Thompson, 2004: 21), market-orientated (Carson, Cromie, McGowan and Hill, 1995: xiii), ambitious (Barringer and Ireland, 2006: 8), confidence in their ability to succeed (Scarborough and Zimmerer, 2006: 5), wealth seeking (Burch, 1986 : 32) and regards problems as challenges rather than obstacles or threats (Dollinger, 2003: 31). The level of entrepreneurship will vary from person to person. In this regard Burch (1986: 31) illustrated how entrepreneurship varies among typical categories of careers on a continuum where a labourer is depicted in the lowest category and an inventrepreneur (inventor and innovator) in the highest category.

All levels of entrepreneurs are found in businesses of all sizes. The tendency to explain entrepreneurship in a small business context rather than a large business context can be explained by the reality that most entrepreneurs, due to limited start-up resources, use the small business as port of entry into the business world (Vosloo, 1994: 159). In this article the entrepreneur within the SME sector will be focussed upon although the uthors acknowledge that entrepreneurs can operate in a business of any size. The SME sector refers to businesses that are small (5-50 employees) and medium (51-200 employees) (Department of Trade and Industry 1995: 8).

Kirzner's Theory of Entrepreneurship will be used to provide a theoretical base in support of the case for the possession of accounting skills

as one of the critical determinants of small business success. Kirzner stated that entrepreneurs act as economic agents that identify disequilibrium in the economy by taking on an equilibrating role to rectify disequilibriums (Kirzner, 1973).

Should it be added that disequilibrium usually implies that profit opportunities exist, the profit-seeking motive adds another dimension to Kirzner's theory as entrepreneurs' reaction to these profit opportunities may result in the market returning to equilibrium, provided that the reaction has been successful. A weakness of Kirzner's theory, however, is the assumption that all entrepreneurs have similar access to information and resources and that information and resources relating to entrepreneurial opportunities are readily available to all entrepreneurs (Holcombe, 2003: 25). Both entrepreneurs and potential entrepreneurs can improve their propensity to find promising ideas if they increased access to information external to their businesses (Government can help in this regard) and internally if they are able to keep accurate financial records in order to make informed decisions on the exact status of their financial resources (ample accounting skills are necessary to meet this requirement).

While it is readily accepted that large businesses can afford to appoint qualified bookkeepers to perform the accounting duties, this luxury is not prevalent in the SME sector (DTI, 1995: 28). The result of this is that SME owners/managers often have to multi-task to perform the accounting duties together with a multitude other tasks (Baumback and Lawyer, 1979: 22-30). The situation is further aggravated if they do not avail of the required accounting skills to perform the task correctly. The objective of this article will be to conduct a needs analysis of the accounting skills of SME s in KwaZulu-Natal. This could inform policy makers and other stakeholders in SME development of the situation with regard to the existing level of knowledge of accounting skills in the SME sector and whether specific interventions are needed to address the problem or not.

Apart from Kirzner's Theory of Entrepreneurship, the Theory of the Firm which is based on the assumption that the major objective of the firm is to maximise profits (Curwen, 1983: iv and Andersen and Ross, 2005:31) also support the need to keep accurate accounting records to determine whether a profit has been realised or not. From a small business development perspective, it could be argued that government and other stakeholders in

SME development would require maximum results for their SME interventions and would consequently feel uneasy if the SME sector does not avail of the required accounting skills to record and monitor their performance accurately. In this regard Fujita (1998: 29) claimed that SME s account for more than ninety percent of all enterprises in developing countries and have become the largest contributor to the economy in many other countries as well. Inability of these SMEs to provide correct accounting records of their business activities, could result in recording errors with regard to the SME sector in particular and the economy as a whole. The negative effect on the individual hard-working SME if he/she is not able to determine whether all their efforts resulted in a profit or loss is even worse.

Barriers to SME Development

Problems that are inherent to the size of the business on a global scale as identified long ago by Baumback and Lawyer (1979: 22-30), are:

- The requirement that the business owner/manager has to multi-task due to a shortage of suitable staff
- Lack of sufficient funding and the required financial skills
- Poor market knowledge
- Recent research by Radipere and Van Scheers (2007: 85-91) confirmed that there is a relationship between success and viability of the SME sector and management skills.

In South Africa specific problems that restrict SME development as identified in the 1995 White Paper on Small Business (DTI, 1995: 11), were the following:

- An absence of entrepreneurial education that prepares young people to enter the small business sector
- Segregation increased the distance between residential areas and working areas, thereby increasing the cost and risk of doing business

- Limitations on the property ownership rights of blacks made it difficult for them to acquire assets that could serve as collateral for loan financing
- Bantu Education restricted opportunities for the acquisition of technical and professional skills needed to successfully manage small businesses
- Apartheid confined the majority of blacks to homeland areas, which lacked proper business environments.

It should be noted that although the above-mentioned problems had already been identified in 1995, and consistent attempts have been made to address them, it might still take a long period of time to overcome the negative impact of the Apartheid system on SME development. In the light of the global size related problems and the South African-specific problems mentioned above, the immediate challenge to government and other stakeholders in SME development will be to address the following barriers to development:

- Difficulty among SME owners to understand and interpret the macro economic environment (Rajaram, 2008: 11)
- Restricted access to finance aggravated by historical imbalances (SACOB, 1999: 12)
- Insufficient accounting and financial skills
- Regulatory and legal constraints (DTI, 1995: 28).

Although the importance of the other problems are acknowledged by the authors, the repetitive mention of the lack of or inefficiency of the level of accounting skills mentioned in the literature, has led to the area of accounting skills being further perused in this article.

Description of and Need for Accounting Skills

In the SME sector the accounting function is concerned with collecting, analysing and communicating financial information, whereas the financial management function focuses specifically on the financing and investing activities of the firm (Atrill and Mc Laney, 2006: 2,15). Accounting can also be viewed as the maintenance of a systematic set of financial records that can

at a later stage be used as basis for meaningful reporting (Haiden, 2006: 1). It is important to appreciate the likelihood that businesses operating in the SME sector may have different accounting needs due to their diversity in the size, ownership structure and management capabilities (Rajaram, 2008: 38). A key characteristic that distinguishes smaller companies from medium-sized enterprises is the level of formalisation in terms of management and ownership structure (Van Broembsen, 2003: 2).

In any organisation, accounting relates to the collecting, analysing and communicating of financial information. These tasks are usually performed by the preparation of financial statements. Financial statements are prepared in order to provide information that is useful to a wide range of users and comprise of:

- The income statement
- The statement of changes in equity
- The balance sheet
- The cash flow statement
- The notes to the financial statements (Snowden-Service, 2007: 8).

One of the primary functions of accounting is to measure and communicate the financial results and financial position of the business (Haiden, 2006: 1). In South Africa, the requirement of companies to prepare financial statements is stipulated by the Companies Act, which requires that all companies, regardless of their form and size, must prepare annual financial statements in terms of Generally Accepted Accounting standards, so that the needs of internal and external users are met (Stainbank and Wells, 2005: 51).

These financial statements are used by those parties who make decisions relating to the business and in maintaining control over the business. Apart from keeping a record of daily activities, owners and managers of businesses may need accounting information to:

- Develop new products and services
- Borrow money to help finance the business
- Change the operating capacity of the business

- To determine whether they are realising a profit or not (Atrill and Mc Laney, 2006: 2).

In a company context it is important to note that apart from the owners and management of a company that need information from financial statements, various other stakeholders need information as well, such as: lenders, suppliers, customers, investors, competitors, employees and their representatives, government and community representatives (Atrill and Mc Laney, 2006: 6).

Although most SME s are not registered as companies, it is important to assess the regulatory environment relating to the preparation of annual financial statements for companies, as many businesses in the SME sector may aspire to grow to the level of formalisation found in these companies (Rajaram, 2008: 41). At the moment, however, SME s who are not registered as companies, are at least exempt from the requirement of the Companies Act with regard to compliance with Generally Accepted Accounting Practice (GAAP) and International Financial Reporting Standards (IFRS).

Having motivated the need for accounting skills in the SME sector in order to monitor and optimize small business development in the Introduction, having explained the concept of entrepreneurship in a SME context and having provided the theoretical base for the possession of accounting skills, the accounting skills needed by SME s were consequently described and explained in the Literature Review. The next section will deal with the Research Methodology used to empirically determine the need for and level of accounting skills in the SME sector.

Research Methodology

Research Problem

To determine and evaluate accounting skills that are needed by the SME sector in KwaZulu-Natal and whether improving accounting skills will enhance the profitability of SME s in the province.

Research Objectives

1. To analyse the availability of accounting skills in the SME sector in KwaZulu-Natal through empirical research
2. To evaluate whether there is a need to improve the accounting skills in KwaZulu-Natal.
3. To assess expert opinion on whether an improvement in accounting skills will enhance the profitability of SME s in the province.

Nature of the Research

Qualitative research of an exploratory nature has been undertaken in order to accurately explore and describe the accounting skills needs of the SME sector in KwaZulu-Natal.

Sample Frame

The research conducted by Baumback and Lawyer, although approximately thirty years ago, appears to be supported by recent research in the SME sector in South Africa. Radipere and Van Scheers (2007: 85-91) confirm that there is a relationship between the success and viability of the SME sector and managerial skills. The research established that the lack of managerial skills in the small business sector has a negative impact on the success and viability of these businesses and that there is an urgent need to improve business skills in the sector.

An important aspect of qualitative research is to identify the purposefully selected sites or individuals for the proposed study that will best help the researcher understand the problem and the research question. This does not necessarily suggest random sampling or the selection of a large number of participants as found in quantitative research (Creswell, 2003: 185)

Given the lack of business skills highlighted above, it may be more prudent to rely on the opinion of industry experts in order to analyse the accounting skills needs of the SME sector in Kwa-Zulu Natal. Exploratory qualitative research can greatly benefit form the use of a survey of experts (Malhotra, 2004: 77). This is may be the case in the SME sector where SME owners/ managers may not have the necessary skills to determine their needs

due to the high rate of business failure, and the possibility that they may not provide confidential financial information. Industry experts on the other hand, may be more knowledgeable on the needs of the sector as a result of them having a broader and more adverse view.

Sample Size

In qualitative research the issue of sampling has little significance since the aim of this type of research is to explore or describe the diversity in a situation, a phenomenon or an issue (Kumar, 2005: 165). The emphasis will therefore be on obtaining a diverse range of expert opinion rather than selecting numerous individuals to collect information from. In this regard a sample size of thirty industry experts were considered an appropriate sample size to obtain the diverse feedback from different sets of experts for the qualitative study. The authors realise, however, that the findings cannot be generalised to the total population, as a representative sample has not been taken.

In order to ensure that the individuals selected do have the necessary knowledge to make a contribution to the research, they will need to ensure that they meet at least one of the following criteria:

- A formal business qualification relating to the SME sector
- At least five years experience with SME development
- At least five years experience in management of a SME
- Experience in the training of / Involvement with accounting in the SME sector

These experts, meeting the above criteria, will be grouped as follows:

- **Group One: Entrepreneurs**

This group comprises entrepreneurs that have experience of successfully owning a business that conforms to the definition of a SME that was agreed upon in chapter two.

- **Group Two: Accountants**

This group consists of individuals that are involved in the provision of accounting services to SMEs in the province.

- **Group Three: Academics**

This group consists of academics that have exposure to the SME sector.

- **Group Four: Other Experts**

This group comprises of financiers, other service providers, policy makers and any other experts that are involved in the SME sector.

Data Collection Method

Questionnaire-based personal interviews have been conducted in order to collect the maximum in-depth information from the identified experts and clarify possible problem areas.

Questionnaire Design

The questionnaire was based on the literature review and consisted of the following sections relevant to this article:

Section A:	Profile of the respondent
Section B:	Business problems experienced by the SME sector
Section C:	Accounting skills related questions

Data Analysis

The results of the interview will be thoroughly analysed using the SPSS (version 15) and will also be used to test the following hypothesis:

Hypothesis

The hypothesis is important to bring clarity to the research problem (Kumar, 2005: 74) and is derived from the objectives of the research. The research objective can be tested by the following hypothesis:

> H0- There is no need to improve accounting skills in the SME sector in KwaZulu Natal
> H1- There is a need to improve accounting skills in the SME sector in KwaZulu Natal

Findings

Section A: Profile of the Respondents

There was an even distribution of respondents from the different fields relevant to accounting and financial management i.e. entrepreneurs (30%), accountants (20%), financiers and other experts (26.7%) and academics (23.3%).

The different occupations were also evenly distributed with a majority of the respondents being entrepreneurs (30%), academics (23.3%) and service providers (20%).

The modal age group was the 35-44 years (40%) followed by 45+ years (36.7%). The majority of the respondents (60%) were postgraduates followed by those respondents who had a matric or below (16.7%). The modal race group was Asian (46.7%0 followed by the white race group (36.7%). There was a split in the number of years of involvement in the SME sector in KZN with 5-10 years (43.3%) and 10+ years (56.7%). The decision to adopt a qualitative approach by interviewing industry experts appears to be justified by the qualifications and experience of the respondents. The experience and qualification of these respondents in the SME sector will hopefully provide this study with the relevant information in order to analyse the accounting skills needed by the SME sector.

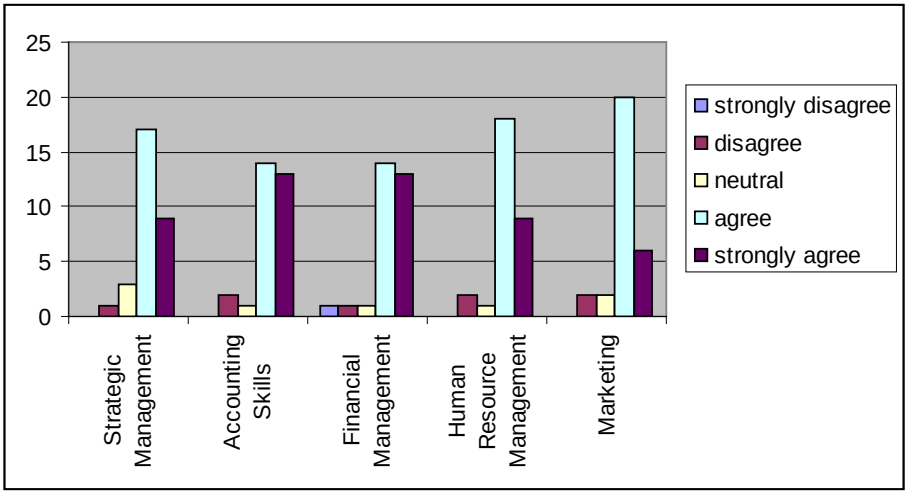
Section B: Business Problems Experienced by the SME Sector

In response to the assertion that SMEs are managed well, 16.7% of the respondents strongly disagreed, 43.3% of respondents disagreed and 23.3% remained neutral. The following summary gives the areas where respondents indicated the SME sector experience difficulties:

Figure 1: *Table and graph showing areas where SMEs experience difficulties*

	Strategic Management	Accounting Skills	Financial Management	Human Resource Management	Marketing
strongly disagree			1		

disagree	1	2	1	2	2
neutral	3	1	1	1	2
agree	17	14	14	18	20
strongly agree	9	13	13	9	6



In each of the above five alternatives there are 80%-95% of the respondents that agree and strongly agree that there are definite areas of difficulty that the SME sector experiences.

The areas that have been identified as being areas of difficulty corroborate other research. For example, some of the common business problems experienced relate to ineffective management planning, management information, poor controls, marketing and unsatisfactory financial management (Pather, 2003:10-13). Clover and Darroch (2005: 238-263) highlighted that many SMEs view a lack of management skills as a major threat to the businesses. The above findings may also support the assertion (Jinabhai and Kadwa, 2007:15-25) that mentorship and training may be used as a strategy to improve productive growth in the sector.

Approximately seventeen percent of the respondents strongly disagree and 40% disagree that SMEs have sufficient funds to operate. These findings support the view of SACOB (1999:12), Clover and Darroch

(2005:238-263) and Mutezo (2003:93), which identified a lack of sufficient funds as a major obstacle to the growth of the SME.

It is evident that a lack of accounting skills represents a major problem area for the SME sector in KwaZulu-Natal (KZN). The above findings are consistent with the previous research. For example Taylor (2003:11) presented a strong case for the SME sector to possess accounting skills as a means to improve their control over the business. It is also important to note that there may even be a link between SME business failure and a lack of accounting skills (Stone, 2003: Preface). Kotze and Smit (2008:35) have established that a lack of knowledge of financial management contributes to a low prevalence of new venture creation and ultimately the high failure rate of South African SME s.

Section C: Accounting Skills Related Questions

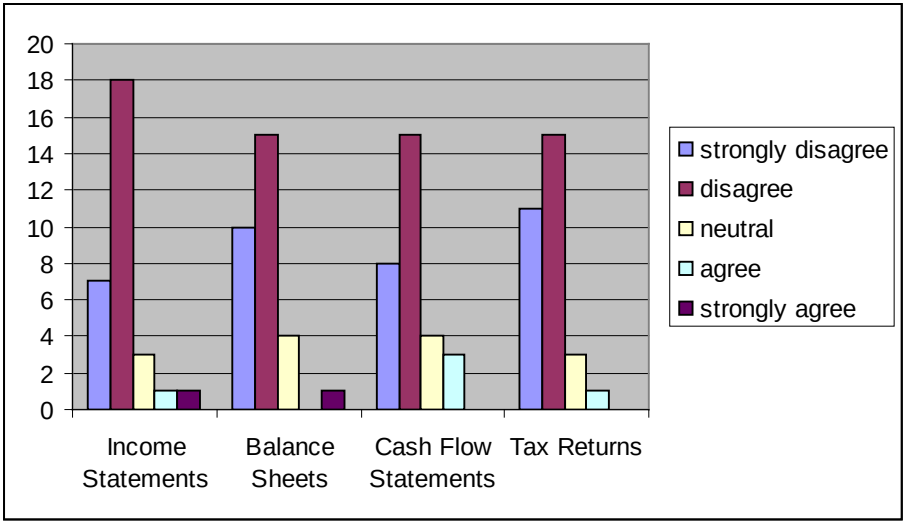
Fifty percent of the respondents strongly agree and 40% of the respondents agree that accounting skills are important to the SME sector in KZN. A modal response of agree (66.7%) was given to the question that Accounting needs of the SME sector are different from larger businesses whilst 26.7% and 60% strongly disagree and disagree to the question that there is sufficient level of accounting skills in the SME sector in KZN.

These observations highlight the importance of accounting skills in the SME sector and it does appear that these skills are largely unavailable to the sector. It is also important to note that the experts feel that the accounting needs of the SME sector are different to the larger businesses. Therefore the question: 'Is small business just a "small" big business or is it something else?' (Dewhurst, and Burns, 1983:3) has been answered by the respondents, from an accounting skills perspective, by agreeing that a different set of accounting skills are needed by the SME sector.

The diversity in the accounting needs of the SME sector from larger businesses clearly highlighted the needs for a different set of accounting standards for the sector. For example the President of the International Federation of Accountants argued for a separate set of accounting standards for the SME sector (International Accounting Standards Board, 2006:2). In South Africa, the literature review also indicated that the idea of a separate set of accounting standards for the SME sector enjoyed considerable support

(Stainbank and Wells, 2005:51-65). Although the respondents agree that accounting skills are important, there is consensus that these skills are unavailable. This finding should be of concern to the provincial government as it may be an indication that much of the business training that is being provided, is not producing the desired results. Examples of the business training are those provided in terms of the Integrated Small Business Strategy (DTI, 2005:5-6), the SMME Support Service Delivery Network (Mkhize, 2006:1-7) and Seda (www.seda.org.za).

Figure 2: *Graph of Management/Owner's lack the necessary skills to provide the following essential accounting functions*



The information obtained from this section has serious implications for the SME sector, considering the importance of accounting skills for the continued growth and profitability of the sector. Although a basic level of accounting skills are needed to prepare an income statement, balance sheet, cash flow statement and income tax returns (Taylor, 2003:13), such tools will assist the sector in undertaking important business decisions, determining the financial position and understanding and reducing tax liabilities. It is evident that the relevant authorities should consider the mechanism to impart these basic skills to the sector.

Given the importance of the financial statements to measure and communicate the financial position and results of the entity (Haiden, 2006:1), and of tax skills and knowledge in the long-term survival of the SME (Venter and De Clecq, 2007:72-78) absence of these skills will have a negative effect on the performance of the sector. It is vital that these accounting skills are considered when policy makers consider the training needs of SMEs.

Hypothesis

The hypothesis that was developed related to the need to improve accounting skills in the SME sector in KwaZulu -Natal and was formulated as follows:

- H0: *There is no need to improve accounting skills in the SME sector in KwaZulu-Natal*
- H1: *There is a need to improve accounting skills in the SME sector in KwaZulu -Natal*

In order to test this hypothesis, the Chi-Square Goodness of Fit test was used to hypothesize what responses should be based on the null hypothesis and test this against the actual responses. At the 5% significance level, since the p-values are all less than 0.05, the H0 is rejected resulting in a conclusion that there is a need to improve accounting skills in the SME sector in KwaZulu-Natal.

Need to Improve Accounting Skills and Impact on Profitability

An overwhelming 53.3% and 43.3% agree and strongly agree that the improvement of accounting skills can enhance the profitability of the SME sector in KZN. This point is further solidified with a dominant response of agree (56.7%) and strongly agree (43.3%) feeling that the SME sector in KZN will benefit from accounting training. There was obvious consensus with regard to this response since the total percentage of this affirmation (agree (43.3%)+strongly agree (56.7%)) adds up to 100%. A combined total response of 90%, made up of agree (40%) and strongly agree (50%) felt that

there is a need for an improvement in accounting skills in the SME sector in KZN.

Finally, 56.7% and 33.3% of the respondents agree and strongly agree that a lack of accounting skills can result in a shortage of funds in the SME sector in KZN. This is an important observation as it answers a question relating to the research conducted by Mutezo (1993), who confirmed that although a lack of access to funds is the largest obstacle faced by the SME sector, further research should be conducted into 'certain skills that are a prerequisite for a successful application for finance such as bookkeeping, cash flow management and drafting of business plans' (Mutezo, 2003:93). These observations seem to confirm that a lack of accounting skills is a contributory factor to the shortage of cash.

Considering the low entrepreneurial success rate in the country (UCT, 2005:21) (Centre for Development and Enterprise, 2004:5), it may be feasible to assume that an improvement in the accounting skills of the SME sector will have the potential to contribute to the growth and profitability of the sector.

Summary, Recommendations, Caveats and Suggestions for Further Research

The need for SMEs to function optimally in order to reach their full potential with regard to profitability, growth and sustainability was dealt with in the literature review. It was further emphasized that government and other stakeholders in SME development also need to be convinced that the SME sector avail of the required accounting skills to be able to determine whether they are making a profit or a loss. Insufficient accounting skills in the SME sector have been identified as one of the reasons for failure in the literature review. The majority of experts interviewed in the empirical study confirmed that insufficient accounting skills in the SME sector is a major problem and that it will effect negatively on profit levels in the sector. It is therefore recommended that government and other stakeholders in SME development should address the improvement of accounting skills in the SME sector as a matter of urgency. Some caveats of this research was the fact that only experts were used in the empirical study and that a representative sample of the entire SME sector was nor taken. A further caveat was that the study was confined to experts in KwaZulu-Natal only and not extended to the other

provinces. Further research could extend the study to all SME s, other provinces and investigate the potential of existing training initiatives to successfully address the insufficient accounting skills in the SME sector.

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Profit or No Profit—Does the SME Sector Really Know?

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Overcoming Barriers to Team Effectiveness

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Abstract

Teams have become an integral part of most organisations, to enhance co-ordination, co-operation, creativity and innovation, to empower individuals and to decrease overhead costs. The aim is to increase individual productivity, accomplish organisational goals and to gain and maintain a competitive position in terms of market share. However, these benefits of team-based work will only be realised if teams function effectively. Therefore, this study aims to assess the extent to which team goals/purpose, communication, decision-making, management support and team rewards act as facilitators or barriers to team effectiveness. The empirical analysis entailed data collection through the use of questionnaires, which were administered to a sample of 296 respondents, drawn using the stratified random sampling technique. Data was analysed using descriptive and inferential statistics. Qualitative data was also collected from managers using focus groups. Based on the results of the study, a model is generated which identifies the barriers to team effectiveness and presents recommendations for enhancing the effectiveness of teams.

Keywords: Barriers to team effectiveness, individual productivity, management support, organisational goals, team effectiveness, team goals, team organisation.

Problem Statement, Objectives and Research Questions

What is the prevalence and magnitude of the identified barriers to team effectiveness (lack of clarity of team goals/purpose, lack of efficiency and effectiveness of team communication and decision-making, lack of management support and lack of appropriate and salient team rewards) and what can be done to overcome these barriers?

The objectives of the study are:

- To determine the extent to which team goals/purpose, communication, decision-making, lack of management support and team rewards act as barriers to team effectiveness.
- To determine the extent to which team member perceptions of team effectiveness are influenced by biographical profiles (gender, age, race and tenure) respectively.
- To evaluate the impact of team goals/purpose, communication, decision-making, management support and team rewards on team effectiveness.
- To generate a model identifying barriers to team effectiveness and presenting recommendations to enhance the effectiveness of teams.

The research questions are:

- To what extent do team goals/purpose, communication, decision-making, lack of management support and team rewards act as barriers to team effectiveness?
- Are team member perceptions of team effectiveness influenced by biographical profiles (gender, age, race and tenure) respectively?
- What is the impact of team goals/purpose, communication, decision-making, management support and team rewards on team effectiveness?
- What are the barriers to team effectiveness and what can be done to minimize or overcome these obstacles?

Literature Survey

The nature of work in organisations has undergone fundamental changes

over the past few years. A significant percentage of organisations are now implementing team-based structures to help face the increasing levels of market competition and technological innovation (Sundstrom, 1999 cited in Chen & Klimoski, 2003). Thus, the use of teams has emerged as a popular phenomenon in organisations nationally and internationally and have become an integral part of them.

Teams form a vital link between the individual and the organisation because they attain tasks that cannot always be accomplished by individuals, merely as a result of the collective effort of a group of focused individuals (Schultz, Bagraim, Potgieter, Viedge & Werner, 2003). Hence, a team refers to two or more individuals who co-ordinate their activities and work together in order to attain a common purpose (Kozlowski & Ilgen, 2006). Diverse forms of teamwork exist for different purposes, such as, self-directed work teams, virtual teams, parallel teams, project teams and quality circles. Although the process by which a group of individuals develop into an effective, operational team is different in each situation, they typically form as a result of five stages, namely, forming or cautious affiliation, storming or competitiveness, norming or harmonious cohesion and performing or collaborative teamwork (Dufrene & Lenham, 2002). Once a team is formed, the group energy has the ability to take control and give direction and purpose to the team. Although, successful teams, somewhat instinctively, develop a system of checks and balances, managers, team leaders and members still have to assist these groups towards the most effective practices. This is imperative as team efficiency has a fundamental impact on the performance and the competitiveness of any business (Steinmann, 2000). An increasing number of organisations have discovered that changing to team-based work has had far-reaching effects (Hayes, 2002; Williams, 1997; Delarue, Hootegem, Procter & Burridge, 2008). In addition, teams are a powerful management tool. They directly involve employees in decision-making, thereby increasing the power of employees in the organisation. They also improve the flow of information between employees and managers, thereby increasing employee satisfaction, organisation productivity and product quality. However, not all organsiations benefit from a team-based approach and numerous contingency factors are likely to affect the work team's functioning. These include team selection (individual traits, team size, team composition, team stability, should team members be

selected or trained, predicting team productivity)(Rabey, 2001), task design (workload/time constraints, team architecture/structure, technology) and training (teambuilding to facilitate team co-ordination) (Paris & Salas, 2000).

The effectiveness of a team may be determined by:

- task completion in relation to its accuracy, speed, creativity and cost,
- team development in terms of cohesiveness, flexibility and preparedness for new tasks and,
- stakeholder satisfaction referring to customer satisfaction and team satisfaction and other teams' satisfaction with the team's procedures and outputs (Hellreigel, Jackson, Slocum, Staude, Amos, Klopper, Louw & Oosthuizen, 2001).

Several variables impact on the performance of a team. Whilst Champion and Papper (1996) are of the opinion that effectiveness is determined by productivity and satisfaction, Cohen and Bailey (1997) argue that effectiveness should be measured in terms of performance, attitudinal and behavioural indicators. Overall, researchers believe that effectiveness is deduced through:

- team design relating to team size (Hellreigel *et al.*, 2001; Naude, 2001), educational level (Cohen & Bailey, 1997), age diversity (Farren, 1999), cultural diversity (Hambrick, Davison, Snell & Snow, 1998; Shachaf, 2008), heterogeneity (Champion & Papper, 1996; Cohen & Bailey, 1997) and diversity in terms of talents and contributions of all individuals (Chisholm-Burns, 2008).
- task design in terms of clear goals and purpose (Doolen, Hacker & Van Aken, 2003; Axelrod, 2002; Ulloa & Adams, 2004), employee attitudes (Kiffin-Petersen & Cordery, 2003), meaningfulness (Kirkman & Rosen, 2000), autonomy (Janz & Jason, 1997), responsibility (Shea, 1995), time pressure (Janz & Jason, 1997) and team rewards (Alpander & Lee, 1995; Dufrene & Lenham, 2002; Paris & Salas, 2000; Cox & Tippett, 2003).

- team tenure relating to age (Gellert & Kuipers, 2008), race (Baugh & Graen, 1997), gender (Devine & Clayton, 1999).
- team behaviour in terms of cohesion (Nelson & Quick, 2000), communication (Cox & Tippett, 2003; Doolen *et al.*, 2003; Ulloa & Adams, 2004), decision-making (Williams, 1997; Truter, 2003; Bunderson, 2003), management support (Daily & Bishop, 2003; Fedor, Ghosh, Caldwell, Maurer & Singhal, 2003) and team leadership (Frost, 2001; Bowen & Edwards, 2001; Sanders & Schyns, 2006).

Evidently, whilst a multitude of factors may influence the effectiveness of a team, this study aims to assess the impact of team goals/purpose, communication, decision-making and, management support and team rewards on team effectiveness. Research indicates that teams with clear goals/purpose that is aligned with organisational goals experience satisfaction (Doolen *et al.*, 2003; Axelrod, 2002; Fleming & Monda-Amaya, 2001; Taylor & Snyder, 1995; Yeatts & Barnes, 1996). Cox and Tippet (2003) add to this the importance of effective communication by leaders and management and Sidler and Lifton (1999) propose that open and clear communication is the first step towards maintaining team effectiveness and team performance (Stout, Salas & Fowlkes, 1997; McDowell & Voelker, 2008). In addition, teams need to become completely involved in the decision-making process in order for them to reach their full potential and to be optimally effective. Collaboration amongst team members ensures decision-making through consensus as well as sharing responsibility for the results (Lessard, Morin & Sylvain, 2008). Furthermore, managers can readily influence and control the design of teams to increase the possibility of positive outcomes. They can ensure that teams have adequate information access, that their membership is represented by diverse job functions and administrative backgrounds, and that the correct number of members are assigned to each team, with the right sets of skills, namely, people with technical expertise, people with problem-solving and decision-making skills and people with good listening, feedback, conflict resolution as well as other interpersonal skills (Anonymous, 2008; Chiu, 1999). According to Penstone (1999), good leaders play a supportive role, encouraging individual development and nourishing talent. Undoubtedly, a good reward system can

assist companies in assuring employees that their commitment to teamwork is real (Sheen, 1998; Mohrman, Cohen & Mohrman, 1995).

Research Methodology

A cross-sectional, formal study was undertaken to determine the extent to which the identified barriers to team effectiveness, namely, unclear goals/purpose, unclear communication, ineffective decision-making, lack of management support and lack of appropriate team rewards, exist. The goal is to present gateways or recommendations for overcoming these barriers.

Data Collection

The sample comprised of employees of a large communications Core Network Operations department in the KwaZulu-Natal region. The sample of 296 was drawn from a population of 412 employees using a stratified random sampling technique whereby the sample was proportionately stratified based on tenure, which was assumed to influence perceptions of team effectiveness. The sample comprised of 94.6% of males and only 5.4% of females due to the highly technical nature of the job. The majority of the subjects were 40 to 49 years old (58.1%), followed by those in the 30 to 39 years age group (21.6%), then those between 20 to 29 years (10.8%) and lastly, those who are 50 years and over (9.5%). The majority of employees are White (41.9%), closely followed by Indian (39.5%), then Black (18.2%) and only 0.4% of Coloured employees. The disparate racial composition is probably due to the fact that more Whites and Indians were in possession of the entry level qualifications in the past. The majority of subjects worked in the company for 16 years and more (41.2%), followed by those with tenures of 8 to 11 years (23.6%), 4 to 7 years (16.9%), 12 to 15 years (16.2%) and 0 to 3 years (2%). The high percentage of employees with long service in the organisation may be due to the job security and fringe benefits that this organisation offers. Tenure therefore, has the potential to impact on the perceptions of team effectiveness as these employees have worked in a team-orientated environment for a long period of time.

Furthermore, 34 managers making up the consensus were interviewed as part of a focus group session to brainstorm perceived barriers to team effectiveness.

Measuring Instrument

Data was collected using a self-developed, self-administered, pre-coded questionnaire, which comprised of two sections, namely, biographical data and the actual Team Effectiveness Questionnaire. Biographical data requested related to gender, age, race and tenure and was measured on a nominal scale using option categories. The Team Effectiveness Questionnaire comprised of 46 items which clustered into 5 sub-dimensions which were measured on a 1-5 point Likert scale ranging from strongly disagree (1) to strongly agree (5):-

- Clarity of goals/purpose of team (items 1 to 9)
- Efficiency and effectiveness of communication of team (items 10 to 14)
- Efficiency and effectiveness of decision-making of team (items 15 to 24)
- Managing support that the team receives (items 25 to 34)
- Team rewards (items 35 to 46)

An open-ended question was included at the end of the questionnaire to allow expression of thought regarding the sub-dimensions being measured.

Focus group interviews were also conducted with 34 managers regarding the perceived barriers to team effectiveness. The items included in the focus group interview closely resembled the items used to measure the sub-dimensions of the Team Effectiveness Questionnaire.

Procedure

After permission to undertake the study was received, the questionnaire was pilot tested on 15 employees and once it was established that the measuring instrument was clearly understood, it was administered to the sample over a 3 week period via e-mail as all employees had access. Thereafter, focus group sessions were conducted with 34 operational managers based on availability of groups.

Statistical Analysis

The psychometric properties of the questionnaire (validity and reliability) were statistically evaluated using Factor Analysis and Cronbach's Coefficient Alpha respectively. In computing the Factor Analysis, all values >0.5 were considered to reflect significant loadings and if an item loaded significantly on two factors, only that with the higher loading was considered (Table 1).

Table 1: Validity of Questionnaire determined using Factor Analysis

Item	Component				
	1	**2**	**3**	**4**	**5**
Q31	**0.806**	0.235	0.154	-0.018	0.088
Q34	**0.789**	0.235	0.422	0.194	-0.071
Q45	**0.759**	0.125	0.035	0.160	-0.105
Q46	**0.748**	0.120	0.129	0.136	-0.059
Q32	**0.708**	0.225	0.129	-0.211	0.202
Q27	**0.704**	0.355	0.120	0.094	0.114
Q33.2	**0.704**	0.265	-0.014	0.267	0.000
Q33.3	**0.704**	0.283	0.479	0.224	0.024
Q28	**0.684**	0.297	0.513	-0.146	0.168
Q33.7	**0.675**	0.306	0.025	0.321	0.138
Q30	**0.655**	0.318	0.439	-0.021	-0.067
Q9	**0.651**	0.580	0.496	0.039	-0.231
Q24	**0.641**	0.450	0.078	0.130	-0.326
Q14	**0.606**	0.564	0.336	0.154	-0.373
Q25	**0.596**	0.240	0.336	-0.102	0.119
Q43	**0.560**	0.148	0.037	0.404	0.365
Q33.8	**0.548**	0.344	0.490	0.407	0.129
Q33.4	**0.538**	0.344	0.051	0.330	-0.074
Q33.6	**0.538**	0.283	0.369	0.501	-0.002
Q36	**0.508**	0.277	0.447	0.507	0.252
Q39	**0.508**	0.157	0.321	0.495	0.316
Q13	**0.505**	0.469	0.253	-0.170	-0.313
Q33.5	0.491	0.378	0.201	0.414	0.043
Q6	0.228	**0.838**	0.242	0.122	-0.071
Q1	0.218	**0.803**	0.409	0.164	-0.072
Q12	0.203	**0.758**	0.185	0.167	-0.214

Q10	0.361	**0.741**	0.266	0.051	0.065
Q7	0.461	**0.725**	0.104	0.056	-0.023
Q8	0.294	**0.720**	0.336	-0.138	-0.114
Q2	0.213	**0.712**	0.402	-0.049	-0.057
Q4	0.332	**0.710**	0.286	0.101	-0.204
Q11	0.427	**0.702**	0.279	0.133	-0.079
Q3	0.342	**0.640**	0.455	0.071	-0.031
Q15	0.388	**0.534**	0.500	-0.137	0.122
Q19	0.085	**0.529**	0.251	0.239	0.375
Q35	0.412	**0.500**	-0.266	0.448	0.187
Q18	0.080	0.449	0.019	0.037	0.257
Q17	0.263	0.271	0.268	0.045	0.027
Q20	0.256	0.430	**0.716**	0.173	0.028
Q21	0.388	0.403	**0.664**	-0.137	-0.163
Q38	-0.200	0.146	**0.659**	0.223	-0.199
Q22	0.333	0.494	**0.654**	0.013	-0.105
Q5	0.196	0.611	**0.627**	-0.045	0.063
Q29	0.588	0.278	**0.614**	0.033	0.146
Q33.1	0.535	0.241	**0.555**	0.303	0.082
Q23	0.457	0.519	**0.528**	0.069	-0.048
Q40	0.087	0.015	-0.042	**0.720**	-0.075
Q42	0.049	-0.038	0.226	**0.558**	-0.035
Q16	0.057	-0.331	-0.134	0.486	-0.014
Q37	0.147	-0.164	-0.016	-0.369	0.014
Q41	-0.012	-0.195	0.050	-0.163	**0.712**
Q26	0.425	0.200	0.400	0.403	-0.461
Q44	0.057	-0.001	-0.070	0.063	0.418
Eigen-value	**12.407**	**10.590**	**7.070**	**3.829**	**2.223**
% of Total Variance	**23.41**	**19.98**	**13.34**	**7.22**	**4.19**

The Factor Analysis (Table 1) generated 5 factors with latent roots greater than unity. Table 1 indicates that 22 items load significantly on Factor 1 and account for 23.41% of the total variance with the majority of items relating to management support and hence, Factor 1 may be labeled as

management support given to the team. Thirteen items load significantly on Factor 2 and account for 19.98% of the total variance with the majority of items relating to **clarity of goals/purpose of teams** and is therefore, labeled likewise. Factor 3 has 8 significant loadings and account for 13.34% of the total variance with the majority of items relating to the **efficiency and effectiveness of decision-making of teams**. Factor 4 has 2 significant item loadings and account for 7.22% of the total variance and these items relate to **team rewards**. Factor 5 has 1 item that loads significantly and accounts for 4.19% of the total variance and relates to **team rewards**. Evidently, two factors (4 and 5) surfaced as **team rewards** whilst none surfaced as the efficiency and effectiveness of team communication as items relating to the latter were perceived as relating to management support and clarity of goals/purpose instead.

The Cronbach's Coefficient Alpha of 0.9728 (Table 2) reflected that the questionnaire has a very high level of inter-item consistency and that the items reliably measure team effectiveness.

Table 2: Reliability Estimate using Cronbach's Coefficient Alpha

Cronbach's Coefficient	**0.9728**

Data obtained from the questionnaires were analysed using both descriptive (frequencies, percentages, measures of central tendency and dispersion) and inferential statistics (correlation, t-test, ANOVA and multiple regression).

Data Analysis

Respondents were required to indicate the extent to which their teams had clear goals/purpose, engaged in clear communication and decision-making, received management support and appropriate and salient rewards respectively. The higher the mean, the greater the perception that the sub-dimensions was being realised (Table 3).

Table 3: Descriptive Statistics: Key dimensions determining team effectiveness

Sub-dimension of team effectiveness	**Mean**	**Variance**	**Std. Dev.**	**Maximum attainable score**
Clarity of team goals/ purpose	3.0931	0.835	0.91360	5
Efficiency and effectiveness of team communication	3.0541	0.978	0.98878	5
Efficiency and effectiveness of team decision-making	3.0216	0.621	0.78809	5
Management support given to team	2.4849	0.795	0.89176	5
Team rewards	2.5270	0.265	0.51459	5

Table 3 indicates that, in terms of team effectiveness, teams reflect that they have clear goals/purpose (Mean = 3.0931), followed by efficient and effective communication (Mean = 0.0541) and decision-making (Mean = 0.30216). Least gratifying for teams is the team rewards (Mean = 2.5270) and management support received (Mean = 2.4849). Although teams reflected that they have clarity of goals/purpose, there is room for improvement in each of these sub-dimensions of team effectiveness as the mean score values against a maximum attainable score of 5 reflects room for improvement. To assess exactly where the barriers are and where the improvement is needed in each one of the sub-dimensions, frequency analyses were computed.

In terms of **clarity of team goals/purpose**, 37.8% of the respondents indicated disagreement when it came to prioritizing goals. With regards to **efficiency and effectiveness of communication of teams**, 54% of the subjects felt that there is no proper communication between the team and other teams with the organisation, that is, inter-team communication. Regarding the barriers relating to **efficiency and effectiveness of decision-making of the teams**, 48.6% reflected that all team members need to participate in decision-making and 45.9% of the respondents felt that team members need to be involved in making decisions about setting goals and targets.

Several barriers with regards to **team rewards** were identified as follows:

- 83.8% of the respondents felt that employees are not rewarded promptly when they do an exceptional job.
- 83.8% of the respondents do not feel motivated to perform better by the current team award system.
- 81% of the respondents felt that the current method of rewarding good performance through team awards is unsatisfactory.
- 81% of the respondents felt that team members do not feel recognised for their job performance within the team.
- 59.4% of the employees felt that they are not adequately rewarded for good performance within their team.

Significant barriers surfaced with regards to **management support to teams**:

- 72.9% of the respondents indicated that communication from senior management is not frequent enough.
- 62.1% highlighted management's lack of regular feedback to the team about its progress.
- 59.4% reflected management's lack of communication regarding the performance of teams.
- 54% of the respondents felt that team members lack the resources, information and support that they need from management.
- 51.3% reflected management's lack of value for individuals as assets.

The sub-dimensions determining team effectiveness were inter-correlated to assess whether they relate to each other.

Hypothesis 1

There exists significant inter-correlations amongst the sub-dimensions determining team effectiveness (clarity of goals/purpose, efficiency and effectiveness of communication of teams, efficiency and effectiveness of decision-making of the teams, management support to teams, team rewards) respectively (Table 4).

Table 4: Intercorrelations amongst sub-dimensions determining team effectiveness

Sub-dimensions determining team effectiveness	r / **p**	Clarity of goals/ Purpose	Efficiency & effectiveness of communication of teams	Efficiency & effective-ness of decision-making of teams	Mngt. support of teams	Team re-wards
Clarity of goals/purpose	r **p**	1				
Efficiency & effectiveness of communic-ation of teams	r **p**	0.932 **0.000****	1			
Efficiency & effectiveness of decision-making of teams	r **p**	0.820 **0.000****	0.800 **0.000****	1		
Mngt. support of teams	r **p**	0.756 **0.000****	0.747 **0.000****	0.809 **0.000****	1	
Team rewards	r **p**	0.488 **0.000****	0.490 **0.000****	0.551 **0.000****	0.741 **0.000****	1

****p < 0.01**

Table 4 indicates that there exists significant inter-correlations amongst the key sub-dimensions determining team effectiveness (clarity of goals/purpose, efficiency and effectiveness of communication of teams, efficiency and effectiveness of decision-making of the teams, management support to teams, team rewards) respectively at the 1% level of significance. Hence, hypothesis 1 may be accepted. The implication is that any improvement in each of the dimensions determining team effectiveness has the potential to have a snowballing effect thereby enhancing team effectiveness exponentially.

The impact of the biographical variables on perceptions of the effectiveness of teams was also evaluated in order to obtain biographical correlates.

Hypothesis 2

There is a significant difference in the perceptions of employees varying in biographical profiles (gender, age, race, tenure) regarding the effectiveness of their teams in terms of each of the sub-dimensions (clarity of goals/purpose, efficiency and effectiveness of communication of teams, efficiency and effectiveness of decision-making of the teams, management support to teams, team rewards) respectively (Tables 5-8).

Table 5: t-test and Post-Hoc Scheffe's Test - Gender

Sub-dimensions determining team effectiveness	**t-test for equality of Means**		**Post-Hoc Scheffe's Test**		
	t	**P**	**Sub-groups of gender**	**Mean**	**Standard deviation**
Clarity of goals/purpose	-2.350	**0.019***	Male Female	3.0635 3.6111	0.90908 0.86066
Efficiency and effectiveness of communication of teams	-0.606	0.545	-	-	-
Efficiency and effectiveness of decision-making of the teams	-2.251	**0.025***	Male Female	2.9971 3.4500	0.77060 0.98116
Management support to teams	-0.476	0.634	-	-	-
Team rewards	0.548	0.584	-	-	-

***p < 0.05**

Table 5 indicates that there is a significant difference in the perceptions of male and female employees regarding the clarity of goals/purpose and efficiency and effectiveness of decision-making of their teams respectively at the 5% level of significance. In order to assess exactly where these differences lie, a Post-Hoc Scheffe's Test was conducted and it was found that females displayed greater confidence that their teams had clarity of goals/purpose and engaged in efficient and effective decision-making respectively than males. No other significant differences were noted

in terms of gender. Hence, hypothesis 2 may only be partially accepted in terms of gender differences.

Table 6: ANOVA and Post-Hoc Scheffe's Test - Age

Sub-dimensions determining team effectiveness	**ANOVA**		**Post-Hoc Scheffe's Test**		
	F	**P**	**Sub-groups of age in years**	**Mean**	**Standard deviation**
Clarity of goals/purpose	9.929	**0.000****	20-29 30-39 40-49 50+	2.9722 2.8056 3.0956 3.8730	1.38806 0.92645 0.77021 0.55077
Efficiency and effectiveness of communication of teams	6.231	**0.000****	20-29 30-39 40-49 50+	3.1500 2.8000 3.0209 3.7286	1.26389 0.97720 0.92022 0.78356
Efficiency and effectiveness of decision-making of the teams	1.404	0.242	-	-	-
Management support to teams	5.771	**0.001****	20-29 30-39 40-49 50+	2.1618 2.4191 2.4747 3.0672	0.64973 0.76986 0.94849 0.79820
Team rewards	17.315	**0.000****	20-29 30-39 40-49 50+	2.0208 2.4167 2.6337 2.7024	0.29558 0.33858 0.53580 0.51989

****p < 0.01**

Table 6 indicates that there is a significant difference in the perceptions of employees varying in age regarding their teams' clarity of goals/purpose, efficiency and effectiveness in communication and the management support and rewards given to teams respectively at the 1% level of significance. In order to assess exactly where these differences lie, the Post-Hoc Scheffe's Test was conducted and it was noted that:-

- Older employees (>40 years) viewed the team as having clear goals/purpose as opposed to younger employees (<40years).
- Older employees (>50 years) perceived their teams as engaging in efficient and effective communication as opposed to younger employees (<50 years).
- Older employees (>40 years) perceived management support and team rewards in a more positive view than younger employees (<40 years).

Overall, younger employees have a more negative view of their teams' effectiveness and management support and team rewards than older employees do.

Table 6 also reflects that there is no significant difference in the perceptions of the teams' efficiency and effectiveness in engaging in decision-making. Hence, hypothesis 2 may only be partially accepted in terms of age differences.

Table 7: ANOVA and Post-Hoc Scheffe's Test - Race

Sub-dimensions determining team effectiveness	**ANOVA**		**Post-Hoc Scheffe's Test**		
	F	**P**	**Sub-groups of race**	**Mean**	**Standard deviation**
Clarity of goals/purpose	12.735	**0.000****	Black White Indian	3.2531 2.7885 3.3343	0.90484 0.78904 0.95476
Efficiency and effectiveness of team communication	15.265	**0.000****	Black White Indian	3.3926 2.6984 3.2684	0.95638 0.87141 1.01171
Efficiency and effectiveness of team decision-making	16.132	**0.000****	Black White Indian	3.2926 2.7298 3.1974	0.69169 0.69773 0.82467
Management support to teams	25.383	**0.000****	Black White Indian	2.9346 2.0930 2.6828	0.92252 0.72620 0.87458
Team rewards	18.377	**0.000****	Black White Indian	2.7546 2.3306 2.6218	0.59752 0.34807 0.54706

****p < 0.01**

Table 7 indicates that there is a significant difference in the perceptions of employees varying in race regarding each of the sub-dimensions determining team effectiveness (clarity of goals/purpose, efficiency and effectiveness of communication of teams, efficiency and effectiveness of decision-making of the teams, management support to teams, team rewards) respectively at the 1% level of significance. Hence, hypothesis 2 may be accepted in terms of race differences. In order to determine exactly where these differences lie, a Post-Hoc Scheffe's Test was conducted and the results indicate that:

- Black and Indian employees have a more positive view of their teams in terms of clarity of goals/purpose, efficiency and effectiveness of communication and decision-making as well as of management support and team rewards respectively, than their White counterparts.

Table 8: ANOVA and Post-Hoc Scheffe's Test - Tenure

Sub-dimensions determining team effectiveness	**ANOVA**		**Post-Hoc Scheffe's Test**		
	F	**p**	**Sub-groups of tenure in years**	**Mean**	**Standard deviation**
Clarity of goals/purpose	11.168	**0.000****	0-7 8-11 12-15 16+	3.4683 2.6222 3.2917 3.1129	1.04290 0.88857 0.75032 0.81374
Efficiency and effectiveness of communication of teams	8.123	**0.000****	0-7 8-11 12-15 16+	3.4786 2.6571 3.2000 3.0295	1.08857 0.85949 0.88294 0.96814
Efficiency and effectiveness of decision-making of the teams	3.532	**0.015***	0-7 8-11 12-15 16+	3.2679 2.8314 3.1042 2.9852	1.03715 0.57522 0.79331 0.73425
Mangt. support to	1.872	0.134	-	-	-
Team rewards	4.382	**0.005****	0-7 8-11 12-15 16+	2.4048 2.4024 2.6042 2.6243	0.49016 0.58959 0.40843 0.49553

***p < 0.05 **p < 0.01**

Table 8 indicates that there is a significant difference in the percep-

tions of employees varying in tenure regarding clarity of goals/purpose of their teams, efficiency and effectiveness in their teams' communication and team rewards respectively at the 1% level of significance. In addition, there is a significant difference in the perceptions of employees varying in tenure regarding the efficiency and effectiveness of their teams' decision-making at the 5% level of significance. In order to assess exactly where these differences lie, the Post-Hoc Scheffe's Test was conducted and the results indicate that:-

- Employees with tenure of 0-7 years have the most positive view of their teams' clarity of goals/purpose, efficiency and effectiveness in communication and decision-making but are unhappy with team rewards.
- Employees with tenure of 8-11years are most unhappy with their teams in terms of clarity of goals, communication, decision-making and, team rewards.
- Employees with tenure of 12-15years hold a fairly positive and consistent view of their teams across all four sub-dimensions determining team effectiveness.

Table 8 also indicates that there is no significant difference in the perceptions of employees varying in tenure regarding management support to teams as all sub-groups have a fairly negative view of management support to teams. Hence, hypothesis 2 may only be partially accepted in terms of differences based on tenure.

The extent to which the clarity of goals/purpose, efficiency and effectiveness of communication of teams, efficiency and effectiveness of decision-making of the teams, management support to teams and team rewards impact on team effectiveness respectively was measured using multiple regression (Table 9).

Hypothesis 3

The respective sub-dimensions of clarity of goals/purpose, efficiency and effectiveness of communication of teams, efficiency and effectiveness of decision-making of the teams, management support to teams and team

rewards significantly account for the variance in determining team effectiveness.

Table 9: Multiple Regression - Impact of sub-dimensions of team effectiveness

Model	**R**	**R Square**	**Adjusted R Square**
1	0.931	0.868	0.867
Model	**Unstandardized Coefficients**		**Standardized Coefficients**
	B	**Std. Error**	**Beta**
(Constant)			
Clarity of goals/purpose	0.200	0.000	0.250
Efficiency and effectiveness of communication of teams	0.200	0.000	0.270
Efficiency and effectiveness of decision-making of teams	0.200	0.000	0.216
Management support to teams	0.200	0.000	0.244
Team rewards	0.200	0.000	0.141

a. Dependent Variable: Team Effectiveness

Table 9 indicates that the five sub-dimensions (clarity of goals/purpose, efficiency and effectiveness of communication of teams, efficiency and effectiveness of decision-making of the teams, management support to teams and team rewards) significantly account for 86.7% (Adjusted R Square = 0.867) of the variance in determining team effectiveness. The remaining 13.3% may be due to factors that lie beyond the jurisdiction of this study. Whilst the five dimensions impact significantly on team effectiveness, they do so in varying degrees as reflected in the beta loadings in Table 9, which in descending level of impact on team effectiveness are:-

- Efficiency and effectiveness of communication of teams (Beta = 0.270)
- Clarity of goals/purpose (Beta = 0.250)
- Management support to teams (Beta = 0.244)
- Efficiency and effectiveness of decision-making of teams (Beta = 0.216)
- Team rewards (Beta = 0.141)

Qualitative Analyses

The results of the focus group discussions revealed the following barriers to team effectiveness as perceived by managers:-

- Insufficient time spent with employees out at site due to workload results in the lack of visibility of operational managers with employees and leads to negative perceptions and a feeling of disinterest in what employees do.
- Workload forces operational managers to delegate at least one operational staff to assist with spares and store management thus, impacting on productivity and possibly affecting team targets for the year.
- The company's handling of gainshare issues and reasonable salary increases does affect employees to such an extent that a large percentage of the staff work with no commitment and dedication. Furthermore, employees begin to view the company negatively.
- Lack of skills of some staff due to restructuring can hamper the accomplishment of team goals as it can take up to three years for staff to gain enough experience.
- Negative attitudes of team members may result due to the way in which the company handles sensitive issues, such as, gainshare, Performance Development Management System (PDMS), spares availability.
- Operating systems that do not work are not realistically accepted.
- Staff grievances are sometimes not listened to.

- Rewards are sometimes not equitably allocated.
- Communication problems exist in some groups.
- Targets are not effectively measured and rewarded to teams and team members.
- The importance of customer-focus and customer satisfaction is not sufficiently reiterated as team goals.

Answers to Research Questions

The results of the study were compared and contrasted with that of other studies so as to add value to its perspective and applicability.

Clarity of Goals/Purpose

Employees perceived their teams as having clear goals/purpose (Mean = 3.0931). In fact, from the sub-dimensions studied, clarity of goals/purpose of the team was seen in the most positive light. Similarly, research conducted by Fleming & Monda-Amaya (2001), in a Delphi study of wraparound team members, revealed that the highest rated item related to the team having a clear purpose. The clear goals category was rated second highest. Other items that were rated high in Fleming & Monda-Amaya's (2001) study included goals that were understood by all members, established by the team, modifiable and regularly reviewed. Likewise, research indicates that clear goals are important for establishing and developing an effective team (Axelrod, 2002; Taylor & Snyder, 1995; Fleming & Monda-Amaya, 2001). However, in the current study, the mean score value (3.0931) against a maximum attainable score of 5 indicates that there is room for improvement in the degree of clarity of team goals/purpose. Gordon (1996) advocates that the lack of a clear performance-related goal as the main focus of the team is a serious cause of team failures. Doolen et al. (2003) emphasizes that when management process associated with establishing a clear team purpose is aligned with organisational goals and the allocation of essential resources, team members experience increasing satisfaction.

In the current study, 37.8% of the respondents indicated that their teams did not effectively prioritize team goals. Teams may prioritize goals based on their perceived importance but it must be noted that methods of

prioritization may be impacted upon by, interalia, time and resource constraints (Team goals, 2005).

Research conducted by Yeatts and Barnes (1996) focussed on two teams, namely, the Section 8 Team and the Sales Team. This study reflected that the Section 8 Team members had clear, specific goals and measures of these, which took the form of monthly reports displaying, for example, the number and accuracy of verifications completed. These reports helped the team to maintain its focus on what was important, and to make team decisions that would enhance the team's ability to heighten its performance. Weekly meetings proved to be an excellent vehicle for establishing and clarifying team goals. Contrary to this, Yeatts and Barnes (1996) found that the Sales Team did not have measurable goals. Hence, team members were sometimes unsure of what they could do to help the team perform at a high level and spent their time doing things that were not directed to accomplishing the team goal.

Efficiency and Effectiveness of Team Communication

Although employees displayed a fair degree of confidence that their teams engage in efficient and effective communication, the mean score value of 3.0541 against a maximum attainable score of 5 indicates that there is room for improvement in this regard. This would be imperative as Sidler and Lifton (1999) propose that open and clear communication is the first step towards maintaining team effectiveness in both decision-making and conflict. In the current study, 54% of the respondents felt that there is no proper communication between the team and other teams within the organisation, that is, inter-team communication. According to Doolen et al. (2003), an organisational culture that encourages communication and co-operation between teams and the integration of teams was found to have a significant and positive linear relationship with two different team leader ratings of effectiveness and with team member satisfaction. Several studies have shown positive relationships between effective team communication and team performance (Oser, Prince, Morgan & Simpson, 1991 cited in Stout *et al.*, 1997).

Efficiency and Effectiveness in Decision-making

Although employees displayed a reasonable degree of confidence that their teams engage in efficient and effective decision-making, the mean score value of 3.0216 against a maximum attainable score of 5 indicates that there is room for improvement in this regard. This is essential because teams need to become completely involved in the decision-making process in order for them to reach their full potential and to be optimally effective. Furthermore, teams need to become more responsible in the daily managing of their work as opposed to just executing their daily work (Williams, 1997; Truter, 2003).

According to research (Brass, 1984; Finkelstein, 1992; Hambrick, 1981; Ibarra, 1993 each cited in Bunderson, 2003), patterns of intra-team decision involvement are strongly influenced by the formal positions that team members are in. More especially, team members who are in positions involving control over vital resources or dealing directly with primary task uncertainties are likely to be more involved in decision-making (Finkelstein, 1992; Hambrick, 1981 each cited in Bunderson, 2003). Furthermore, research has indicated that decision involvement is greater for team members who are more educated (Ibarra, 1993 cited in Bunderson, 2003) or who have more prestigious backgrounds (Finkelstein, 1992; Ibarra, 1993 each cited in Bunderson, 2003). The above findings propose that team members whose functional backgrounds allow them to contribute expertise and support to their team's decision process will be more involved in decision-making (Bunderson, 2003).

In the current study, regarding the barriers relating to efficiency and effectiveness of decision-making of the teams, 48.6% of the respondents reflected that all team members need to participate in decision-making and 45.9% of the respondents felt that team members need to be involved in making decisions about setting goals and targets. Flood, Hannan, Smith, Turner, West and Dawson (2000) conducted research using data from 79 high technology firms in the United States and Ireland and found that consensus decision-making emerged as a significant predictor of perceived team effectiveness. Furthermore, Knight, Pearce, Smith, Olian, Sims, Smith and Flood (1999) found that groups employing consensual decision-making usually have greater levels of agreement and member satisfaction than those groups employing other decision-making techniques, such as, dialectical enquiry or devil's advocacy.

Management Support Received by Teams

Employees reflected that they were least happy with the management support that their teams received. This was clearly evident in the low mean score value (2.4849) for management support received by the team, which against a maximum attainable score of 5, depicts tremendous room for improvement. Specifically, the frequency analyses indicated that 72.9% of the respondents indicated that communication from senior management is not frequent enough and 62.1% highlighted management's lack of regular feedback to the team about its progress. Furthermore, 59.4% reflected management's lack of communication regarding the performance of teams and 54% of the respondents felt that team members lack the resources, information and support that they need from management. Undoubtedly, managers can influence and control the design of teams in such a way that it increases the possibility of positive outcomes.

Management support can encourage teams in other ways. When management supports outcomes and objectives for which teams are responsible, it sends a strong signal to team members about the significance of their teams and teamwork (Daily & Bishop, 2003). Research shows that team effectiveness has been found to be higher when the team receives more resources and support (Cannon-Bowers & Salas, 1997 cited in Fedor *et al.*, 2003).

Team Rewards

Employees displayed unhappiness with the rewards that the teams and team members received and this was evident in the low mean score value of 2.5270, which against a maximum attainable score of 5 indicates that there is substantial room for improvement in this regard. Specific barriers to team effectiveness were identified in the frequency analyses where 83.8% of the respondents indicated that they do not feel motivated to perform better by the current team award system and 81% felt that the current method of rewarding good performance through team awards is unsatisfactory. In addition, 81% of the respondents felt that team members do not feel recognised for their job performance within the team and 59.4% of the employees felt that they are not adequately rewarded for good performance within their team.

These results possibly surfaced because most reward and recognition systems for work teams stems from the premise that uniform rewards for all team members are good for teamwork and that individual recognition and rewards are detrimental to teams. It is important that the organisation examines the extent to which its reward and recognition system motivates individual, team and organisational performance improvement (Alpander & Lee, 1995). Organisations utilising a team structure found that performance appraisals should reward team accomplishments, not just individual contributions and that the company should have systems in place to measure and assess the effectiveness of team development (Dufrene & Lenham, 2002). A survey was conducted on the Engineering and Support Center, Huntsville's (NC) workforce in order to assess employee opinions and attitudes about teams and the team reward process. The survey focussed on measuring support for the idea of rewards and recognition for individual contributions to teams as opposed to a uniform team reward process. The results of this survey reflected strong support for the notion that people should be rewarded for individual contributions to the work team. This result supports the American archetype for teams, which focuses on individual achievement and success as the key to effective teams (Cox & Tippett, 2003).

Researchers argue that team members should take complete responsibility for the success or failure of work, and that the behaviour of the whole team decides the performance and rewards of members (Mohrman *et al.*, 1995). Hence, the team must influence its performance by changing behaviour and, team rewards may be used to reinforce behaviour which leads to effective teamwork (CIPD, 2008).

Intercorrelations Amongst the Sub-dimensions Determining Team Effectiveness and, Biographical Correlates

The sub-dimensions of clarity of goals/purpose, efficiency and effectiveness of communication of teams, efficiency and effectiveness of decision-making of the teams, management support to teams and team rewards significantly inter-correlate with each other. The implication is that any improvement in even one sub-dimension has the potential to have a rippling effect to result in enhanced team effectiveness. Hence, we may conclude that an improvement

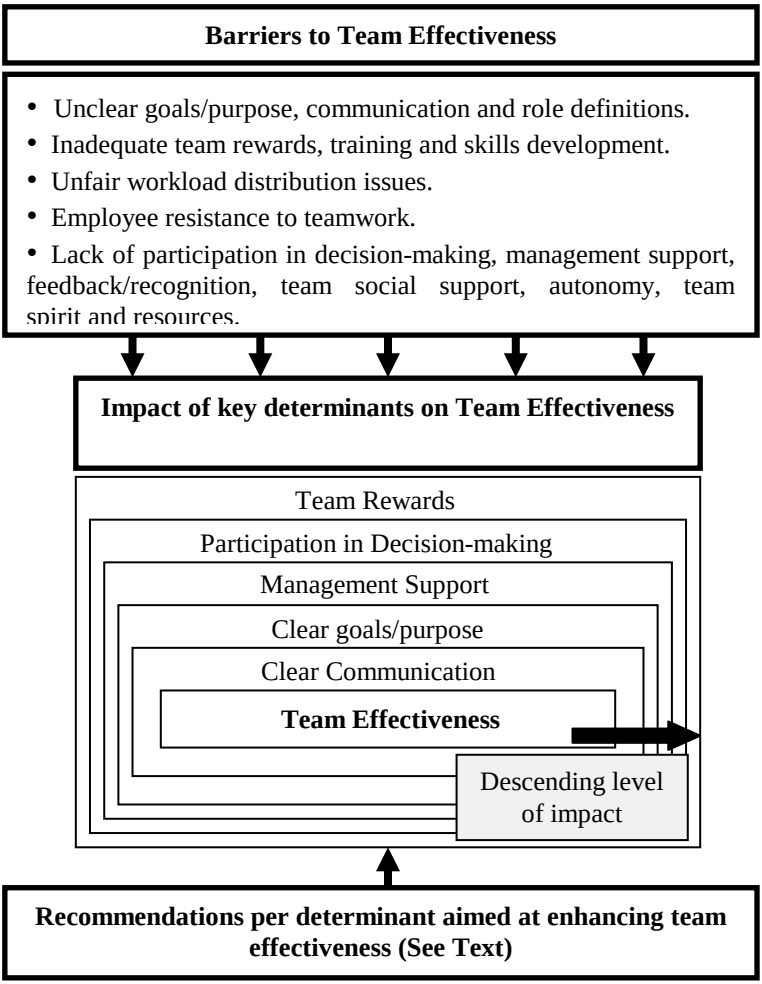
in each of the sub-dimensions will have a snowballing and positive impact on overall team effectiveness.

The biographical correlates indicating the influence of gender, age, race and tenure indicate that careful cognisance must be given to biographical profiles of individuals when the composition of teams are being determined. Evidently, from the results of the current study, biographical variables influence employee perceptions of teams and their functioning relating to the sub-dimensions determining team effectiveness, particularly with regards to age, race and tenure rather than gender.

Recommendations

As a result of the quantitative and qualitative analyses undertaken, this study has identified several barriers to team effectiveness as reflected in Figure 1. Furthermore, Figure 1 depicts the impact of the sub-dimensions on team effectiveness based on the results of the multiple regression analyses, with efficiency and effectiveness of communication of teams being at the innermost part of the figure indicating its greatest impact on team effectiveness. Likewise, based on the results of the multiple regression analysis, team rewards lies in the outmost segment as it is perceived to have the least impact on team effectiveness. Hence, as one progresses from the innermost segment to the outermost segment the impact of the dimensions on team effectiveness diminishes as indicated by the black arrow (Figure 1).

Figure 1: Barriers to Team Effectiveness and impact of key determinants



Based on the results of the study the following recommendations are presented for each determinant of team effectiveness in order of impact:

In order to enhance communication within teams, it is important to take cognisance of the following:

- Frequent communication between employees and managers is essential – regular meetings ensure face-to-face interaction.
- An atmosphere of friendliness/openness should be created and nurtured so that employees feel free to discuss issues that are of concern to them.
- It is imperative that management follow through on promises made to employees and play an active role in resolving problematic issues.
- Give employees an opportunity to suggest ways to improve current communication within the organisation.
- Weekly or monthly newsletter or brochures should be disseminated to create an awareness of new or current occurrences within the company so that employees do not feel alienated from the organisation.
- Develop ways in which team members and management get to know each other better.
- All team members should accept responsibility for the communication process.
- Feedback on performance must be regular, timely, clear and objective.
- Adopt an open door policy to encourage employees to speak to superiors/team leaders so as to improve trust and reduce stress.
- Hold quarterly feedback sessions with team members to discuss problems and exchange relevant information.
- Encourage peer coaching, information sharing and developmental feedback in teams.

The team's goals/purpose may be improved by ensuring the following:

- Goals and targets need to be set in consultation with employees.
- Goals must be specific, measurable, attainable and relevant.
- Goals/purpose need to be agreed upon and understood by each employee – clear positive communication ensures that team members fully understand team goals.
- Employees need to be made aware of the purpose of the team.

- Regular team meetings ensure regular feedback and identification of discrepancies towards goal accomplishment.
- Evaluation sessions ensure that all team members have the same understanding of team goals/purpose.

Management support can contribute effectively to team effectiveness, when cognisance is given to the following:

- Regular meetings should be held with the team leader and manager to identify and resolve any problems.
- Follow-up meetings should be scheduled to check whether problems have been addressed.
- Suggestions from employees should be considered.
- Provide opportunities for education, training and integration of new practices.
- Create a climate within which members can challenge long-standing, outdated practices.
- Develop clarity of the nature/purpose of tasks and reinforce this regularly within the team.
- Develop a sense of pride among team members, for example, by giving challenging tasks, recognition of performance, feedback, guidance, responsibility for decision-making.
- Plan regular team-building activities with employees so that they will be able to get to know and respect one another.
- Management should provide employees with the necessary resources required to perform their jobs.

Team participation in decision-making is imperative and cognisance may be given to the following:

- There should be increased employee involvement and participation in decision-making as this encourages ownership of company goals.
- Encourage equal participation and joint decision-making.
- Assign personal tasks/objectives that are aligned with team goals/objectives. Evaluate these on a regular basis.
- Ensure that team members develop a clear understanding of their task role and contribution to the team.

- Involve all relevant stakeholders, more especially, employees and union representatives when major decisions need to be made regarding the organisation.
- Encourage teamwork and co-operation.
- Team members must be able to identify problems, examine alternatives, and make decisions.
- Create a platform for employees to air their grievances and encourage union participation/involvement.
- Create a platform for employees to contribute to decision-making.

Taking cognisance of the following aspects of team rewards can contribute to team effectiveness:

- Ensure equitable rewards that are consistent with performance as this results in high levels of employee satisfaction.
- Management should structure rewards such that an employee's good performance is recognised.
- Employees should be given incentives and rewards to good effort as this improves individual and group performance.
- Rewards should be structured according to who the best team is or which team has exceeded their targets for the month.
- Rewards, such as, pay and promotion, can reinforce employee involvement when they are linked directly to performance outcomes.

The aforementioned recommendations are aimed at enhancing each of the sub-dimensions determining team effectiveness so that each could have a positive and rippling effect on the other thereby, ultimately enhancing team effectiveness.

Conclusion

Teams have become a cornerstone of modern organisations, and knowledge pertaining to the factors that contribute to team performance have widespread implications for organisations aiming to improve team effectiveness (De Dreu, 2002). The question of how to work and sustain

individual and team effectiveness is a core challenge for organisations. Thus, the model proposed in this study can contribute to, and serve as, reparation for this contemporary challenge.

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Contemporary Challenges to Knowledge Management in Higher Education: A Gateway to Excellence and Innovation in Africa

Fikile Mazibuko

Abstract

This article focuses on contemporary challenges to knowledge management (KM) in an African higher education setting. Issues around Eurocentric and Indigenous Knowledge and the detrimental effects of apartheid education are problematised. The idea of relevant knowledge in African universities is analysed, with emphasis on indigenous approaches to knowledge management. It is argued that the merging of universities in post-apartheid South Africa is part and parcel of the national attempts at consolidating the strength of universities so that they could become effective agencies of socio-economic and political transformation. Finally, it is concluded that the promotion of organizational culture is inseparable from the ongoing transformation of African universities.

Keywords: Apartheid, business management, colonialism, globalization of knowledge, higher education in South Africa, Indigenization, knowledge management, neo-liberal capitalism, organizational culture.

Introduction

Since the end of colonialism, African universities have often been accused of being institutions that remain seedbeds for the cultivation and dissemination

of European and American perceptions and cultural values. Within post-colonial African scholarship, the question of the nature of the knowledge our tertiary institutions produce and the dissemination of this knowledge, have similarly been a complex source of ongoing debates among scholars in our many disciplines. Since many of our African universities have been established in terms of the organizational paradigm of the home university in the colonizing country, this managerial legacy is similarly not helpful. Ali Mazrui says in this regard,

> … in most African countries the institution of the university itself is one large piece of Western culture transmitted to an alien society. A number of universities in former British Africa were initially overseas extensions of the University of London and awarded London University degrees. One or two universities in former French Africa are still, at least partially, part of the French university system. Louvanium University in what is now Zaire also began as an extension or subsidiary of Louvain in Belgium (Mazrui 1999: 200).

Mazrui's observation is that the colonizers' colonial connection went through the African universities, making the African university 'one large piece of Western culture transmitted to an alien society' and by implication, a transmitter of western culture and values. Such an observation is critical because it raises the question of the relevance of knowledge which these African universities are producing and disseminating. It is my contention that it is especially through appropriate knowledge management strategies and practices that contemporary knowledge production at the African universities can become a gateway to excellence and innovation in the continent. This is a critical to effective socio-economic transformation.

In South Africa Knowledge Management has evolved along the trajectory of the struggles for social justice, equality and democracy. Within the context of the apartheid era, knowledge management was about power and domination. The main instrument that facilitated the imposition of the apartheid oppressive machinery in South Africa was the dissemination of distorted knowledge. For example, the idea that the history of South Africa started with the arrival of white people from Europe, and that South Africa was a promised land for the Afrikaners, that it makes good economic sense to

have indigenous African people restricted to their homelands in which they can develop themselves economically and politically, became the foundational basis for the official knowledge systems and policies under apartheid. This type of knowledge was basically a colonizing knowledge or a knowledge that was disseminated with the specific aim of legitimizing and justifying apartheid and before this period, colonialism. This was one of the observations that were made by Franz Fanon (1963:51) when he stated that:

> The settler makes history and is conscious of making it. And because he constantly refers to the history of his mother country, he clearly indicates that he himself is an extension of that mother country. Thus the history which he writes is not the history of the country which he plunders but the history of his own nation ….

In this way, we can fairly say with impunity that it was through the type of knowledge that was disseminated at African universities that these institutions became the vehicle for the mental colonization even after the demise of colonialism and apartheid (Smith 2006: 555 - 569).

Within the apartheid society, knowledge was not something that was homogeneous. It was indeed compartmentalized on the basis of who should know what according to race. In this regard, certain types of knowledge systems were considered illegal to know and produce. The main type of knowledge that was deemed official knowledge was that type of knowledge that justified the inevitability and the inherent goodness of the apartheid system to the development of South Africa and to the perpetuation of the Christian religion. What was supposed to be known by Africans had to go through a process of censorship lest dangerous knowledge might spoil the innocent mind of the Africans! Access to resources at African universities made it an immortal fact that the knowledge that is disseminated at African university will remain inadequate as compared to that type of knowledge that was acquired and disseminated at white universities. With the demise of colonialism and apartheid in the case of South Africa, colonial knowledge systems have increasingly become questionable and in some cases, these knowledge systems are no longer entertained within the circles of decent academic debates.

In the light of the above concerns, this article is structured as follows. The first section gives a brief definition of knowledge management according to the concerns of this paper. The second section treats the idea of relevant knowledge in African universities with emphasis on indigenous approaches to knowledge management. In the third section, it will be argued that the merging of universities in post-apartheid South Africa is part and parcel of the national attempts at consolidating the strength of universities so that they could become effective agencies of socio-economic and political transformation. Lastly, the fourth section will look into knowledge management from the perspective of organizational culture, and argue that the promotion of organizational culture is inseparable from the ongoing transformation of the African university. Finally, I make some concluding remarks.

A Brief Definition of Knowledge Management

Fernandos Simoes (1998) defines knowledge management (KM) as that of 'building and exploiting intellectual capital effectively and gainfully'. Another definition by Nasseri (1999) says that KM is the '… name of processes that accumulate knowledge capital and leverage it to create value'. On the other hand, the State University of San Diego (1999) describes KM as 'about getting the right knowledge to the right people at the right time'. Here there is a common factor which these understandings of KM share. This common factor is an understanding of knowledge as a commodity which is acquired, developed and managed in a way that will eventually lead to the maximization of profits through successful marketization of products. In this regard, the discourse on knowledge reduces knowledge to something similar to any product or commodity that can be bought and sold with the intent to maximize profits. This is the type of argument which we find being advanced by critics of the global neo-liberal capitalism.

In a similar vein, we find Luc Boltanski and Eve Chiapello (2005: 57), ardent critics of neo-liberal capitalism arguing that the management discourse as we find it in disciplines such as business management is one of the main sites in which the spirit of capitalism is inscribed'. According to Boltanski and Chiapello:

> As the dominant ideology, the spirit of capitalism theoretically has the ability to permeate the whole set of mental representations specific to a given era, infiltrating political and trade-union discourse, and furnishing legitimate representations and conceptual schemas to journalists and researchers, to the point where its presence is simultaneously diffused and general.

These two authors went on to say that management discourse developed in the 1990s when it was realized that in order for the spirit of capitalism to flourish all over the world,

> management literature cannot be exclusively orientated towards the pursuit of profit. It was also to justify the way profit is obtained, give cadres arguments with which to resist the criticisms that are bound to arise if they seek to implement its abundant recommendations, and to answer the demands for justification they will face from their subordinates or [people from] other social arenas (Boltanski & Chapello 2005: 58).

The argument that is being proffered by Boltanski and Chiapello is that the management discourse as we find it in business management courses is intended to promote the growth of new modes of capitalism whereby managers end up running corporations, companies and firms on behalf of the real owners. Yet, they also had to develop a discourse which had to legitimate itself. In this regard, management was to be conceived as,

> a profession with its own rules, thus consummating the break with leadership whose legitimacy derived from ownership, and on the other hand to pave the way for a professional education (Boltanski & Chiapello 2005: 59).

In this regard, the discourse on business management was integral to the evolution of contemporary neo-liberal capitalist practices. It is therefore criticised for having become the handmaid for the expansion of neo-liberal capitalism. Within such criticisms, a discourse on knowledge management

runs the risk of being seen as serving neo-liberal capitalists purposes that have nothing to do with the traditional pursuit of knowledge.

As we shall see in the course of this discussion, there are African scholars who have seen knowledge management at African universities as a way of entrenching and perpetuating the western socio-economic, political and religious hegemony in post-colonial African societies. For example Ali Mazrui persistently argued that the knowledge that was produced at African universities was mainly aimed at providing an umbilical link between multinational western capitalism and Africa. He avers:

> In the very process of producing educated manpower, creating new forms of stratification, accelerating westernization and modernization, African educational institutions have been major instruments through which the western world has affected and changed the African universe.

Universities virtually functioned as institutions for the promotion of western civilization, 'at least de facto' (Mazrui 1978: 307). It is obviously clear that Mazrui was critiquing the knowledge that was produced at African universities on the grounds that this type of knowledge was biased in favour of western economic aspirations and western culture. For this reason Mazrui made a suggestion to the effect that:

> University admission requirements should be reformed in the direction of giving new weight to certain subjects of indigenous relevance …. The university in turn should re-examine the content of its courses in the different fields, guided in part by permitting indigenous culture to penetrate more into the university, and in part by permitting non-western alien contributions to find a hearing (Mazrui 1978: 308).

Thus the main concern in knowledge management at the African university is mainly about the issue of relevance of the knowledge that is produced and disseminated by African universities.In the same vein with Mazrui, the issue of the relevance of knowledge was also raised by Aklilu Habte, Teshome Wagaw and Ade Ajayi when they said:

> African higher education is also constantly challenged to be relevant and responsive to the myriad needs of developing societies .... Conducting research, developing appropriate technology, and facilitating its deployment for the solution of development problems are additional critical functions that institutions of higher education are called upon to provide …. As vectors of values, self-identity and pride, the indigenous languages must be not only researched, codified and taught, but also used as languages of instruction at all levels and as keys to the knowledge and wisdom accumulated by African societies over the centuries (Habte, Wagaw & Ajayi 1999: 696).

In the light of observations such as these, the discourse of knowledge management in the post-colonial African university is problematised when scholars factor in the issue of relevance. In other words, knowledge management in the post-colonial or post-apartheid African university should be geared mainly towards the pursuit, acquiring and dissemination of relevant knowledge—a knowledge that addresses the main concerns of the society or communities which the African university find itself in.

Pursuit of Relevant Knowledge through Indigenization

Almost all African countries are aspiring to be democratic states or have achieved some form of democracy. Most of the African states are developmental states (Democratic Republic of the Congo, Kenya, South Africa, Zambia, Namibia). For institutions of higher education, relevant knowledge depends on what Lee Bollinger, the President of Colombia University (2005) describes as the understanding that the qualities of mind needed in a democracy are precisely what extraordinary openness of the academy is designed to help achieve. Generally, African universities capture their primary functions in terms of teaching, research and social engagement. Higher education institutions in Africa therefore face the challenge of producing its own human resources and human capital in anticipation of pursuing domestic development programs, and on the other hand produce critical thinkers and scholars who can contribute effectively in the global knowledge industry.

African universities are therefore not only expected to be centres of 'academic excellence', but because of the developmental imperatives and peculiarities of the continent, they also have to be 'centers of relevance'. As it was raised in the introductory section of this article, the issue of relevance is a very critical one especially in the light of curriculum development and the identity of an African university. Other African scholars have argued that due to its early connection with colonialism, the African university shares a strong identity with a multinational corporation. As Mazrui puts it:

> In the cultural domain, the pinnacle of the structure of dependency was the university, that institution which produced overwhelmingly the coming first generation of bureaucratic and political elites of post-colonial Africa, whose impact on the fortunes and destinies of their countries seemed at the time to be potentially incalculable …. What should be emphasized is simply that the university lay at the pinnacle of the structure of cultural dependency, and the multinational commercial enterprise at the pinnacle of the structure of economic dependency. But just as the African has its genesis in European imperialism, so does the commercial multinational corporation (Mazrui 1978: 287).

In the above observation, the African university was established to foster cultural dependence among Africans in the sense that the knowledge that was disseminated at these universities was mainly aimed at serving the knowledge of western imperial needs. Mazrui went on to say that during colonialism:

> The required cultural relevance had to come from a western-based educational structure. The higher the position in the commercial company for which an African was needed, the higher the level of western education normally expected …. The importance of western education for western investment in Africa grew rather than declined with the growth of African nationalism (Mazrui 1978; 293).

In other words, during colonialism the issue of relevance was closely related to the needs of western multinational corporations instead of the

African contexts which these universities served. It was through acquiring a western identity that African graduates were 'de-Africanized in advance before they [could] become culturally-relevant for the multinationals' (Mazrui 1978: 294). What is implied here is that during colonialism universities were not there for the promotion of African identities, but to promote westernization so that these westernized Africans could be interlinked with multinational interests. Mazrui went on to say that at these African universities,

> the decision as to which kind of subjects ought to be given priority in Africa is reached as a result of examining in what is regarded as important in the western world … (Mazrui 1978: 299).

What is implied by Mazrui is that by virtue of being western oriented, the curriculum of the African university is more concerned with western needs than African ones.

The observations of Mazrui were also echoed by Linda Tuhiwai Smith when she argued that our common understanding of knowledge is mainly based on the idea that all civilized knowledge originated from the west. Thus she writes:

> The globalization of knowledge and Western culture constantly reaffirms the West's view of itself as the centre of legitimate knowledge, the arbiter of what counts as knowledge and the source of 'civilized' knowledge. This form of global knowledge is generally referred to as 'universal' knowledge, available to all and not really 'owned' by anyone, that is, until non-Western scholars make claims to it. When claims like that are made history is revised (again) so that the story of civilization remains the story of the West (Smith 2006: 560).

What can we discern from this observation is the argument that western knowledge has dominated all discourses on knowledge to such an extent that authentic knowledge can only be legitimized through western lenses of knowing.

In the same vein, Ngugi Wa Thiong'o argued that the hegemony of western knowledge can be seen in the predominance that is usually given to European languages in our discourses. He writes:

> I want to suggest that our various fields of knowledge of Africa are in many ways rooted in that entire colonial tradition of the outsider looking in, gathering and coding knowledge with the help of naïve informants, and then storing the final product in a European language for consumption by those who have access to that language …. We collect intellectual items and put them in European language museums and archives. Africa's global visibility through European languages has meant Africa's invisibility in African languages (Wa Thiong'o 2005: 160).

In other words, by ignoring the use of our own African languages in academic discourses we somehow perpetuate the visibility of European languages in the global arena whilst simultaneously burying the visibility of African languages.

As a way of trying to address the above concerns, the academic world has begun to recognize in a serious manner what is commonly referred to as indigenous knowledge systems or indigenous communal approaches. Indigenous Knowledge Systems (IKS) are partly about understanding that local practices and views of the world is an essential defining feature of the local communities. These communal approaches continue to inform the worldview of local people and in particular, therapeutic interventions. Exclusive and denialist approach to IKS can easily flaw the knowledge creation processes content of what is taught and researched interventions.

Ethically, how do institutions measure value of individual academic involvement in community activities? What kind of mutual obligations should exist between universities and communities where community agencies are co-partners in the teaching and learning processes? What capacities should be developed to enhance the fieldwork component of qualifications/programs in such a way that the indigenous knowledge systems and interventions are part of a scientific academic learning process and add value to the scholarly ethos?

Other related questions come to mind: Do communities look upon

our university to provide answers and explanations to issues that bother them? Are we seen to be improving the quality of lives of people? Do we produce knowledge that takes the African conditions as its central challenge?

With regard to the educated graduates we produce: What are our graduate outputs? Are we producing the highest number of persons who fail by virtue of coming from educationally disadvantaged backgrounds or fail because of underperformance, and non-performance by academics and related university se4rvices? What are the ethical obligations of African institutions of higher education in instances where students in the name of academic freedom and entitlement to quality education, have concerns about our delivery. Graduate outputs can be linked to access, accountability, staff capabilities and forms of assessments within faculties or schools. Collaboration on intellectual mentors and postgraduate research scholarships, discourses that shape thinking around common educational and social development issues, are some of the common areas in need of serious engagement among African universities. The merging of South African universities provides an excellent opportunity for the realization of the above challenges.

Mergers and the Consolidation of Knowledge Management

South Africa as a new democracy and developing state in the African and the world order has outlined its developmental trajectories. Given one of the broad definitions of KM, that it is about getting the right knowledge to the right people at the right time (2002), it became critical that South Africa reviews its higher education landscape. This view of this process was informed by the Constitution of the Republic of South Africa, the national priority goals and the development strategy for the country, Higher Education White papers and national strategies and regional needs as agreed with other countries through structures such as SADC and the AU. One of the outcomes of the review of the HE landscape in South Africa was the merging and consolidation of the 36 public higher education institutions, 9 science councils, five national research councils and many other research formations linked to universities, labour formations and NGOs.

Mergers in higher education are perceived as globalization responses wherein universities consolidate their strengths and economies. Academics

have criticized mergers for corporatisation, corrosive leadership (Thornton 2004) and threatening academic freedom. In South Africa the mergers were deeper than responding only to economic consolidation. Mergers in tertiary education addressed the apartheid mental and physical infrastructure designed to entrench inequality, selective academic programs for different categories of citizen, unequal allocations of financial resources for teaching and research. Mergers were also endeavours of locating and appropriating higher education within the national and regional development and transformation agendas. They also become critical for human development strategies in line with national priorities and global market forces. Added to this list is the intention to increase and monitor quality of academic programs, access to educational opportunities, transparency, good governance and accountability as higher education institutions (HEIs) are public funded entities. Mergers in South Africa were not an optional choice but were necessary as one of the strategic moves to forging a democratic South Africa beyond the colonial and apartheid legacies. Mergers have presented a number of challenges to higher education such as:

- Balancing academic freedom and autonomy with national accountability and best practices adopted from the corporate world;
- Introduction of accounting mechanisms and legal instruments for conducting research;
- Robust accreditation and national audits of academic programs;
- Active engagement and participation of students in the governance and activities of universities; and
- Creation of mega-multi campus universities with student populations of more than 40,000.

Mergers therefore have presented HEI with massive volumes of information and knowledge that must be processed, shared and centrally embedded in the knowledge industry. Our KM strategies should enable us to identify and secure appropriate technologies to interface with the academic community, establish and consolidate relevant knowledge networks within short periods and identify research and opportunities quickly in a competitive environment. Now that the mergers are stabilizing, the onus is upon the academics and academic leadership to create spaces for dialogues and

discursive engagements on issues such as academic freedom, social engagement, transformation and equity, technology in higher education. These are spaces to think critically outside the comfort zones of the past and in the context of a globalised and technology driven higher education environment.

Overall, the mergers will be a story of success if they:

a) Enhance access and equity goals for both students and staff (National Working Group 2002; Jansen 2003). The access and equity of African and young up-and-coming academics continue to pose a challenge for higher education in South Africa. Staff access and retention must include access and retention of all young up-coming academics and senior but productive retiring academics. How do we know about them? A KM mindset will to a great extent help HE to develop and access a global pool of these academics. The retirement of productive academics must not present them with a bleak future outside academia, but be an entry into another level of engagement within the academy. Retired and senior academics are a resource for enhancing disciplines and attracting revenue for the institution;

b) Create new institutions with new identities and cultures that transcend the past institutional histories and contribute to deracialisation (Jansen 2003). The new identities can be expressed through leadership and management that have a different mindset on matters of transformation, access and diversity of opinion.

c) Produce new academic infrastructures or physical spaces to express the value and responsibilities of academic freedom;

d) Are driven (at least for the first five years) by transformative academic leadership and management; and

e) Create spaces and opportunities for academic freedom that go hand in hand with responsibility and mutual accountability of staff and students.

The mergers need to produce curricula and academic programs that engage the local material conditions and articulate with the global conditions

which impact on them. New institutions will not produce relevant knowledge if the academic and research leadership do not or refuse to understand global competitiveness and national development as the contexts that influence and shape the knowledge and information industry.

The mergers therefore have created new institutions, such as UKZN, which,

> [f]ace[] the challenge of creating a higher educational institution that respects, values and demands academic excellence, but at the same time takes seriously its responsibilities as a national and regional resource. The task of creating new curricula which reflect this vision, which achieve academic excellence and which relate strongly to culture and values of African society—this is a challenge which our academics have embraced with sincerity, eagerness and application and there is a great deal of excitement around the idea of contributing towards the process of building a truly South African, post apartheid university (Makgoba 2004).

On the other hand Mantzaris and Cebekhulu (2005) cautions that universities are sites of knowledge but can become sites of disillusionment. This disillusionment, in my view, can develop out of the lack of insight into human factors, factors that influence allocation of resources, pursuance of the old curricula in a transformed institution, failure to rationalize programs and lack of congruence between the academic endeavour and other supportive pillars, delays in creating social and academic spaces that allow critical thought and intermingling of stakeholders, scholars, researchers and students.

Institutions of higher learning become a critical and strategic actor in development because of its fundamental role in the knowledge industry, generating tacit and explicit knowledge, transferring knowledge into usable information, and developing human capital for the nation.

In South Africa in particular, some of the universities had to engage in mergers. These mergers brought fundamental and irreversible changes in the landscape of higher education in South Africa. Transformation, equity, access, excellence and African scholarship are some of the central concepts that form the common thread of the visions and missions of the newly

merged institutions in South Africa. The visions and missions imply a strong recognition of and rootedness into the African conditions and engaging with the universe from a position of strength and contextualized identity. Mamdani (1997) puts this by saying, 'excellence has to be contextualized and knowledge made relevant'.

Mamdani also talks about responsibilities of being an African university, which amongst other things serve to adapt our scholarship to the social structures and cultural environment of Africa but by so producing knowledge that takes the African condition and the African identity as its central challenge. African universities have to search for answers to the questions deriving from specifically African conditions. In the African universities, this also impacts on issues such as staff access and equity in the retention of African academics of stature, the attracting of highly skilled professionals within the south-south cross-country and cross-border collaboration, and the attracting of young promising African scholars to pursue careers in the academy within and outside the continent. Shaping African universities in the national and global arenas therefore, is beyond the conventional functions of universities; it includes other variables, areas of intellectual responsibilities and scholarship. KM can be adopted as a strategy to engage Africa with itself and connect it to the global industry, position unique flagship programs such as IsiZulu Studies and specific forms of Music primarily in the School of Music at the University of KwaZulu-Natal.

African universities have redefined themselves through their vision and mission. These visions and missions are in line with the broader national ones; the university's is focused, specialized and limited. The mission of this University challenges us to draw our inspiration primarily from our environment partly by generating developmentally relevant research, be socially responsive and to provide community service. The African context in our vision and the global approaches shape the role and relevance of higher education in the 21st Century. African universities have to confront some fundamental and difficult questions related to the following issues:

Access

Who may access higher education? How do we measure prior learning towards tertiary access? How do we measure the appropriate levels of access? How do we support learners at their appropriate levels of access?

How do we increase and sustain throughputs? How do we develop coherent systems of access in our south-south partnerships or tripartite partnerships? How best can we ensure that systems of access allow for the engagement of the continent's technologies that are complimentary to research, teaching, local and global social engagements and networking? (How do we ensure enough and quality technologies on the continent?) These are few vital areas, that universities must focus on if they want to be agencies of development, transformation and promotion of democracy. Knowledge management and the management of the appropriate technologies, can be used to enhance operations in these areas.

Quality and Excellence

The pursuit of excellence as the trademark of the university enjoins academics, students and administrators to pursue merit and excellence. I share Goma's view (1991) that such excellence must be dictated primarily by African aspirations, and by the quest to deal effectively with the central conditions and problems. Towards the achievement of this pursuit, the University must be able to attract good students from all walks of life and social classes, and to attract as well as keep excellence in faculty. Equally important, is for the University to provide the necessary conducive environment to learning, teaching and social engagement through resources and infrastructure support. Again, quality and excellence talk to issues of access, retention, recruitment, and retention, size and shape of our universities and relations with the state. Equally important, is the quality of the university's social engagement. Through social engagement society defines collaborative niches in knowledge production and interpretation activities.

Creativity

The University must engage in teaching, research, community service and skills development in order to acquire and transmit knowledge and skills that work (Ajayi, Lameck, Goma & Johnson 1996). This is particularly relevant to Humanities, professional and development disciplines that respond to social issues, concern themselves with quality of life, problem solving and

seek solutions that work within the institution of higher education and externally (programs that enrich the life experience of students at the IHE). Mission statements of the Universities raise a number of questions for the development of human and social science disciplines, and management studies. Some of the questions are:

- How can we help develop the necessary socio-economic environment conducive to quality academic pursuits?
- How can research be made to contribute to a more active role in the elimination of poverty, hunger, diseases, ignorance as well as production of excellent and creative graduates?
- What kind of graduates does our society need in order to face up to the new socio-economic and political transformational challenges?
- How can such graduates be developed into international scholars, professionals or academics?

In the light of the above questions, one way of developing and sustaining the scholarly ethos around knowledge production and management in a university is to develop a strategic plan that utilizes retired but productive professors and academics as mentors and points of reference for postgraduate studies programs or centres of research and social engagement linked to faculties and /or specific disciplines.

These questions can be dealt with effectively through commitment to a strong organizational culture that aims at entrenching this vision of the university in the national and international framework.

Organizational Culture and Knowledge Management

Knowledge production and knowledge management thrives and have the desired impacts or outcomes in particular kinds of environment. The onus rests upon institutions of higher education to create an optimum environment that remove obstructions and entrapments which compromise excellence and staff and student performance. One of the most significant requirements in the optimal functioning of the organizational cultural elements is the management and leadership at the helm of the institution. African universities require leadership and management who are comfortable to

implement but also question the national imperatives. This implies the ability to maintain the thrust of the national imperatives without jeopardizing the scholar's ethos and visa versa—a perpetual creative tension that defines the state and the university. The other elements are related to the qualities of the mind. Despite limited financial state resources, collaborations amongst us in Africa, appropriate judgments of scholarly temperaments, renewal of scholarship, common research and intellectual foci, African scholars can optimise their knowledge production and management and appropriately engage and interact with external and internal knowledge systems.

I view universities as co-operative enterprises in education and development. Amongst other things, the university must produce critical thinkers, strategists, and knowledge that can be managed and transformed into relevant information for addressing life and quality of life challenges.

Universities continue to be sites of knowledge, research, outreach and domains of contestation. They are also sites of transformation, hope and disillusionment (Mantzaris & Cebekhulu 2005). It is these creative tensions and contradictions or diversity of opinions, which make the exciting and challenging mix that characterises the university—especially in the postcolony. The first phases of transformation may present an impression of stifling debate and discursive contestation. Even so, this is the creative cauldron that allows the merging and transforming institution to lay the institutional foundations and value bases for a new university. Because of this, universities, particularly the university's leadership cohort, must understand that by design, universities, particularly those characterised by cultural diversity, a diversity of opinions, and a diversity of the identification of common challenges as well as solutions to these challenges, constitute the creative and often contradictory spaces of a society's developmental horizon. It is here where we find the continuous search for solutions and explanations. These institutional activities can thrive better and be fostered through optimum knowledge management in so far as developing new structures, access and enrolment processes, quality and excellence, and creativity and strategic projections are fostered and advanced.

Leadership is defining what is meant by such measures in an African context, especially where there has been a history of producing disadvantaged sectors of society through various processes of discrimination.

For instance, many talented girl learners have their education discouraged by staunch patriarchal families. More recently, most probably all learners experience how HIV/Aids impacts on the family while many have seen their schooling broken by the demands on them caused by this pandemic. We must recognize that excellence is not something that is inherent but developed, and that what is really important in the final analysis is that there is excellence in the final product. Through the different mechanisms of knowledgement, we need to ensure that the appropriate systems and structures are in place for this to happen.

Universities should be able to engage in what Vico (Cox 2002) describes as 'fantasia', that is the culture of seeking new ways and solutions from within and outside the institutions of higher learning. The branding, symbols, knowledge forms and organizational cultures within institutions of higher learning should embrace the values of democracy, its vision and liberties. Added to this is knowledge management which Serban and Luan (1999: 5) describe as 'using the brain power of an organization in a systematic and organized manner in order to achieve efficiencies, ensure competitive advantage and spur innovation'. Failure or inability to use the brain power within the institution in a systematic manner can express itself through high staff turn over, inability to engage productive researchers, academics, failure to identify potential scholars and researchers within the postgraduate cohorts of the institution, lack of and failure to create spaces for debate and dialogues in a university. Pedagogically, the curricula content and styles of teaching may remain irrelevant in a highly competitive and technology driven world. The universities should be the innovators and pace setters—not the followers. Especially where societies are characterised by information overload, it is universities that need to be the societal mechanisms that process and develop systems for knowledge utilization—especially where there are information bottlenecks. Knowledge management at universities is crucial for this to happen.

A culture of electronics dominates the global world. The onus is on universities to move quickly in deciding how best to utilize electronic communication to enhance the academic endeavour rather than the other way round where electronic communication may end up determining the foci of higher education and shape the competencies without necessarily understanding the qualities of the mind needed to nurture and sustain the

developing African democracies. One consequence of the merger in UKZN for example is the wastage of time, energy and financial resources spent on inter-campus traveling by academic leadership. Inter-campus communication and inter-campus and inter-university engagements should include the investing in other forms of electronic media, such as virtual offices (and classrooms), video conferences, teleconferences, one off securing of flybooks or laptops for all executives up to heads of schools, reconfiguration of smaller programs that have a potential to grow in the context of the mission of the institution, the national and global development and education commitments. The electronic communication must not replace physical contact, but should compliment it on a much wider scale than at present. The same operational principle can be extended to our postgraduate students and postdoctoral scholars. It serves also as an incentive and an attracting factor for scholars to stay on in the academy—the appropriate electronic provisioning of the tools of managing information and engaging with other scholars and researchers.

Concluding Remarks

In this article, I have shown that knowledge management is faced with many challenges in post-colonial and post-apartheid South Africa. It was shown that knowledge management challenges us to look critically at the type of knowledge that we produce as an African university with the specific aim of ensuring that this knowledge is relevant to our context, and that it should help to promote the identity of an African university.

Knowledge management can add value to collaborations by allowing systematic sharing and processing of knowledge for application and teaching and learning. Through knowledge management, higher education institutions, such as the University of KwaZulu-Natal can create a new institutional ethos and culture and internal knowledge management systems (which define the organizational culture). Research and postgraduate studies are areas of focus, which like leadership define the stature of a university.

Knowledge management and some major technologies can be utilized to develop effective student and staff access and retention, the ensuring of the continuous development of the quality and excellence of the

variety of forms of endeavour at the university, as well as the different forms of creativity needed for the optimum functioning of the university. Knowledge management should play its appropriate role in a highly competitive environment, congested by large student populations (Kidwell et al. 2000). Creation, transformation and transmission of knowledge (Lauden & Laudon 1999; Serban & Luan 1999) remains the fundamental and cherished function of the university. Knowledge management should be developed and applied to consolidate the brain power of an organization and to build an institutional ethos which is enhanced with relevant technologies in our African context.

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An Intranet to Facilitate Managing Knowledge and Knowledge Sharing

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Abstract

In organisations in South Africa there is increasing use of information technology for internal communication and collaboration. An Intranet, which is based on Web technology, is well suited for use in managing knowledge and knowledge sharing in an organisation due to its ability to support distribution, connectivity and publishing of data and information. An Intranet should be seen as integral to an organisation's Knowledge Management strategy and should be tailored to suit and enhance an organisation's managing knowledge and knowledge sharing processes. The question arises: To what extent does an organisation's existing Intranet facilitate managing knowledge and knowledge sharing processes? This question is explored by selection of a large organisation – eThekwini Municipality, Durban – as the field of application. Derived from a mixed methodology approach, the results of a survey suggest that there is limited managing knowledge and knowledge sharing using the Intranet in the selected organisation.

Keywords: Intranet, knowledge management, knowledge sharing.

Problem Statement, Objectives and Research Question

In organisations in South Africa there is increasing use of information

technology (IT) for internal communication and collaboration. The World Wide Web (the Web) technology has provided a common technological infrastructure to support the collective managing of knowledge and knowledge sharing in organisations. The Intranet, which is based on Web technology, can provide useful and people-inclusive knowledge management environments (Stenmark, 2002). In such environments, an Intranet can be tailored to suit and enhance an organisation's managing knowledge and knowledge sharing processes. Knowledge sharing is a process through which knowledge is exchanged in an organisation. In organisations, IT plays an important role to give effect to the managing and sharing of knowledge. If IT, such as an Intranet, is not effectively managed, knowledge and knowledge sharing in an organisation will not be facilitated. Investigating whether an Intranet facilitates knowledge and knowledge sharing in a selected organisation in South Africa is the objective of this paper.

An Intranet (or internal Web) is a network designed to serve the internal informational needs of an organisation (e.g. a municipality) using Internet concepts and tools (Turban, McLean & Wetherbe, 2004: 130). The cost efficiency of utilising Internet technology has opened the door for organisations to use this same technology to share information within the organisation (Botha, 2004). Given that advances in IT have made it easier to acquire, store and disseminate knowledge than ever before, many organisations are employing IT to facilitate sharing and integration of knowledge (Kankanhalli, Tanudidjaja, Sutanto & Tan, 2003: 69). One important IT resource in an organisation is an Intranet.

An Intranet is an application of technology within an organisation for the purpose of information dissemination, communication, integration and collaboration (Telleen, 1997). Such processes are important to give effect to managing knowledge in an organisation. There is thus a need to evaluate the existing benefits, design, usability and content of an Intranet to ensure that they enable knowledge sharing in an organisation. Intranets are regarded as a key platform for knowledge sharing (Hall, 2001: 139). The research question arises: To what extent does an organisation's existing Intranet hold benefit and its design, usability and content facilitate managing knowledge and knowledge sharing? This research question is explored by selection of a large organisation, eThekwini Municipality, as the field of application.

This paper is organised as follows: Background to the research is presented. Thereafter a literature review of the main concepts is given. The eThekwini Municipality is briefly described. The research methodology, which includes data collection and data analysis, is then presented. Finally a conclusion is given.

Background

The exchange of information among organisational employees is a vital component of the knowledge-management process (Cabrera and Cabrera, 2002). IT is available to support and enable such exchanges across distance and time barriers. Knowledge sharing processes are generally supported by knowledge management (KM) systems. KM consists of a dynamic and continuous set of processes and practices embedded in individuals, as well as in groups and organisational levels. At any point in time and in any part of a given organisation, individuals and groups may be engaged in several different aspects and processes of KM (Alavi & Leidner, 2001). These processes include creating, preserving, using and sharing knowledge (Warkentin, Bapna & Sugumaran, 2001).

There is a need for practices in the workplace to enable managers to promote managing knowledge and knowledge sharing to allow the organisation to acquire and retain intellectual capital. For example, eThekwini Municipality is 'committed to using Information Technology to make a real difference … municipal decisions have to be based on sound research and information management in order to ensure [service] delivery' (eThekwini Municipality, 2006: 28). There is also a need to evaluate existing processes (e.g. benefits, usability and content areas of an Intranet) to ensure that they enable an organisation's managing of knowledge and knowledge sharing processes towards its KM strategy.

KM initiatives in organisations are increasingly becoming important as organisations are making significant IT investments in deploying KM systems (Hahn & Subramani, 2000: 302). Given these investments it therefore seems appropriate to investigate whether the Intranet in the selected organisation (eThekwini Municipality) facilitates managing knowledge and knowledge sharing.

Intranet and Intranet Technology

The term 'Intranet' first appeared in *Digital News & Review* (19th April, 1995) in an article by Lawton (Lawton, 1995). An Intranet (or internal Web) is a network designed to serve the internal informational needs of an organisation (e.g. a municipality) using Internet concepts and tools (Turban, McLean & Wetherbe, 2004: 130; Averweg, 2007). An Intranet is a technical infrastructure and as such its business value is contingent on the content that it holds in terms of information resources. An Intranet should hold benefit, be appropriately designed, usable and have relevant and reliable content so that it permits 'the integration of key business applications and tools' (Hall, 2001: 139).

An Intranet 'can be regarded both as an information and strategic management tool' in the context of KM (Edenius & Borgerson (2003: 124). Tiwana & Ramesh (2001) contend that the Intranet is well suited for use as a strategic tool within the domain of KM owing to its ability to support distribution, connectivity and publishing. According to these authors, the Intranet should be seen as integral to an organisation's KM strategy and should therefore be designed and tailored to enhance an organisation's managing of knowledge and knowledge sharing processes. This rationale raises the question whether an organisation's existing Intranet facilitates managing knowledge and knowledge sharing processes. The exploration of this question creates an opportunity for research within a field of application that seems particularly appealing: a metropolitan municipality—eThekwini Municipality in Durban. The appropriate context and appeal arose from the fact that the author (an IT Research Analyst) and as an IT practitioner is situated within the organisation's Information Services Department. This research may be viewed as an IT practitioner-based inquiry. Furthermore eThekwini Municipality's Integrated Development Plan (IDP), Plan 5 deals with 'Empowering our Citizens'. Within this plan, Programme 7 deals with improving KM within the municipality:

> The retention of institutional knowledge is a key factor in the development of an organisation and this long term programme intends to increase the general awareness of the meaning and value of knowledge management within the municipality (eThekwini Municipality Integrated Development Plan, 2007: 65).

Given the author's position and eThekwini Municipality's IDP, this exploratory study was considered pertinent and relevant. In surveying the parameters of the question, the overriding premise was established as follows: If knowledge is used effectively, it may well provide meaningful utility to the organisation.

Intranets create a common communications and information-sharing system. Brelade & Harman (2003) suggest Intranets can be used on a 'push' basis, where information is presented to employees, and on a 'pull' basis, where employees may seek out and retrieve information for themselves. These mechanisms are described as follows:

- 'Push' technology is used when it is important that certain material is presented to employees at their workstation. It ensures that no other function takes place until all the information is correctly accessed; and
- 'Pull' technology allows employees to decide when to pull down information from the Intranet that they wish to view. The 'views of the end users are more important than in most other studies' (Skok & Kalmanovitch, 2005: 736).

To provide a seamless experience between viewing pages on the Web and viewing information on an Intranet, access is usually via a standard Internet browser. The commonly used Internet browser in eThekwini Municipality is Microsoft Internet Explorer.

Knowledge, Managing Knowledge and Knowledge Sharing

Knowledge

What is knowledge? Geisler (2008) suggests that this can be answered in three different yet complementary streams: (1) the way in which knowledge is structured; (2) to examine the nature of the dynamics and progress of knowledge; and (3) examine the uses of knowledge in the lives of individuals and how they apply their knowledge to their involvement in the economy and social affairs of their communities. It is argued by the author that this third stream includes organisations. Many current theories and practices indicate that knowledge (and managing knowledge) may prove useful if the scope and

utility of knowledge is aligned with an organisation's strategy. For this reason KM must have a business focus. It is therefore critical that KM aligns with an organisation's business strategy and that it is structured in such a way that it articulates with the organisation's purpose and goals. It may be further argued that knowledge should be viewed as a resource in the business and that it should therefore 'tie in' with the resource-based approach to an organisation's business strategy. Knowledge needs to be distributed and shared throughout an organisation before it can be applied and exploited. Knowledge can be distributed through processes such as knowledge sharing, knowledge seeking, searching and retrieving using an organisation's Intranet. The value of an Intranet for KM is largely dependent on the calibre of the content and tools that it provides to its users (Hall, 2001: 139).

Although this research seeks to evaluate the role of the Intranet and its contribution to managing knowledge and knowledge sharing in eThekwini Municipality, it also proposes that KM should be set on a broader scale than merely IT i.e. it is argued that managing knowledge and knowledge sharing should go beyond a narrow technical focus and encompass other less tangible themes within an organisation. Zack (1999: 125) clarifies the intangible 'as the knowledge existing within people's heads, augmented or shared via interaction and social relationships'. This paper draws together the technology, the notion of shared interaction (i.e. knowledge sharing) and the creation of an opportunity for knowledge transfer. Intellectual capital is another term often used for knowledge.

Managing Knowledge

Organisations realise the value of their intellectual capital (Turban, McLean & Wetherbe, 2004: 450). However, there is a need for organisations to better utilise and manage their intellectual capital (or assets) by transforming themselves into successful organisations that foster the development and sharing of knowledge (Turban, McLean & Wetherbe, 2004: 450). Knowledge must be exchangeable (such as in an Intranet) among employees in an organisation and it must be able to grow. Knowledge is information that is contextual, relevant and actionable (Turban, McLean & Wetherbe, 2004: 452).

While much of the knowledge that employees need exists inside an organisation, finding and leveraging it is often a challenge. Such challenges have given rise to a systematic attempt to manage knowledge. There are several processes associated with the management of knowledge: the creation of knowledge, the sharing of knowledge (or knowledge sharing) and the seeking and use of knowledge (such use as in an Intranet). Nonaka (1994) describes knowledge creation as interplay between tacit and explicit knowledge and as a growing spiral as knowledge moves among the employee, group and organisational level. Knowledge sharing is the wilful explication of one's knowledge to another individual via an intermediary (e.g. an Intranet) or directly. Knowledge seeking is the search for and use of internal organisational knowledge (Turban, McLean & Wetherbe, 2004: 457).

Knowledge Sharing

Knowledge sharing is a key component of KM systems (Alavi & Leidner, 2001). However, knowledge sharing is not well defined in the literature partially because this research area has not been very active (Bechina & Bommen, 2006). Lee (2001) suggests that knowledge sharing refers to processes of transferring or disseminating knowledge from one person, group, or organisation to another. Bartol & Srivastava (2002) define knowledge sharing as individuals sharing organisational relevant information, ideas, suggestions and expertise with one another. Employees are a key source of knowledge owned and managed by an organisation. They are the ones who create, acquire and share knowledge. IT is a fundamental enabler in the implementation of KM to store, organise and disseminate explicit knowledge and aid in externalising and socialising tacit knowledge.

Bartol & Srivastava (2002) identify four major mechanisms for individuals to share their knowledge in an organisation: (1) contribution of knowledge to organisational databases; (2) sharing knowledge in formal interactions within or across teams or work units; (3) sharing knowledge in informal interactions within individuals; and (4) sharing knowledge within communities of practice. It is contended that in all cases IT (and specifically the Intranet) can enable such managing of knowledge and knowledge sharing mechanisms in an organisation. Smith (2003) draws a clear relationship

between IT and knowledge sharing. Van der Walt, Van Brakel & Kok (2004: 4) emphasise the importance of evaluating an organisation's Intranet to ascertain its contribution to potential knowledge sharing in an organisation. IT, such as an Intranet, makes possible the 'connections' that enable knowledge sharing. An Intranet can therefore be viewed as an enabler of managing knowledge and knowledge sharing in an organisation.

Knowledge Management

Kwalek (2004: 23) suggests that 'the literature on knowledge management is disjointed and disconnected'. Pfeffer & Sutton (2000: 22) indicate that KM 'tends to treat knowledge as a tangible thing, as a stock or quantity, and therefore separates knowledge as some *thing* from the use of that thing'. While there are different views on what KM is, Nomura (2002: 266) suggests that the 'objective of KM is to directly enhance corporate value according to business strategy'. From a review of the literature and for the purposes of this paper, the following definition of KM will be adopted: 'KM is the organisational process for acquiring, organising and communicating both tacit and explicit knowledge (so that people may use it to be more effective)' (Gray, 2006: 118). The argument for this selection is based on the recognition that the combined knowledge and expertise of people within an organisation is what makes an organisation unique. It allows people to add value so that they become more effective in an organisation.

KM is not a centralised database that contains all the information known by an organisation's employees. It is the idea of gaining business insights from a variety of sources – including databases, websites, employees and business partners – and cultivating that information content wherever it resides into corporate value. An Intranet is only as good as its content (Curry & Stancich, 2000). Business insight emanates from capturing information and giving it greater meaning via its relationship to other information in the organisation. It should be stated that KM is not about making plug-and-play employees dispensable because all they know is recorded for the next person who fills their shoes – it is about delivering information to knowledge workers, business processes and technology to make organisations successful and employees effective. The Intranet, the in-house version of the Web browser based on Internet technology, creates a

common corporate communications and information-sharing system (Brelade & Harman, 2003).

eThekwini Municipality Organisation

eThekwini Municipality comprises six clusters/service units (Office of the City Manager, Treasury, Governance, Sustainable Development and City Enterprises, Corporate and Human Resources and Health, Safety and Social Services) and employs approximately 18,000 employees. The Information Services Department is located in the Office of the City Manager. eThekwini Municipality has some 6,000 networked desktops (personal computers, thin clients and laptops) and electronic communication (i.e. eMail) takes place via Novell's GroupWise (Client version 6.5). A total of 6,654[1] GroupWise accounts exist in eThekwini Municipality. There are approximately 1,500[1] Internet accounts utilising either Microsoft Internet Explorer or Netscape Navigator Web browsers.

Research Methodology

All research is different. Every major organisational process should be regularly evaluated and the evaluation should be purposeful and completed (Debowski, 2006: 274). One method of evaluation is a survey. Debowski (2006: 277) suggests that survey 'evaluations take a number of forms … and may be conducted via telephone, email our mailouts' and '… data should be gathered by electronic means …' and this '… is an increasingly useful quantitative data collection strategy, as it is non-invasive and low cost'. In this study, the evaluation selected by the author was e-Mail since it is non-invasive and the purpose and benefits of an eMail survey justified the cost. For this research, the mixed-methods research approach was adopted as follows:

- Knowledge claim – pragmatism;
- Strategy of inquiry – transformative procedures; and

[1] Count taken during survey period.

- Methods of data collection and analysis – secondary data and analysis are used.

Data Collection

The data for eThekwini Municipality's Intranet was collected by an independent research company, Ask Africa. The rationale for using secondary data was that (1) it was considered relevant to the study; and (2) there were savings of time and money by using available data rather than collecting original data.

On 13 June 2006 eThekwini Municipality employees were invited – by eMail invitation from the Communications Department – to participate in an online Intranet survey. The aim of this survey was 'to identify areas where the Intranet may need improvements' and 'to allow positive user experiences to be obtained'. eThekwini Municipality employees who expressed an interest in participating in this survey received an online questionnaire, which was eMailed to them by Ask Africa's research partner, MicroIces. Data collation was handled by Ask Africa. The data used in this research was sourced from the eThekwini Municipality Intranet Research Report (July 2006), which was compiled by Ask Africa. The reported findings inform this study.

From the 150 eMails sent to eThekwini Municipality employees, 39 responses were received. This represents 26 per cent of the total number of employees who originally expressed interest in participating in the survey. While this is a relatively small sample, Debowski (2006: 274) suggests that response 'rates as low as 20% may still provide some sense of the issues'. The author did not participate in this online survey. Wegner (2000: 457) suggests that in the sampling process it is important on deciding 'an appropriate *sample size* to draw in a survey study … a researcher chooses a minimum sample size to achieve a *desired degree of precision* in estimation for a given *level of confidence*'. Since this research is an IT practitioner-based inquiry, there is a need to ascertain the level of precision or degree of error allowed (at an assumed 90% level of confidence) associated with the known sample size of 39 drawn in the Ask Africa survey and reported in the eThekwini Municipality Intranet Research Report. Using the formula cited by Wegner (2000: 459) to estimate the sample size for qualitative random number variables

$$n = \frac{N(\sigma^2 z^2)}{NE^2 + (\sigma^2 z^2)}$$

where

n = sample size (39 responses were received in the survey conducted by Ask Africa);

N = target population size (6,654 GroupWise accounts exist in eThekwini Municipality);

z = value associated with the level of confidence (at 90% level of confidence, z = 1.645);

σ = population standard deviation (variability (p = 0.5) and q = (1-p)); and

E = level of precision (degree of error allowed),

the level of precision, E = 0.131 i.e. the degree of error allowed is 13% (rounded). An IT practitioner interpretation of this result means that if, for example, at a 90% level of confidence and a relatively high percentage (say 87%) of respondents surveyed Agree/Strongly Agree to a statement relating to benefits the Intranet holds, the usability of the Internet or the content of the Intranet, the upper bound will be 87% + 13% = 100% and the lower bound will be 87%—13% = 74%.

Data Analysis

Extracted from the eThekwini Municipality Intranet Research Report (Ask Africa, 2006), the results are now presented. The ranking in ascending order of Agree/Strongly Agree responses to benefits the Intranet holds is reflected in Table 1.

Table 1: *Ranking in ascending order of Agree/Strongly Agree responses to benefits the Intranet holds*
(Adapted from eThekwini Municipality Intranet Research Report compiled by Ask Africa (2006: 26))

Statement	Percentage (%) of Respondents (N=19)		
	Agree/ Strongly Agree	Neutral	Disagree
Useful platform to share and access inter-departmental information	87%	9%	4%
The Intranet is an effective way to conduct organisational interaction	81%	14%	5%
Quickest focal point to disseminate and get organisational communication	77%	14%	9%
Enhances departmental communication	72%	5%	24%
Helps the organisation improve its service to customers	65%	15%	20%
Helps with productivity	63%	14%	23%
Using the Intranet is necessary for employees to perform daily work functions	50%	5%	45%

From Table 1, the greatest perceived benefit that the Intranet holds for employees using it is as a platform to share and access inter-departmental (i.e. clusters/service units) information. As outlined in the literature, knowledge must be exchangeable and must be able to grow. Sharing and accessing inter-departmental information facilitates knowledge sharing. The second highest reported benefit was as 'an effective way to conduct organisational interaction'. Robertson (2004: 1) suggests that 'interpersonal communication must be recognized as critical within organisations'.

For $n = 19$, $N = 6{,}654$ at a 90% level of confidence and $\sigma = 0.5$, then the level of precision $E = 0.188$ i.e. the degree of error allowed is 19% (rounded). This means that the results to the statement shaded in Table 1 are not statistically conclusive and the respondent's views should be regarded as 'split'.

The ranking in ascending order of Agree/Strongly Agree responses to the design of the Intranet is reflected in Table 2.

Table 2: *Ranking in ascending order of Agree/Strongly Agree responses to design of Intranet*
(Adapted from eThekwini Municipality Intranet Research Report compiled by Ask Africa (2006: 34))

Statement	Percentage (%) of Respondents (N=21)		
	Agree/ Strongly Agree	**Neutral**	**Disagree**
I am happy with the text and font used on the website	86%	5%	10%
I am happy with the colours used on the website	81%	10%	10%
I am happy with the layout and organisation of the website	67%	19%	14%
I am happy with the images and pictures used on the site	62%	19%	19%
Overall I am happy with the design of the Intranet website	57%	33%	10%

From Table 2, it appears that most respondents surveyed (86 per cent) were satisfied with the text, font and colours used, but there was some disagreement on the images, pictures and overall design of the Intranet website. For respondents surveyed, this suggests that images and pictures used on the website require improvement for eThekwini Municipality employees to obtain user satisfaction (Ask Africa, 2006: 35) and to ensure that the information is contextual, relevant and actionable.

For $n = 21$, $N = 6{,}654$ at a 90% level of confidence and $\sigma = 0.5$, then the level of precision $E = 0.178$ i.e. the degree of error allowed is 18% (rounded). This means that the results to all statements in Table 2 are statistically conclusive.

The ranking in ascending order of Agree/Strongly Agree responses to the usability of the Intranet is reflected in Table 3.

Table 3: *Ranking in ascending order of Agree/Strongly Agree responses to the usability of the Intranet*
(Adapted from eThekwini Municipality Intranet Research Report compiled by Ask Africa (2006: 39))

Statement	Percentage (%) of Respondents (N=20)		
	Agree/ Strongly Agree	**Neutral**	**Disagree**
The drop down menus are easy to use	70%	20%	10%
Overall I am happy with the functionality/usability of the site	67%	10%	24%
I am happy with the site labeling	62%	19%	19%
I am happy with the speed of the site	62%	14%	24%
I am able to navigate quickly and easily	50%	20%	30%
The site is self-explanatory – it indicates where I need to go to find the information I am looking for	43%	29%	29%

From Table 3, it appears that navigation improvements are required. Furthermore, while respondents surveyed agreed that they are able to navigate the Intranet Website quickly and easily, they felt that there was no clear direction provided. Knowledge seeking is an important process associated with the management of knowledge. The Intranet should make organisations more successful and employees more effective. There is a need for the Intranet to 'become a dynamic and living environment for knowledge-based activities' (Robertson, 2004:1). The revised navigational structure will then have better rigour and structure and should have a positive impact on employees. Debowski (2006: 169) cautions that 'the reason that many intranets are less useful than they might be – they lack rigour and structure'.

For $n = 20$, $N = 6{,}654$ at a 90% level of confidence and $\sigma = 0.5$, then the level of precision $E = 0.183$ i.e., the degree of error allowed is 18% (rounded). This means that the results to statements which are shaded in Table 3 are not statistically conclusive and the respondent's views should be regarded as 'split'.

The ranking in ascending order of Agree/Strongly Agree responses to the content of the Intranet is reflected in Table 4.

Table 4: *Ranking in ascending order of Agree/Strongly Agree responses to the content of the Intranet*
(Adapted from eThekwini Municipality Intranet Research Report compiled by Ask Africa (2006: 44))

Statement	Percentage (%) of Respondents (N=18)		
	Agree/ Strongly Agree	Neutral	Disagree
The information and content on the website is relevant	63%	11%	26%
The information on the website is reliable	61%	17%	22%
Overall I am happy with the quality of content on the website	57%	14%	29%
I am happy with the quality of the search process	57%	14%	33%
The content on the site is regularly updated	53%	11%	38%
There is a high likelihood of finding information I am looking for even though I do not know where to find it	52%	10%	38%

For n = 18, N = 6,654 at a 90% level of confidence and $\sigma = 0.5$, then the level of precision E = 0.193 i.e. the degree of error allowed is 19% (rounded). This means that the results to all statements which are shaded in Table 4 are statistically not conclusive and the respondent's views should be regarded as 'split'.

From Tables 1 and 4, it appears that respondents surveyed generally felt that the information on the Intranet is relevant and reliable. However, improvements in the updating of information and the quality of information-seeking are required. This suggests that while the information on the Intranet website is generally seen to be reliable, the regular updating of content and finding information that an employee is looking for needs to be improved (Ask Africa, 2006: 45). For an Intranet to be of 'real value' to employees, the contents should be relevant, reliable, accurate, informative and up to date. In order to facilitate knowledge and knowledge sharing, employees need to be able to share organisational relevant information with one another. An important use of most Intranets is to find documents that 'point' to employees who have knowledge and expertise. By finding the information, this should result in the creation of knowledge and as a growing spiral as knowledge moves among employees, groups of employees in the different organisational levels in eThekwini Municipality.

An Intranet may be classified as a KM application since it is capable of distributing knowledge. An Intranet is seen as a tool for the more efficient

sharing and creation of knowledge within organisations, using both 'push' and 'pull' technologies. However, in the case of eThekwini Municipality's Intranet, it appears that far greater use is made of the 'pull' technology (as opposed to 'push' technology). This current trend will need to be addressed so that the 'pull' technology is also facilitated.

In summary, from the survey results there appear to be areas for improvement in the Intranet design, usability and content areas. The reported results tend to suggest that there is limited managing of knowledge and knowledge sharing using the Intranet in eThekwini Municipality. This trend will need to be addressed so that managing knowledge and knowledge sharing are aligned with eThekwini Municipality's IDP.

Conclusion

Given eThekwini Municipality's IDP, the value of knowledge for knowledge sharing is crucial at this point. Further research may need to be conducted to gauge whether improvements in the updating of information and the quality of information-seeking have facilitated managing knowledge and knowledge sharing in eThekwini Municipality. IT, with the enabling role of Intranet technology, should be seen as significantly important to enhance the meaning and value of managing knowledge and knowledge sharing in eThekwini Municipality—this will serve to augment Programme 7 of eThekwini Municipality's IDP. With intellectual capital being aligned to the organisational strategy, the Intranet will provide a sound framework to facilitate managing knowledge and knowledge sharing in eThekwini Municipality towards its KM strategy.

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Teaching 2.0: When the Student is Ready, Will the Teacher Disappear?

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> If we teach today's students as we taught yesterday's, we rob them of tomorrow (John Dewey).

Abstract

A Buddhist proverb proclaims, *When the student is ready, the teacher will appear*. This paper explores teaching practice, the current generation of student and the use of technology, as the elements at a teacher's disposal in the process of enhancing the learning experience. It explores the theoretical foundation underpinning these elements and postulates that their interactions over time can be used to illustrate why they may not have been aligned in the past. However; with the current context of teaching practice, students and technology, a synergistic relationship can be formed which can potentially optimise the learning experience. The underlying assumption though is that teachers would need to implement this practically in their classrooms for the synergy to be experienced: The subtle implication alluded to in the title is that perhaps teachers will become the architects of their own demise if they do not begin to engage their students using some of the precepts discussed. A study of 13 students in a Computer Mediated Communication (CMC) Honours module is used to pilot these ideas. Feedback from an initial 2 week activity is explored, and shows promising results.

Keywords: Computer mediated communication, constructivism, generation-Y, instructivism, learning, motivation, network, teaching practice, theories of knowledge, social computing.

Introduction

Fundamentally the role players of the teacher, student, course material and platforms for delivery need to be optimised to achieve the best learning results. This paper theoretically explores ways of achieving this and shows that our current context of social computing is allowing for an alignment of these role players in a way which has not been possible in the past.

Parameswaran and Whinston (2007, p763) challenge Information Systems (IS) researchers to take the lead in social computing research: 'Social computing will impact numerous academic disciplines due to its pervasive influence and is thus a rich area for research; an area in which it is important for information systems researchers to take the lead'. This paper explores a possible role for social computing in the educational context and pilots the approach within a fourth year Honours class.

Problem Statement, Objectives and Research Questions

Bloom's cognitive objective framework is a well accepted framework whereby a course (including the content and assessment) can be assessed in terms of its level of student cognitive engagement (Carneson *et al.*,n.d). Typically, higher level tertiary education courses should see students more engaged in synthesis and evaluation learning rather than lower cognitive levels of knowledge and comprehension.

In order to achieve higher levels of student cognition and richer student engagement in the learning process, a variety of pedagogical learning theories have been postulated. These range from Instructivism to Constructivism. Instructivism is characterized by an instructor providing some form of formal instruction to the class, where the student plays a passive role (Gulati, 2004). Constructivism, on the other hand seeks to place the student at the centre of the learning activity where they construct the knowledge themselves (Gulati, 2004). However, the reality is that educators

find it difficult to incorporate the desired outcome of higher cognition in senior years, into teaching practice in a substantive fashion.

One of the key challenges is that adopting new paradigms is often initially accompanied by an increase in the workload of the staff. Furthermore higher education organisational structures have not matured to a point where they can accommodate this form of interaction. In South Africa, learning spaces are still dominated by formal lecture halls and areas of 'quiet contemplation' such as libraries and study halls.

Insights from generational theory show that academic faculty and management are likely to belong to the (Baby) Boomer generation (born 1943-1963) or generation X (1963- early 1980s) with distinctly different approaches to life to their current students, Generation Y (born 1981-1993). Generation Y are socially and community oriented, with the ability to spread their focus by harnessing a variety of technology platforms. Their learning preferences include visual information, working in teams, experiential activities and use of technology. Their strengths include multitasking and collaboration (Oblinger, 2003, Weiler, 2005). Thus the current generation of students is faced with an educational institution whose structures and faculty may be in conflict with the way they can best, and perhaps most want to, learn.

At the same time technology and business models relating to computer mediated communication (CMC) is dominated by what is called Web 2.0 (O'Reilly, 2005). These technologies seek to empower the individual user(s), as the creators and publishers of content, while also allowing them to draw the information to themselves. Communities and networks are socially constructed with greater emphasis being placed on sharing; working together and communal resources (open source platforms and developments). This in contrast to earlier web developments which saw information 'published' for use or personal need (O'Reilly, 2005).

The convergence of a generation characterized by social sharing behaviours, together with supporting CMC technologies, is producing interesting opportunities and challenges for long-standing formal learning institutions. Traditionally three elements needed to be aligned for a successful learning experience – students, the learning philosophy and the teacher. This may or may not have been supported by the fourth element, technology. The technology was primarily seen as a support or optional

enhancement to the learning encounter. For the first time in educational history the three elements: an accepted learning theory (social constructivism), generationally aligned students (Generation Y), and supporting technology (Web 2.0) are aligned. We now stand at a point where a new question is being raised – Has the convergence of willing students, an appropriate learning philosophy and an aligned supporting technology made the teacher superfluous?

Ultimately motivation is the 'primary factor in teaching and learning' (Reeves, 1995, p224; Malone, 1984). Motivation is the glue that binds teacher, student, philosophy and technology into a successful learning experience. This paper explores the potential, and impact, of using current Web 2.0 technologies to support the practices suggested by pedagogical theories. This paper is thus exploring *the effect on student motivation, of aligning current technologies with appropriate learning techniques.*

Literature Survey

The area of focus for this paper is the intersection that falls between how the real world operates and our theoretical understanding of how best to facilitate the learning process. As such our focus turns to academic practice and how we bring these two well documented and researched realities of technological innovation and theoretical pedagogy, together in a concrete and meaningful way.

Theories of knowledge and learning as participative and social experiences are already documented. The basic precepts required for this discussion have already been highlighted: Learning is defined as 'the act, process or experience of gaining knowledge or skill' (Barnhart & Barnhart, 1990); The style of teaching has been shown to significantly impact learning (Webster & Hackley, 1997); Cook and Cook's (1998) Student Retention of Learning Table (supplied here as text) highlights that 'Students retain…10% of what they read, 26% of what they hear, 30% of what they see, 50% of what they see and hear, 70% of what they discuss with others, 80% of personal experience, 90% of what they say as they do it, 95% of what they teach'. It is the doing and recreating that assists dramatically in retention of learning. These figures may begin to explain why students enjoy TV and computer based activities, because they are visual and auditory (Weiler,

2005). Educationalists have over the years postulated a wide range of educational pedagogies. The two points of reference against which a variety of other theories can be positioned are Instructivism on the one side and Constructivism on the other.

Instructivism

Instructivism is the classical approach used in the classroom and is based on an objectivist theory of knowledge (Reeves, 2008). It is characterized by an instructor providing some form of formal instruction to the class. This method of education places a high level of control in the hands of the instructor, with the learners being passive (Galuti,2004). One of the main issues is that students tend to use rote learning and then simply regurgitate the information in tests and exams (C-SAP, 2008).

Constructivism

The other end of the scale is characterized by the constructivism paradigm: Students are placed at the centre of the learning activity where they construct the knowledge themselves (Gulati, 2004). Constructivism is based on the premise that we all construct our own perspective of the world, through individual experiences and schema. Constructivism involves the use of more active forms of classroom interaction that engage the student in the process of learning (Gulati, 2004). Further studies highlight the role of social constructivism. Light (2001), discussed in Brown and Adler (2008), found that one of the strongest indicators of students' success in higher education is their ability to form or participate in small study groups. This was found to be more important than details of their instructors teaching styles.

Factors Affecting Learning

Not only is the pedagogy important but so too is an understanding of many of the other factors that can affect learning. Reeves (1995) introduced a number of pedagogical dimensions that he felt affected interactive learning. In more recent literature Reeves (2008) expanded the number of pedagogical dimensions to 14. The pedagogical dimensions are as follows: (1) epistemology, (2) pedagogical philosophy, (3) underlying psychology, (4) goal orientation, (5) experiential value, (6) teacher role, (7) program

flexibility, (8) value of errors, (9) motivation, (10) accommodation of individual differences, (11) learner control, (12) user activity, (13) cooperative learning, and (14) cultural sensitivity.

Many of the factors identified by Reeves (2008) are ultimately under the control of the developer of the learning programme, with few reflecting the ability of the learner to impact their learning experience e.g. student motivation. It is accepted that student motivation has a positive effect on learning. Motivation affects retention, and is therefore critical to learning success (Kumarawadu, 2004, Weiler, 2005). 'If students are intrinsically motivated to learn something, they may spend more time and effort learning, feel better about what they learn, and use it more in the future'(Malone, 1981).

Active Learning

While there is no motivational 'magic bullet', Felder and Silverman (1988) in their seminal paper on learning styles state that student motivation can be enhanced through active learning. The more traditional (Instructivist paradigm) methods of learning tend to be highly passive from the student's perspective (C-SAP, 2008). It is also recognized how little learning actually takes place in lectures (Felder & Brent, 2003). Active learning requires that students be more than simply alert and listening, but also requires them 'to do things and think about what they are doing' (University of Northern Iowa, 1998). Therefore in order to address the challenge of engaging students at higher levels of cognition, it becomes clear that it is necessary to adopt not only a pedagogical philosophy that is appropriate but also workable active learning techniques, that will enhance the student's learning experience and increase the student's motivation to learn. This changes the focus: 'Instead of fonts of information, the lecturers can become sites at which students gather to hear advice on what to do' (Brent, 1996). Doug Brent in his keynote address (1996) puts this most succinctly, 'Learning occurs at the point where students are in a little over their heads, where conceptual gaps open and create problems that can only be solved by applying new knowledge and new thinking which must be constructed for the occasion'.

Generation Y students 'don't see computers as technology' because they have never known a world without them: computers are just a part of life (Weiler, 2005). Generation Y students experience and view technology

as such an integrated part of social and educational life, it is no longer a 'platform' (Brent, 1996); it is life.

It is this point of convergence that is altering the educational landscape in a way never seen before. The time Brent (1996) spoke about has now arrived. When information technology is exploited, not only for its ability to present information, but its *potential to connect people*, then emancipation of learning will take place.

Our Students: The 'Next' Generation

Generation Y students (the current generation of students in tertiary institutions) are the millennial, NET, MySpace or Next generation. Access to information and data processing power has given children a different way of interacting with information compared with previous generations (Jones, 2002, Weiler, 2005).

> *They prefer their information to arrive in 'interactive' forms, and are especially drawn to Internet information channels. They have a much higher 'information overload' threshold, but have been forced to make drastic changes in how they process and learn information. This has been largely misunderstood by older generations who attempt to force them into the older methods of linear processing* (Codrington 1999: webpage 2 of 7).

The generational characteristics are still to be fully developed for generation Y but clear trends are already emerging indicating that community matters most. We can see current students are collectivist and community focused; they multitask, process information interactively and expect change and variety (Codrington, 1999, Reynolds, 2005).

In addition we need to consider the profile of the faculty who are expected to teach them: By and large the faculty consist of (Baby) Boomers and generation Xers who are individualistic, have a weak sense of community and use linear methods of processing. Clear contradictions are evident.

This highlights the fact that the students entering our educational systems demonstrate those characteristics that are used as the cornerstones for the development of active learning techniques. They are community

oriented and thus have greater tendencies towards social contexts for all experience; including education. For these students the creation of knowledge is a natural, social, active process (Weiler, 2005).

We are not trying to suggest this is the only valid approach to fostering and encouraging learning but rather suggest that while classes will always consist of learners exhibiting a variety of preferred learning styles (Felder, 1998) we are likely to see an increase in the number of students who prefer a variety of visual media that can be engaged using a constructivist approach.

Social Computing

A confluence of the elements of educational theory and the nature of the learners entering the educational system is clear. The third element that has now also converged is the supporting (or integrated) technologies that are now available. Most notable among these are developments within *Social Computing*. This is a term first coined in the 1990s by Tom Mandel (2008) and defined in a number of ways (Forrester (2006), IBM, (2008) and PA Consulting, (2008)). Central to these definitions are the ideas of social computing as social interaction through information systems: not just as a platform or application but as a system where the information system is used as a 'place' for interaction as well as a 'space' for information storage, manipulation and use. Again this reinforces the concept that social computing is not about a platform (as previous technologies have been viewed) but a space.

These tools include both the hardware and the software which have become associated with the Web 2.0 phenomenon (Alexander, 2006). Examples include social networks, business networks, wikis, blogs, virtual worlds, social bookmarking and photo/ video sharing sites. The McKinsey Quarterly report (December 2007) highlights four of the top eight technology trends to watch, being those related to 'Managing relationships'. The top two are directly related to Web 2.0 functionality.

The problem statement introduced at the outset deals with *the effect on student motivation, of aligning current technologies with appropriate learning techniques:* By clarifying the synergies necessary to enhance student motivation it is possible to highlight particular characteristics in the learning experience which we can manipulate so that they are likely to appeal to our students. These include (1) providing learner-centred control, (2)

social interaction in the engagement, and (3) using rich media and diverse information sources. These characteristics are common to social constructivist learning theories, next generation students and the social computing aspects of Web 2.0 technologies. The terms we require to fully articulate our research question are now clear:

> *What is the effect on Generation-Y student motivation, of aligning social computing with social constructivist learning techniques?*

The methodology will highlight the context for the study; in particular the module in which the study takes place and the learning opportunities provided. In addition the theory of motivation, and related research instrument, which we use to ground our discussion and obtain student feedback will be introduced. The social network used to facilitate the module forms both a part of the learning experience and a mechanism for feedback from students and will thus also be included in the following section.

Research Methodology

This study deals with an elective module Computer Mediated Communication (CMC), formally ISTN730 and ISTN430, of the 2008 Information Systems & Technology Honours (4th year) full-time programme at the University of KwaZulu-Natal, Westville Campus, Durban, South Africa. Of the 17 registered honours students, 13 students have elected this module. The purpose of this module is to provide students with the theoretical and practical knowledge to use Web 2.0 technologies and to evaluate and develop Web 2.0 business models as applied to business, education and entertainment.

This paper focuses on the activities used to introduce students to the plethora of issues that fall under the umbrella of CMC. While students are given broad definitions of the field, the area of study for the duration of this offering is further reduced to those technologies broadly seen as Web 2.0 applications. The introductory topic covers the first 2 weeks of the module. This includes 2 formal sessions (1 per week, named Session 1.0 and Session 2.0), a self-study activity undertaken between the 2 formal sessions (Session 1.5), and an assessment (assessment 1.0) submitted roughly 3 weeks later. Feedback is obtained via a questionnaire, as well as a review of individual

blogging, and general participation on the module's supporting social network site, University 2.0.

Learning Activities

The focus of CMC is not only on the content covered, but also to teach students how to learn about the ever-changing landscape of CMC.

Session 1.0, an instructivist-style lecture, provided students' information on the basic module, its objectives, channels of delivery, anticipated assessment structures and expected ethos. The objective of this session was to capture their attention and stimulate their interest in terms of anticipated learning, and the introduction of unconventional[1] channels of delivery and modes of assessment.

Session 1.5 was the self-study period between Session 1 and Session 2. This 'session' adopted a scaffolded learning approach (Rose et al., 2003) which is a supportive approach to reading and writing. The students were required to be self-motivated in their assimilation of the plethora of literature and other material (podcasts, images, audiophiles) on Web 2.0 and CMC.

Session 2.0 used the extrinsic motivation of a recorded panel discussion in a formal TV studio[2] to encourage the students to engage thoroughly with the material. The panel discussion session consisted of four 15 minute panel discussions. The idea of using a formal studio environment for the panel discussions helped provide a powerful motivation to the students to actively engage their reading material. Furthermore the objective was to try and improve student retention of this key material (Cook and Cook, 1998). Furthermore exposure to, and understanding of, professional environments; presentation, writing and interpersonal skills are key discriminators in the current IS&T marketplace (Brown and Adler, 2008: p19).

[1] We use this term to differentiate from the normal mode of delivery that students are most commonly familiar with as opposed to implying uniqueness. The instructivist approach is the most common within the School of IS&T (UKZN).

[2] These services supplied by the Audio Visual Centre, Westville Campus of the University of KwaZulu-Natal, which is also used for commercial recordings.

Students were required to complete a post-session assessment where they critiqued each of the panel discussions. This assessment is not reviewed here but will be reviewed in a subsequent paper.

The impact of these sessions together with the supporting Social Learning Network (discussed below), on student motivation, need to be assessed.

Social Learning Network Analysis

A supporting social learning network called University 2.0 was setup. The purpose of this was to allow students to engage their learning material in a manner that is both compatible with their generational characteristics and is engaging. The University 2.0 site provided a variety of tools including podcasts, blogs, groups etc. Each student was also able to set up their own 'space' where their personal tools, comments and interactions could be stored as a subset of the University 2.0 network.

In order to supplement the survey data obtained, the student use of the blogging facility and interactions on the University 2.0 social learning network site will be analysed. This analysis will attempt to gauge student motivation as expressed in their use and interaction with the University 2.0 site.

Measuring Motivation

Keller introduced the ARCS Model to measure the effectiveness of educational material in motivating students in 1987 (Margueratt, 2007; Weiler, 2005). The ARCS model suggests that in order to motivate a student four specific conditions must be met namely, Attention, Relevance, Confidence and Satisfaction. These can be detailed as follows:

- Attention deals with capturing the interest of students and stimulating their curiosity to learn.
- Relevance deals with meeting the personal needs/goals of the student to affect a positive attitude.
- Confidence deals with helping students to believe or feel that they will succeed and control their success.

- Satisfaction deals with reinforcing accomplishment with rewards (internal and external)

In order to determine the level of motivation using the ARCS model Keller developed the Instructional Materials Motivational Survey (IMMS). This instrument is used to obtain student feedback on the Learning Activities (Sessions 1.0, 1.5 and 2.0.) and measure their level of motivation within this part of the course.

Gabrielle (2003) analysed commentary in terms of the ARCS characteristics by annotating and categorizing student comments. Each of these comments is known as a mention, or mention sequence, depending on their length (Calloway & Ariav, 1991). This qualitative technique, referred to as coding (Miles & Huberman, 1994; Strauss & Corbin, 1990; Urquhart, 2000), is used to measure student motivation in their interaction with, and use of, the University 2.0 Social Learning Network.

Data Collection

The ARCS model was further modified in 1993, and it is this version of the IMMS questionnaire that was used for data collection. The questionnaire consists of 36 questions (Margueratt, 2007). Questions were uploaded to the Survey Monkey website (March 2008) to allow for automatic data capture (http://www.surveymonkey.com). The link for the questionnaire was mailed to students and they were given 48 hours to complete the survey. In total, 11 out of the 13 class members responded. As the data set is small only descriptive statistics are available and results are not generalisable.

This study uses triangulation, or a mixed-mode methodology (Gabrielle, 2003). The IMMS survey presents descriptive quantitative results while the analysis of the students' social network entries is qualitative, and subjective.

Results and Data Analysis

Data analysis focusing on the results of the ARCS survey and commentary on University 2.0 will be directed towards the identified synergistic elements of social computing and social constructivism and their impact on Generation Y student motivation in a learning environment.

Social Constructivist Approach

As was discussed earlier the course was delivered using a highly engaging social constructivist approach. Students were expected to be highly involved in the course from the very beginning. In order to measure the impact this approach had on student motivation, the IMMS survey was conducted. The following is an analysis of the results in terms of Attention, Confidence, Relevance and Satisfaction.

Attention

Attention is concerned with the aspects of the course that arouse and sustain the students' curiosity and interest. Various attention techniques were used and the students were required to respond to statements such as 'The use of videos and audio was very good at getting my attention', 'The way the learning material and learning experiences are arranged helped keep my attention.' etc. Overall, 87% of the students felt that it was Mostly True (55%) or Very True (32%) that the course held their attention.

One of the biggest challenges with a course of this nature is the volume of new material that students are required to read. Pre-reading is vital if students are to engage in the course in a meaningful way, however it is often not done because it is perceived as boring. As such it is worth noting that in response to the statement—*The variety of readings, videos, audio clips, etc., helped keep my attention on the material*. 100% of the respondents said that it was Very True (45%) or Mostly True (55%). Student attention was maintained through all of the reading material by using a rich combination of media, including audio, video and text.

Relevance

The second aspect of motivation is Relevance, and this is concerned with strategies that have been implemented to help link the course content to the students' needs, interests and motives. Statements such as the following were used to determine relevance; *The videos and other AV material helped show how the issues are used and important to people* and *I could relate the content of the material to things I have seen, done, or thought about in my own life*. Overall, 80% of the students found the material to be relevant to them (45% Very True + 35% Mostly True).

While this is slightly lower that the score for Attention, it is still high, especially considering that relevance of material to students is often one of the most difficult things to successfully communicate.

Session 2.0 of the course (the Panel discussion) was seen as the most powerful way of making the material relevant to the students. Rather than simply having to learn the material, students were now able to role-play talking about the material they were learning, as if it really was a real part of their lives. As such the response to the question *The content of the material and the experience of the Panel Discussion will be useful to me* saw 100% of the students answering Very True (82%) and Mostly true (18%).

Confidence

The third aspect of motivation is confidence. This concerns the strategies that are implemented to help the students develop a positive expectation for success in the course. Statements such as the following were used to measure confidence. *As I worked through the material, I was confident that I could learn the content,* and *after working through the CMC learning material, I was confident that I would perform well on the Panel Discussion.* Overall, 68% of the students answered Very True (38%) and Mostly True (30%) to being confident about their learning experience.

This is lower than the percentages for Attention and Relevance, but again this is not unexpected. A course of this nature deals with emerging technologies and trends and thus the concepts and theory appear almost 'fluid' in nature to students who are most familiar with highly defined topic areas within the discipline. In addition, the huge initial reading load and expectation of performance on the panel discussion is somewhat intimidating in nature, no matter one's level of knowledge in the area. However with nearly 70% showing high confidence the techniques show that it is possible to imbue confidence despite mitigating factors.

One of the areas where confidence was at its lowest was at the release of the Panel Discussion (Session 1.5). In response to the question: *When I first read CMC 1.5 (the intro to Panel Discussion), I had the impression that it would be easy for me,* 73% felt that this was Not True (55%) or only Slightly True (18%). However in response to the statement: *After working through the CMC learning material, I was confident that I would perform well on the Panel Discussion* 63% felt it was Very True (18%) or Mostly

True (45%). This showed that, as was expected, the initial task seemed daunting, but their confidence increased as they engaged the material.

Satisfaction

The final element of motivation is satisfaction. This is very important as it helps to reinforce the motivation that is developed through the other elements. Essentially satisfaction is to do with strategies that provide extrinsic and intrinsic reinforcement for effort (Keller, 1983). Statements such as the following were used to measure Satisfaction; *Completing the Panel Discussion experience gave me a satisfying feeling of accomplishment* and: *The feedback after the Panel Discussion and other comments helped me feel rewarded for my effort.*

Overall, 77% of the students answered that it was Very True (50%) or Mostly True (27%) that they felt satisfied with their learning experience.

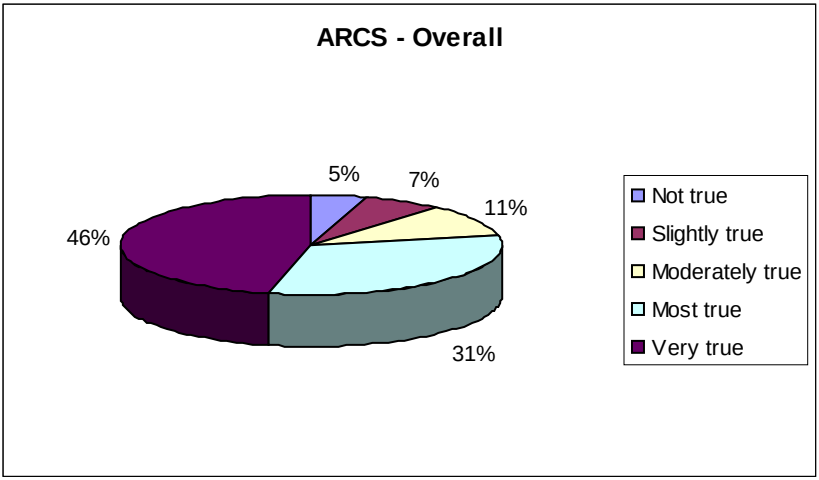

Figure 1: *ARCS Overall Measure of Motivation*

It is interesting to note that despite the learning material being volumonous, and the students being under pressure to know and understand it, the following results were recorded for—*I really enjoyed working through the CMC 1.5 learning material* – 82% said this was Very True (36%) or Mostly True (46%). The feeling of extrinsic motivation received from fellow

students and staff is also demonstrated in the results for the statement—*The feedback after the Panel Discussion and other comments helped me feel rewarded for my effort*, where 82% said this was Very True (27%) or Mostly True (55%).

Overall motivation in terms of ARCS shows (see Figure 1) that 77% of the class responded to the various elements of motivation either that it was Very True (46%) or Mostly True (31%).

Adopting an active learning approach combined with supporting rich media has enabled the students to successfully navigate the first part of the course while maintaining high levels of motivation. While initial reading loads and complexity of material had the students somewhat apprehensive, as is often the case in higher level courses, it is apparent that an appropriately aligned pedagogical course can be used to engender high student motivation.

Generationally Aligned Technology

The second part that is important is the support of the technology in the course. This course was supported by a Social Learning Network. The Social Learning Network was implemented, to not only fit in with the Generation Y social behaviour, but also to try and further develop the key aspects of motivation in the course experience. Again attention is given to the ARCS model to both show how motivational aspects were designed into the Social Learning Network by the course designers and how the students responded to these key elements as shown through their use of the Social Learning Network.

In order to implement the factors of the ARCS motivation into the website, attention was given to trying to ensure that all four aspects of motivation were addressed.

The welcome blog post indicates this (see Figure 2 below). Attention was addressed by welcoming them—*Greetings and felicitations Honours CMC 2008.*

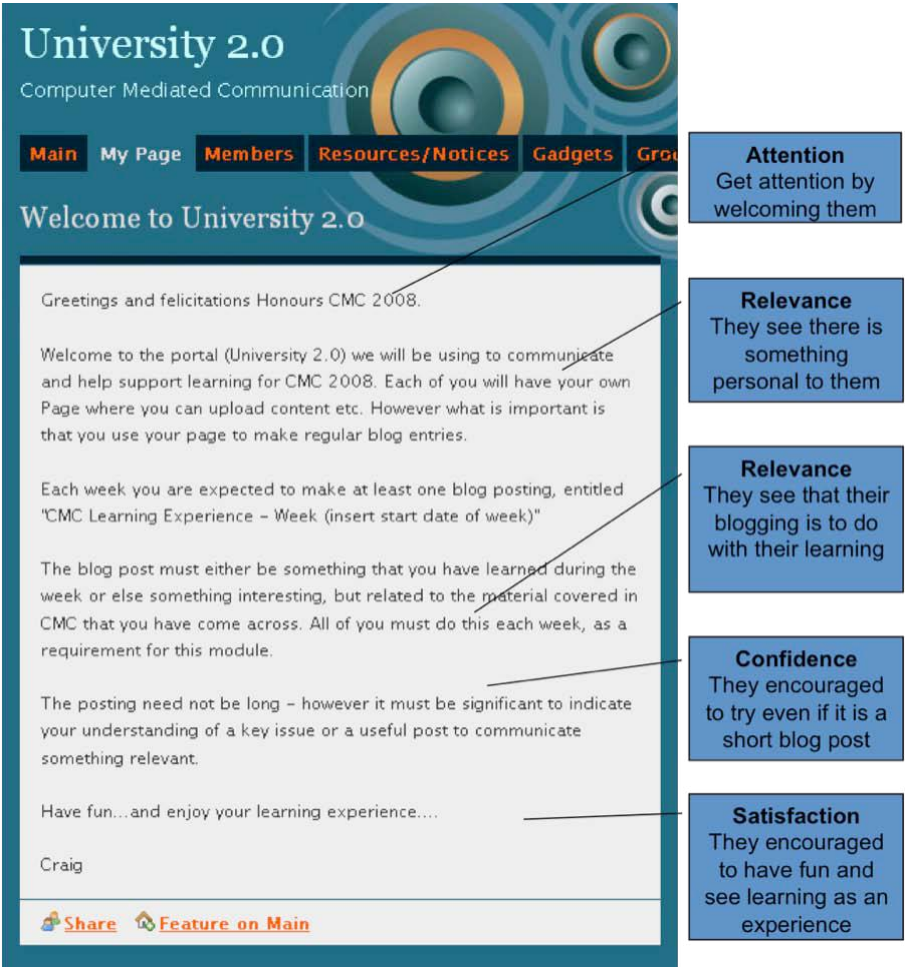

Figure 2: *Welcome Blog post highlighting motivation elements*

Relevance was addressed through statements in the opening blog post such as *Each of you will have your own Page where you can upload content etc.* Here they can see that there is going to be something personal to each of them, which improves their appreciation of relevance. Also the instruction also reinforces relevance by showing that their blog posts are linked to their learning experience—*The blog post must either be something that you have*

learned during the week or else something interesting, but related to the material covered in CMC that you have come across.

Confidence at this early stage is very important. While there is a lot that is expected from the students in the various parts of the course they are encouraged to try; which builds their confidence through statements such as—*The posting need not be long.*

Finally Satisfaction is vital in developing and sustaining motivation in a course. Statements such as *Have fun … and enjoy your learning experience* ... help improve the student's enjoyment of the course.

The importance of ensuring that all aspects of motivation are continually addressed is continued beyond the initial blog. It is important that Attention, Relevance, Confidence and Satisfaction are built into the entire web experience. Students are expected to spend a significant part of the course time in this social learning network. As such it is important to try and make sure that the key elements of motivation are continually addressed. This is demonstrated in Figure 3 below. This is one example of addressing motivation through the layout and postings of the social learning network.

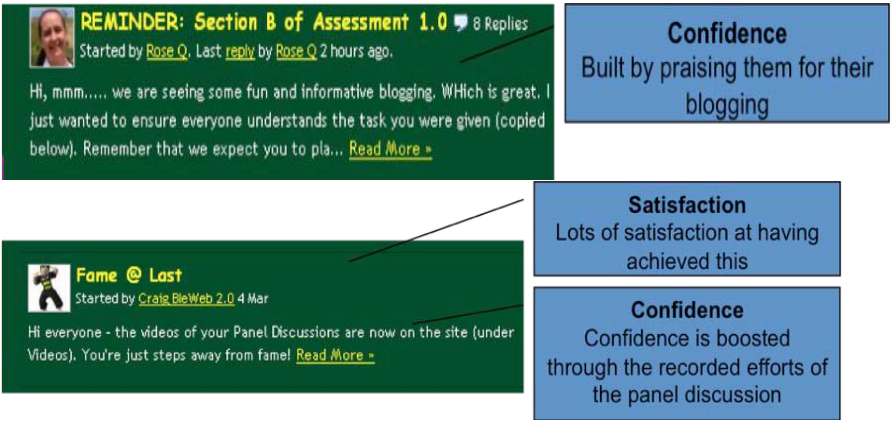

Figure 3: Addressing motivation through the layout and posting

Besides simply considering motivation in terms of the design and postings as implemented by the course developers, it is also worthwhile considering the students' comments.

All of the students on signing up for the social learning network were required to provide an answer to the question *What one key thing are you hoping to learn through this CMC course?* An analysis of their answers provides an interesting insight into the motivation 'request' of the students. Below is an analysis of some of their answers as organized in terms of Attention, Relevance, Confidence and Satisfaction.

Attention

- *CMC is cool and exciting*

Relevance

- *Importance of CMC in the corporate and social world and ways in which i can use CMC to my advantage.*
- *How virtual environments are changing the social and business worlds in many ways via Internet to mobile technology*
- *i hope to learn how to improve in creating more exciting ways of communication between people via computers/with the aid of computers*
- *The wonders of Web 2.0*

- *The impact of cmc in today's world*
- *How cmc has helped change the way in which we communicate and to be more well equipped in the real (working environment)*

Satistfaction

- *CMC is cool and exciting, who wants to do a boring module if we can do CMC. I'm sure you know what I mean by boring module*
- *…and to have fun while doing and learning all these in CMC*
- *To learn through collaboration whilst having fun*

As this question was put to the students at the start of the course it was not expected to have any comments that related to Confidence. However it is interesting to see that there are many comments relating to relevance and satisfaction. Almost all of the students made comments relating to their hope that the material would be relevant to them.

This highlights how important this aspect of motivation is to students' learning. Besides Relevance the students also exhibit the need for Satisfaction in their learning experience.

Analysis of University 2.0 Usage

The final part of the analysis and impact on student motivation is based on an analysis of the students' usage of the University 2.0 social learning network. By analyzing the students' usage and interaction with the site a valuable insight is gained into the students levels of motivation in the course.

The University 2.0 blog facility enabled the students to post blogs on any item that was relevant to the CMC learning experience. Students were encouraged to post interesting articles and as a result over the period of the first part of the course (5 weeks) a total of 51 blog posts were made, an average of 4 per student. While this may be as a result of the marks allocated to posting relevant blogs, what is interesting is that there were 89 comments from the students on these blogs, an average of 7 comments per student. This shows that there is a high level of engagement by the students with the course material as this is time spent learning outside of the other formal learning sessions allocated to the course.

Over and above this there is a comment facility, which is there for more informal discussions regarding the course or other issues. Extensive use

was made of this over the first part of the course with 59 comments being made in this period. Again this indicates a high degree of engagement by the students in the course and related activities.

Ancillary benefits found in a social network environment relate to the 'place' aspect of social computing (as discussed earlier). We have one foreign student who is very reserved and does not participate in a face-to-face environment unless forced to do so, due to his difficulty with English. In this context he has been more active and forthcoming, including asking students why they did not '*talk on his page*'. Students were quick to respond, pointing out that they would be happy to communicate if he just started blogging so that they had something to talk about. He is now a regular participant and provides different insights for consideration for the classroom. As an example he introduced a Chinese IM facility known as QQ, which is also available in English. A discussion about its relative merits has taken place online; further enriching the class. Blogging also improves student writing, talking, and language; necessary skills as highlighted by Brown and Adler (2008).

Answers to Research Questions

This discussion began with an assertion that we now have a situation where theoretically, the accepted teaching paradigms, available technologies and general context and attitudes of the student population should be in alignment. Our concern is in determining the effect on student learning (via motivation) if we actively construct our teaching practice according to the social constructivist guidelines and channel delivery via appropriate technologies. Thus the research question is:

> *What is the effect on Generation-Y student motivation, of aligning social computing with social constructivist learning techniques?*

Our pilot study certainly shows very positive results. Overall motivation in terms of Attention, Retention, Confidence and Satisfaction shows that 77% of the class responded to the various elements of motivation either that it was Very True (46%) or Mostly True (31%). Analysis of the social learning network site, University 2.0, is also very positive showing

how critical students see the issues of relevance and satisfaction when assessing their own learning experiences.

Conclusion

The exploration of the role of teaching strategies and technologically aligned tools has shown, in a limited pilot study, that they may be a critical element in enhancing student learning, specifically for Generation Y students, and potentially equally, or even more so, for future generations.

This study will continue throughout the duration of the Honours module, for the full first semester of 2008. Other technological platforms (social computing tools) will be explored in order to test how the suggested teaching model performs in these contexts. Brown and Adler (2008, p24) suggest that 'it makes sense for colleges and universities to consider how they can leverage these new connections through the variety of social software platforms that are being established for other reasons'. How much more is this true for Information Systems and Technology faculty members who can explore this not only in terms of a teaching tool but also the content of their discipline? Failure to do so may result in the teacher being replaced by the very technologies they fail to adopt.

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[3] Naming convention requested by original author.

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Assessing Student Performance in a Theoretical Computer Literacy Course

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Abstract

Students studying to become Chartered Accountants at a large South African Open Distance Learning (ODL) institution are failing an introductory course in computer literacy at an alarming rate. Over a period of five years the responsible lecturers proposed various methods to students on how to study and prepare for the examination of the subject, with some degree of success. The literature suggests that the problem emerges even before school level or at least as early on as primary school education. In an ODL environment students are faced with the absence of a classroom environment, a facility which many students, fresh from school, still have a need for. However, having marked a few thousand scripts twice a year over the past five years, the lecturers identified a number of sub problems all part of the larger problem of students having to use English as their second or third language to master a content subject. Other problems include ignorance of the study material and an inability to determine the relevance of a formulated answer to a question.

Keywords: Computer literacy, home language, language proficiency, pass rate, second language, student performance, student responses, teaching environment.

Introduction

Over the past five years I have been involved in the teaching and assessment of a theoretical computer literacy course for Chartered Accountant students.

The pass rate of this particular course was unacceptably low (e.g. 17% in 2005). We are faced with a number of challenges as our students come from vastly different backgrounds. Figure 1 indicates the broader composition of the students enrolled for this course over the past two years.

Groupings	2008	% of total	2009	% of total
Indian	1,600	13.26%	1,463	11.57%
African	6,498	53.84%	7,300	57.71%
Coloured	695	5.76%	776	6.13%
White	3,277	27.15%	3,111	24.59%
Total	12,070	100.00%	12,650	100.00%

Figure 1: *Composition of students enrolled for the course for 2008 and 2009 (Heda, 2009)*

If we consider the home language of the enrolled students and compare it with the language in which students study and also receive their study material, it becomes clear that many students have no option but to enrol for this course in a second or even third language.

Figure 2 shows a comparison between home language and language of tuition (also called correspondence language) for 2008 and 2009. Approximately 30% (32.48% and 27.64%) of students are native English speakers and this leaves 70% of students with the option of receiving tuition and study material in a second or third language.

Correspondence Language				
Language	**2008**	**%**	**2009**	**%**
Afrikaans	1,576	13.06%	1,426	11.27%
English	10,494	86.94%	11,224	88.73%
Total	**12,070**	**100.00%**	**12,650**	**100.00%**
Home Language				
Language	**2008**	**%**	**2009**	**%**
Afrikaans	2,013	16.68%	2,056	16.25%
English	3,920	32.48%	3,496	27.64%
Other languages	6,137	50.85%	7,098	56.11%
Total	**12,070**	**100.00%**	**12,650**	**100.00%**

Figure 2: *Comparison of correspondence language with home language (Heda, 2009)*

Other languages in Figure 2 include: French, German, Greek, Italian, Ndebele, Ndonga, Northern Sotho, Portuguese, Shona, Southern-Sotho, Spanish, Swati, Tsonga, Tswana, Venda, Xhosa and Zulu.

Problem Statement

A large number of Chartered Accountant (CA) students fail a first-year introductory course in Computer Literacy and this paper aims to identify reasons for the failure of this course.

Research Questions (RQs)

The following research questions are addressed:

1. What is the students' attitude towards the available study material? – RQ1
2. What is the effect of language proficiency on the pass rate when a second or even third language is used for study? – RQ2
3. What are the typical mistakes made by students when answering examination or assignment questions? – RQ3
4. What is the effect of the ODL model on the pass rate? – RQ4

Literature Survey

Students who are studying a subject which is content related, in a different language than their mother tongue are faced with the problem of content literacy. Content literacy is defined by Hurley & Tinajero (2001:87) as: 'the ability to use reading and writing to learn subject matter in a given discipline and how a student uses literacy to learn'. It is well known that students who have to use a language in which they are not proficient in (typically their second or third language) to master course content, for example a theoretical course dealing with computer literacy, experience serious problems in mastering the subject matter (August, 1994; Collier, 1995; Tinajero & Schifini, 1997). Although the course in question is a supportive subject for the qualification, the South African Institute of Chartered Accountants (SAICA) prescribes a comprehensive syllabus that Universities should adhere to (SAICA, 2009). The integration of the use of computers into other

courses for CA students is one of the aims of SAICA and is in line with other international universities (Larres, Ballantine and Whittington, 2003). However, this integration can only be successful if students understand the underlying theory of the subject.

When studying course content using a second or third language, students first need to become proficient in the particular language before they can sensibly utilise this knowledge to comprehend the content of the subject. Language plays a fundamental role in the understanding of technical terms and may therefore seriously affect the student's success in a content-related subject if not correctly addressed (Vacca and Vacca, 2007, Met, 1994). This dilemma is also highlighted by Hurley and Tinajero (2001:87) when they claim that 'non-English speaking students are expected to adapt to two or more languages and still make sense of content reading'. In the same vein Wang (1996:8) reports about a course conducted in English that 'the higher the proficiency in English, the better the academic achievement (in that course)'. Cummins, Chow and Schecter (2006) report that the 'development of literacy in two or more languages (additive bilingualism) constitutes a positive force in children's educational and personal development'. They also state that the encouragement of a child's mother tongue development will not hamper the development of English academic skills. It is plausible, therefore, that the language literacy problem starts even before school (Welsh Assembly Government, 2008). Naturally it is the purpose of a language to assist a student to comprehend what is happening, to understand and to be understood. Language and semantics are, therefore, closely intertwined and cannot sensibly be separated. Poor vocabulary knowledge of students affects their language proficiency (Li, 2007, Brassel and Furtado, 2008) and may hamper students in grasping the content of a course.

When studying, students are increasing their information literacy and the use of a computer may assist students in their quest for information and how to find and evaluate the information. According to Dunn (2002) students' information literacy need to be assessed and this is why a theory course may assist students to be more knowledgeable. Computer literacy courses of a theoretical nature normally cover vast amounts of technical terminology and many students attempt to master such terminology using their second or third language. Students need to develop the cognitive and academic skills required already at school level to succeed in learning

academic subject matter (Collins, 1995). Teachers need to integrate language learning with content learning, making use of the students' experiences and to focus on higher-level cognitive skills (Hurley & Tinajero, 2001). Cummins et al. (2006) emphasise the importance of extensive reading and writing to develop 'academic self-confidence and academic language proficiency'. If the problem is not addressed adequately at both primary and secondary school level, the student has a disadvantage when studying at a Tertiary Institution. The problem is compounded when the medium of tuition is primarily through distance learning.

Students who receive study material in a language that is not their mother tongue may often experience some degree of negativity towards their studies. One may therefore argue that our research question 1 above is closely linked to the literacy problem of research question 2.

ODL may be defined as: 'A type of education, typically college-level, where students work on their own at home or at the office and communicate with faculty and other students via e-mail, electronic forums, videoconferencing, chat rooms, bulletin boards, instant messaging and other forms of computer-based communication' (Webopedia, 2009). In this paper we argue that the ODL model may in part be responsible for the problem discussed further on. With the advance in technology, ODL models may become more efficient in the use of media supplements (Lupo and Erlich, 2001), but currently the South African ODL scene is still some distance away from the full usage of such technologies.

The following section presents the teaching environment of the course followed by the research methodology, namely, data collection and data analysis. Student responses are categorised thereafter into the following groups: 1) relative ignorance of the prescribed material, 2) limited comprehension of English as second language and 3) incorrect pattern fitted onto a question. The research questions are revisited and some relationships among the sub problems are identified and collated in a diagram as part of research question 3. The attitude students may have towards their study material is considered throughout and the impact the ODL environment may have on all these is considered. Towards the end a number of steps are presented to solve some of these problems. The paper concludes with an analysis and some pointers for future work.

The Teaching Environment

The course under discussion is a theoretical computer literacy course for first-year accounting students at a large ODL institution. It is a semester course and examinations are written during May and October every year. The material for the course consists of a prescribed text book (which the students have to buy from an official bookseller) and a study guide which is included in the student's study package upon enrolment for the course. The student enrolment comprises an average of 7 000 students during the first semester and 6 000 for the second semester. The pass rate for this particular course has always been low (see above), despite the fact that the lecturers embarked on a number of measures in an attempt to improve the pass rate. These measures include the following:

As a first measure we introduced by means of a tutorial letter a number of generic guidelines for studying the particular subject. These guidelines were simultaneously published on the web page for the course and also included as a hard copy document returned with the marked assignment of each student. This measure appeared to have had some effect, since our pass rate increased with about 3% (from 27% to 30%) during the October/November 2006 examination.

With a next student intake we employed two further measures: (1) we rewrote the study guide, incorporating a step-by-step study method, aimed at explaining the character of the course and (2) learning outcomes previously presented as pure statements were rewritten as questions, known in Outcomes Based Education (OBE) terminology as *knowledge tests*. Note, however, that these were just the questions and the students still had to determine the answers themselves. Before these measures our pass rate has increased from 17% during October/November 2005 to 30% in the October/November 2006 examination. However, after the above two measures were implemented our pass rate decreased to 27% during the May/June 2007 exam. This was somewhat disturbing, especially given the fact that the new study guide was written according to the guidelines proposed by experts in tuition, internal to our institution.

Research Methodology

Content analysis was used to analyse and interpret data as shown in the two sections below:

Data Collection

Having observed low pass rates for a number of years (16.99% for October/November 2005 – 43.81% for May/June 2009), I decided to analyse a number of low-mark examination scripts of students, a large number whose first language is not English. When marking between 5 000 and 7 000 scripts during each exam, similar and recurring mistakes made by students become apparent. Copies of scripts with these recurring mistakes were made during each exam and a number of these copies are used in the discussion further on in this paper. The data collected was for the period October 2005 to May 2009.

Data Analysis

The aim of this phase was to perform a content analysis (Mouton, 2004) on the exam scripts identified in the collection phase and classify typical incorrect responses to questions as well as problematic type of examination questions. It became clear that a lack of language skills and content literacy are the main contributors of the low pass rates. Lack of language skills could lead to frustration with prescribed study material while the lack of content literacy could in part be attributed to the ODL model.

The observations made during the analysis are categorised and presented below.

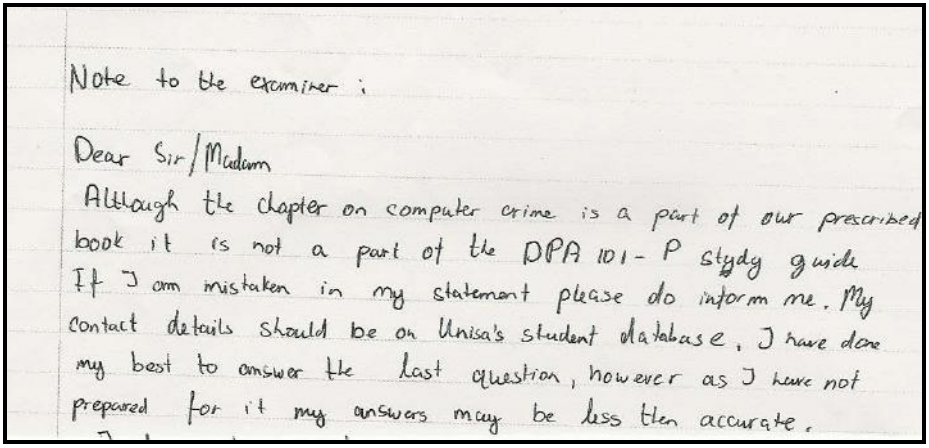
Categorisation of Student Responses

A preliminary account of the problems given below was presented at a recent conference (van der Poll and van der Poll, 2007).

Relative Ignorance of the Prescribed Material

The first problem that was identified is that students are relatively unfamiliar with the prescribed study material. Of course, this phenomenon is nothing new, but it is plausible that the non-classroom, non face-to-face contact characteristics of the ODL model could aggravate this problem. The attitude of a student towards prescribed study material could also lead to unfamiliarity with the content.

An example is given in Figure 3. The student claims that although the prescribed text book contains a section on computer crime, the study guide does not include this topic.


Note to the examiner :

Dear Sir/Madam

Although the chapter on computer crime is a part of our prescribed book it is not a part of the DPA 101-P stydy guide If I am mistaken in my statement please do inform me. My contact details should be on Unisa's student database, I have done my best to answer the last question, however as I have not prepared for it my answers may be less then accurate.

Figure 3: *Student's note in an examination script*

The above claim by the student is, however, incorrect. Section 8.1 of study unit 8 in the study guide for the course does indeed cover computer crime. The statement made by the student may be as a result of not following the guidelines that we propose in the study material or because of complete ignorance of selected parts of the study guide, as can be seen in Figure 4 which is an extract from the study guide in question.

8.1 Computer Crime

Computer crime includes a wide variety of criminal activities of a traditional nature, for example, theft, fraud, forgery and mischief. The abovementioned has spread to the computer environment. The use of computers has lead to a large number of new forms of misuse of technology.

Activity 8.1

Read the text book, chapter 9 (page 193 – 197) carefully.

Figure 4: *Extract from the 2009 study guide for the course*

In the next section we identify a number of sub problems of the larger language proficiency problem discussed before.

Limited Comprehension of English as Second Language

In figures 5, 6 and 7 below three different students reveal anything from a minor to a complete lack of understanding of their second or third language. Naturally, if a student does not comprehend the language used to communicate in (and owing to the ODL model, the lecturer is not physically present to assist), it is difficult, if not impossible, to understand the subject content, leading to a despondent attitude towards the study material.

The answer in Figure 5 was given by a student in answer to the question: *Define computer crime*.

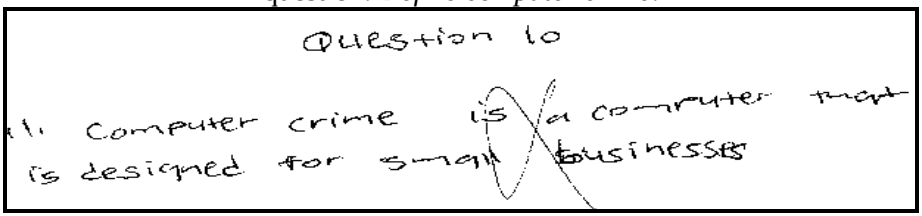


Figure 5: *Answer from a student to a straightforward content question*

Figure 6 shows an email from one of the first year students accentuating the challenges that students with a second or third language face when trying to communicate. It is very difficult to really comprehend what the student is articulating.

Subject: clueless about the course

Hi

i'm sorry to bother you but i'm new in the field and its been so difficult for having to take a clueless course that has a DPA101P module in it.
my plea to you is that, is it possible for to light with a bit of information towards the module and which contacts should i consider for help during my second semester?
Regards

In a classroom environment the student could have been assisted by the lecturer to formulate the question and subsequently receive a sensible answer. In an ODL environment students have to rely very much on email contact with lecturers.

Figure 7 is an answer given by a student to the question: *Briefly discuss fraud by means of computer manipulation with specific reference to data diddling*. Incorrect word sequences and grammar mistakes make it virtually impossible to understand what the student was attempting to articulate. This may be because of a serious inability on the student's side to efficiently use his or her second or third language.

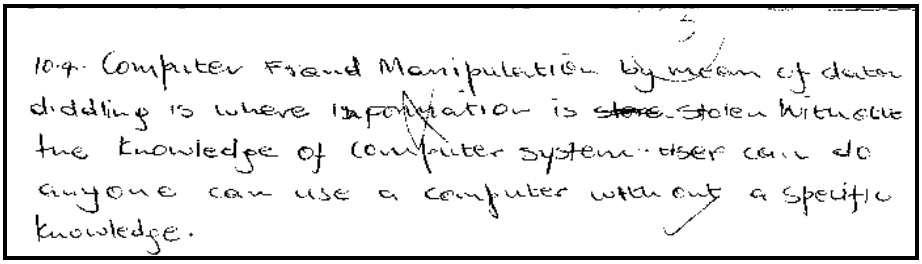


Figure 7: *Quote from student's examination script: 1st articulation problem*

In the next case students were asked to *name five (5) types of computer crime*. From the partial answer given by the student in section (iv) in Figure 8, namely, *unauthorised protective the computer system develop*, it becomes clear that this student is also battling to express him- or herself in a second or third language.

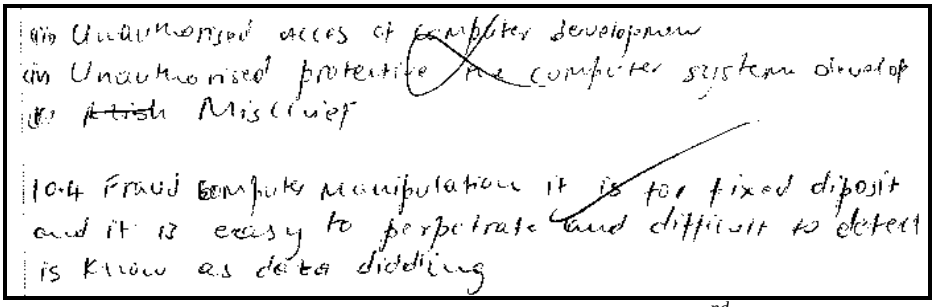


Figure 8: *Quote from a student's examination script: 2nd articulation problem*

In the answer to the same question reflected in Figure 9, namely, *it can happen when someone pay with money at lower costs*, it is also clear that language literacy plays a vital role in expressing oneself correctly.

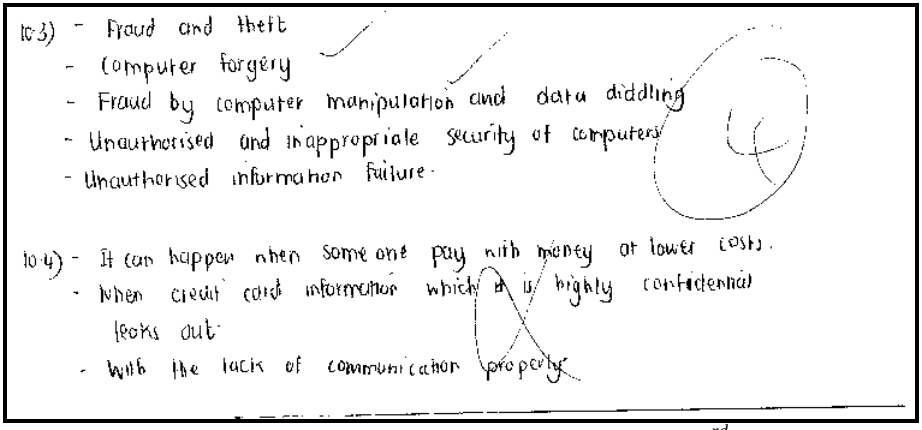


Figure 9: *Quote from a student's examination script: 3rd articulation problem*

The questions above are all based on the final study unit (i.e. study unit 8) in the study material supplied to the students. The reason for failure is either because they do not get round to studying the final study unit or the language problem addressed in this paper, coupled with the attitude problem mentioned before.

Next we discuss scenarios that relate to RQ3 above, namely, common mistakes made by students when giving an answer to a question.

Incorrect Pattern Fitted onto a Question

A well-known researcher in Computing, namely, Michael Jackson (1994) discusses an approach taken by the ancient Greek mathematicians who separated the study of problems (i.e. exam questions in our case) from the related study of solutions (i.e. answers to these questions) and solution methods. A problem has an architecture part given by its principal parts and solution task. Jackson (1994) and Polya (2004) both explain the differences between, for example, problems to *find* or construct such as: *Given a transaction, show how it will be analysed according to GAAP and entered*

into the books of a company and problems to *prove* such as: *Prove that a company is applying income smoothing from one year to the next* (Van der Poll, 2003). GAAP (Generally Accepted Accounting Principles) is a set of guidelines for conducting accounting practices in South Africa (Sowden-Service, 2008).

All the problems in our first-year accounting course are of the first kind, namely, to find the solution to a problem. Jackson (1994) coined this, the *problem frame* approach and the essence of his approach is to first concentrate on the architecture of the problem instead of immediately concentrating on the solution. Having established the architecture of the problem by determining its principal parts and solution task, one fits a problem frame or template, for which there is a known solution onto the current problem. Nowadays this technique is generally known as establishing *patterns* for actions or problems (Fowler, 2003).

The major challenge with the problem frame or pattern approach emerges when one identifies the principal parts of the problem incorrectly, i.e. we try to fit the wrong frame or pattern onto a problem. Students seem to fall into this very same trap in the sense that they misidentify the frame to be fitted onto a particular examination question and subsequently fit the wrong answer onto the question. Some examples are given below.

Question 9.2 in the examination under discussion was: *Name the items which should be dealt with in a system/development report*. The student simply writes down words or phrases he or she loosely recalls from the entire study material (prescribed book and study guide).

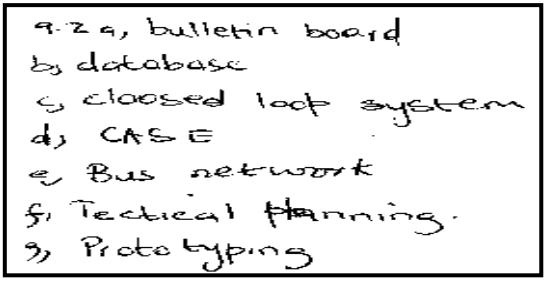


Figure 10a: *Student's incorrect answer (shotgun approach)*

a) Key decision analysis
b) System framework
c) Information flows
d) Database design
e) Controls
f) Authorities
g) Build proposals

Figure 10b: *Correct answer*

The student's incorrect answer is reflected in Figure 10a and the correct answer is given in Figure 10b. In this paper we call this the *shotgun* approach. The shotgun approach may be viewed as a pattern-matching problem since parts of the answer given by the student may be relevant to the question (e.g. *Prototyping* – Figure 10a is related to *Build proposals* – Figure 10b, but these concepts are not the same).

In Figure 11a the student lists the characteristics of useful information when asked to '*List the components of computerised systems*'. The correct answer to the question appears in Figure 11b. A possible parallel to be drawn between the student's answer and the correct answer is that *Data and Information* (Figure 11b) must have (e.g.) *Relevance* (Figure 11a).

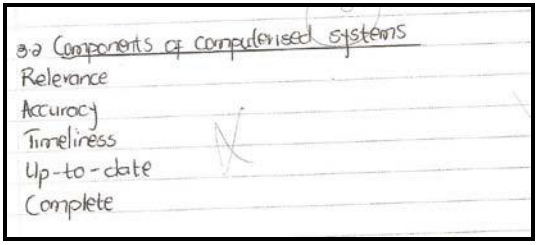


Figure 11a: *Student's incorrect answer (shotgun approach)*

- Computer system
- Data, Information, Database
- Users
- Objective
- External environment

Figure 11b: *Correct answer*

In Figure 12 a student wishes to list *uses* (i.e. looking for a verb) of communication systems but instead lists *users* (i.e. misinterpretation as a noun).

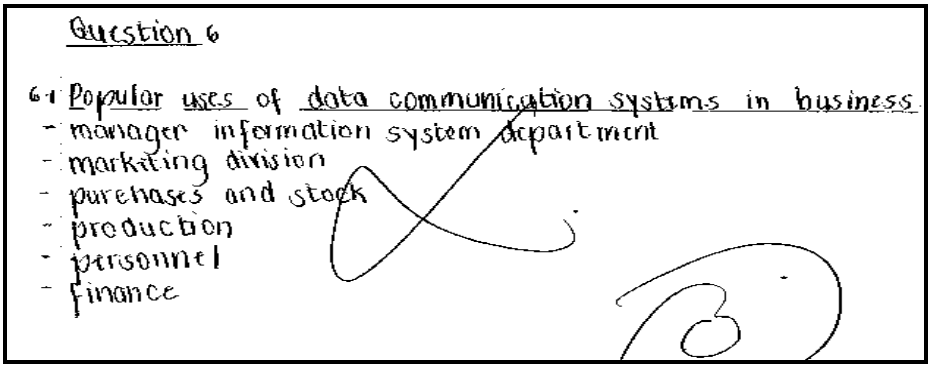


Figure 12: *Verb-noun misinterpretations*

It appears as if the student either misinterpreted the question as *users* or decided to write down the users instead of uses because he/she happened to know this answer instead. This could be a language problem or simply an incorrect pattern matched onto the question.

The question asked to the response in Figure 13 was to *supply reasons why an information systems strategy is necessary*. The student knew *users* of an information system and decided to list them instead of reasons. In this case there was a mismatch of two nouns on the part of the student. It is clear that this student knew something but we did not ask the *correct* question which this student was prepared for. This may be an instance of the well-known 'spotting' problem related to an attitude towards study material.

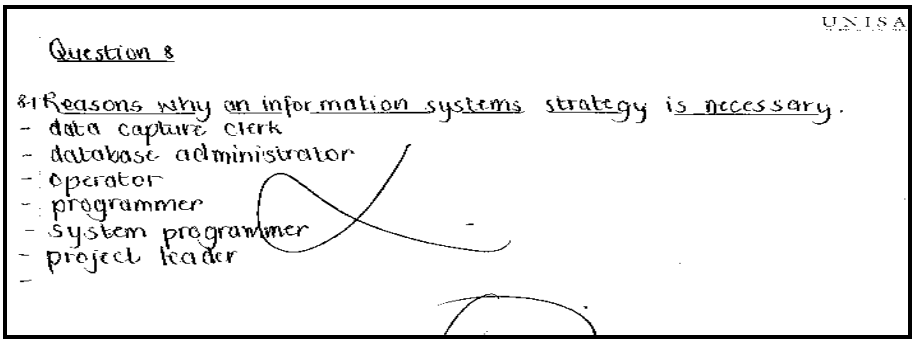


Figure 13: *Conceptual misinterpretation*

Revisiting the Research Questions

The above observations shed some light on the 4 research questions:

RQ1: What is the students' attitude towards the available study material?

It was observed that students often display much ignorance of the study material, so much so that one claimed certain material was not covered in a study guide. Ignorance of study material could relate to an attitude problem towards the study material and indeed the course itself.

RQ2: What is the effect of language proficiency on the pass rate when a second or even third language is used for study?

Numerous language problems were observed above. It is clear that students studying and receiving study material in a language other than their first language experience serious problems when answering examination or assignment questions. This uphill language battle for students may affect their attitude (RQ1) towards their studies negatively. Statistical analysis with appropriate hypothesis testing would be called for to confidently substantiate this result.

RQ3: What are the typical mistakes made by students when answering examination or assignment questions?

A number of mistakes have been revealed in the above analysis. These mistakes are interrelated in the sense that some mistakes are subclasses of larger classes which in turn are subclasses of the super class which we call *Student problems*. These interrelationships among the problems discussed

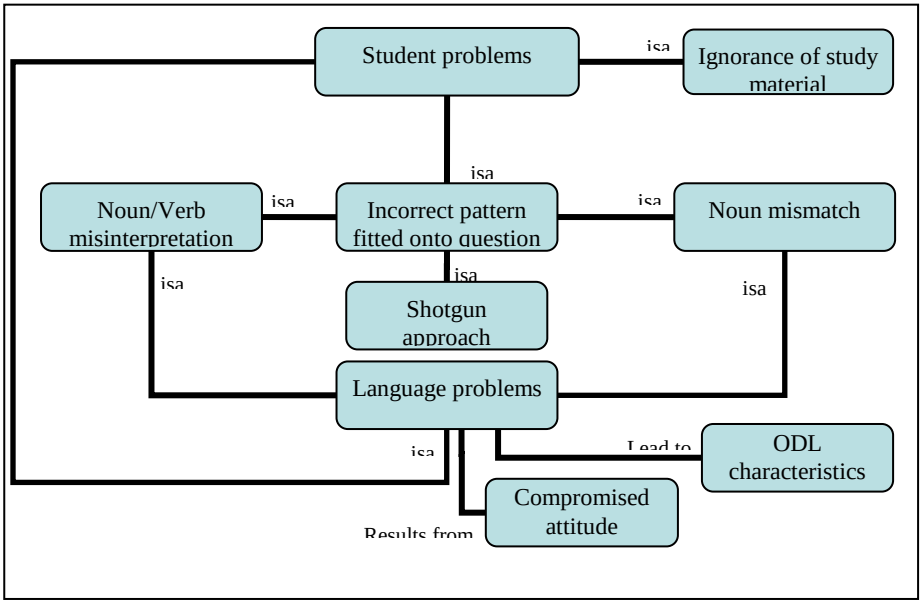


Figure 14: *Diagram relating student problems*

above are summarised in Figure 14. In this figure we borrow the familiar *isa* (cf *is-a*) notation from the object-oriented paradigms (Booch et. *al*, 2007) to denote that some instances of a class are actually occurrences of a larger super class.

Figure 14 shows that the class of all student problems discussed in this paper are divided into three subclasses, namely, *ignorance* of the study material, *incorrect patterns* fitted onto questions and *language* problems. The class of incorrect patterns is further partitioned into three subclasses, namely, the shotgun approach, noun/verb misinterpretations and noun mismatches (e.g. confusing users with reasons). These latter two classes are hybrids in the sense that they are also instances of the larger class of language problems.

RQ4: What is the effect of the ODL model on the pass rate?

The use of an ODL model is usually unavoidable for a correspondence, distance-learning institution. While it fulfils an extremely important need for students who cannot attend a residential learning centre, it brings about a number of problems, some evident above. Many of the language problems indicated in this paper could in part be attributed to the absence of a classroom environment where a facilitator could otherwise have assisted the students in articulating their answers and questions appropriately.

A worthwhile (yet difficult to set up) experiment would be to run the exact same course at both a residential and an ODL institution and observe possible differences in student examination answers and performance.

In the next section we propose some preliminary solutions to the problems presented in this paper. The solutions are suggested keeping in mind the 4 research questions.

Preliminary Solutions

The following mechanisms may be implemented. In each case an action is proposed and the particular problem which our action aims to address is given in brackets:

1. Introduce a bridging course, e.g. English for Accountancy students studying computing concepts [RQ2 - language problems]. This is a

suggestion that has recently been proposed at the particular ODL institution.

2. Perform a more frequent evaluation of students [RQ1 to RQ4 – Ignorance of the study material]:
   2.1. Add practical work to supplement the theoretical content.
   2.2. Let the practical work count as part of the final mark.
3. Give a questionnaire in the form of an assignment to the students to get a further grip on the whole problem [RQ1 to RQ4 – super class: student problems].
4. Organise contact sessions with students. Note, however, that this is not really the aim of an ODL institution [RQ1 to RQ4 – super class: student problems].
5. Investigate the feasibility of using advanced IT tools, e.g. the use of an interactive, multimedia CBT (Computer-Based Training) environment [RQ1, RQ3 & RQ4 – super class: student problems]. To this end an interactive CD, guiding the student through the theory, will be provided with the prescribed text book for the course as from 2011.

Naturally, the introduction of the above mechanisms assumes the availability of qualified staff to implement these ideas since it would introduce additional workload for the lecturers involved, typically 7 000 students for a first semester and 6 000 during the second semester.

Conclusion

The course under discussion in this paper is a compulsory first-year course for students studying to become Chartered Accountants. In general students may fail a subject for various reasons. One rather obvious reason may be a simple lack of interest in the subject. However, two other aspects clearly emerged through the analyses presented above:

1. A proper comprehension of a language is a non negotiable prerequisite for the understanding of a content subject presented in that language.
2. Studying all, or at least a reasonable amount of the content referred to in the study material (i.e. prescribed book and study guide), and not just selected, small parts of it, is a further prerequisite to pass an exam.

3. Students should also develop the skill of fitting the correct problem frame or pattern onto a given examination question.

Students should be made more aware of the generic reasons as to why students fail and of the value of using their study material to the full extent when preparing for an examination. The crucial part of helping students to pass content subjects is to start at school level and to encourage full comprehension of a common second language. The drawbacks on an ODL model should be considered here as well.

The purely theoretical nature of the course under discussion may also have to bear part of the blame for the poor performance of its students. A possible remedy to this problem is to include compulsory practical work aimed at improving the underlying theoretical knowledge of the average student in the subject.

Currently we are negotiating a virtual lab for our students to enable students who do not have access to their own computers to access the necessary programs at internet cafes and to enable them to do and submit their assignments electronically, thereby empowering them with knowledge on how information systems can be put to use.

Future work in this area would be a further analysis of student scripts in upcoming examinations as well as starting to implement the steps proposed above to help solve some of the problems pointed out in this paper.

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Analysing Student Perceptions of Intellectual Property Rights in a Self-plagiarism Framework

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Abstract

The volume of material, especially in electronic form is increasing at a **rapid** pace. Together with improved access to the Internet, the opportunities for plagiarism or the reuse of material among students and researchers alike are increasing. In this regard our paper reports on a survey done among 86 students at a residential university. The questions asked were aimed at evaluating the students' understanding of what the stealing of intellectual property entails. Coupled with this survey is an analysis of a previously developed framework for testing the view of a number of researchers about self-plagiarism. This paper further investigates to what extent the survey questions fit into the self-plagiarism framework. The conclusions are that students are not sufficiently capable to detect acts of plagiarism. It was also found that the framework could be usefully enhanced to model plagiarism, cheating and the copying of material among students. Some solutions to these problems are offered.

Keywords: Copyright infringement, intellectual property rights, self-plagiarism, reuse, student perceptions.

Introduction

In academic institutions there is often a problem of using the work of someone else without acknowledging the source. Frequent cases appear where students copy material from books, journals, the Internet, their peers, etc. without citing references. According to Clough (2000) plagiarism or copyright infringements are sometimes committed intentional by students, but there are cases where students plagiarise unintentionally because they are not aware of how sources should be used within their own work. This problem is not just limited to printed text, but regularly found in electronic publications as well. The submission of assignments electronically makes it easier for both student and lecturer alike, but it facilitates the opportunity to plagiarise (Clough, 2000). Access to the Internet further increases the opportunity to copy-and-paste.

An interesting variant of the above problem is that of self-plagiarism mostly occurring among lecturers and researchers who are under severe pressure to publish for subsidy purposes (Collberg & Kobourov, 2005). Self-plagiarism has many faces and this paper reports on some of these.

Problem Statement

The stealing of the intellectual property of others (e.g. plagiarism) is a threat to the academic world and discredits the value of educations at large. Linked to this is the reuse of a researcher's own previously published work without referencing such work. While there might be reasons for dishonesty among students, e.g. lack of information as to how to go about acknowledging the authors of any useful information, these problems, however, need to be addressed.

Literature Review

Roebke (2000) states that the amount of information on the Internet is increasing exponentially and the incidences of theft of online material are increasing. Librarians see copyright as the element that may provide the way out for their budget problems while publishers see it as essential to protecting their publications. Very little in the way of a compromise has yet been offered (Roebke, 2000).

Infringement on copyright and plagiarism in academia take on many forms. Two important instances are (1) ordinary plagiarism committed by students during their studies and (2) self-plagiarism committed by researchers. In a way self-plagiarism may be more serious simply because opportunities exist throughout the entire career of an academic while ordinary plagiarism by students is normally of a shorter time span. According to Collberg and Kobourov (2005) there appears to be little consensus amongst academics as to what can be regarded as self-plagiarism and what not. Hence in their discussion of self-plagiarism they adopt the word *reuse* to refer to material published more than once. They introduced the following categories for the reuse of previously published material:

Textual reuse: Text, images, diagrams or other material previously published are reused in a particular publication without any reference to the previous work.

Semantic reuse: Ideas from previously published work are incorporated into a current publication, again without acknowledging the origin.

Blatant reuse: The content of previously published work is incorporated in such a way that the two publications are almost indistinguishable. Again, no reference in either work is made to the other one.

Selective reuse: Fragments from previously published works are incorporated into the current one without referencing any of the sources.

Incidental reuse: Texts, ideas and principles that are indirectly related to the current work are incorporated into such work without referencing the source. The reuse of motivating examples is a common occurrence of incidental reuse.

Cryptomnesial reuse: Texts, ideas and principles from previously published work, which the author is unaware of its existence of, are incorporated into another publication (Carpenter, 2002).

Opaque reuse: Texts, ideas and principles from previous publications are simply copied into another publication without referencing the earlier publication.

Advocacy reuse: Texts, ideas and principles from an earlier publication are incorporated into work presented to a different audience or community from that to which the original work was published.

Collberg and Kobourov (2005) tested various views on self-plagiarism among 30 of their colleagues and some of the questions they asked coincide with those tested for 86 students reported on in this paper.

Research Questions

In this paper answers to the following questions are being pursued:

1. When and how do students perceive copyright infringements?
2. Is this a problem at tertiary level (higher institutions)?
3. What can be done to reduce these copyright infringements?
4. Can the proposed framework for self-plagiarism be used to model the student survey?

Research Methodology

Two surveys are addressed in this paper. In the first survey the authors got students to participate in the study to try to get a fair representation of the students who were doing their academic work in different levels at a residential university. The purpose of the study was to identify why students fail to respect intellectual property. Seventy (70) students responded to the call. The data collection for this survey was done through the use of questionnaires distributed to the students (Lubbe & Klopper, 2004).

The questionnaire that was designed to collect data consists of twenty-two questions. The content of the questions acquired every student to provide the specification of gender, the estimation of age, the level of study; and also questions that seek the understanding of the respondents whether they understand the act of plagiarism or not, on the other side searching whether they are taught by their lecturers / tutors about plagiarism or not. The questions were structured to provide answers to the above 4 research questions. All the data gathered from the respondents was analysed, interpreted and expressed in the form of graphs, tables, percentages and statistical analysis. SPSS © software was used to analyse the data.

The second survey addressed in lesser detail this paper is on self-plagiarism by Collberg and Kobourov (2005). They disseminated a questionnaire to 30 colleagues in which they described a number of scenarios and asked for comments. Ten colleagues responded to their questionnaire.

Next we present the results of the survey done under our sample set of students and determine to what extent the survey questions are instances of the Collberg and Kobourov (2005) framework.

Analysis of Results

In this section the results of the student survey after the collection of data are discussed. Through this mechanism of data analysis, the authors were able to reach conclusions getting a sense of why students are breaching copyright. The population consisted of 63% males and 37% females. The ratio of 2:1 was not a choice of the researchers; it turned out this way owing to the way in which the student population was assembled.

The age profile revealed that 52 participants were at the age of 17 –to– 25; 15 participants were at the age of 26 –to– 30 and 3 were 31 or older. The authors disseminated the questionnaires in different places. The collection of data was done when students were busy preparing themselves for the examinations, an ideal time.

Table 1 depicts the two categories undergraduate and postgraduate students who participated in the survey.

Year (level)	**Number**
Undergraduate	34
Postgraduate	36

Table 1: *Year of study*

The authors observed that plagiarism is not an issue to undergraduate students only, but across the board. This observation is supported by Strong (1994) who claims that plagiarism by students has very little to do with their year of study.

Senior students ought to know more about research than the undergraduate students, hence one would expect them to be less prone to plagiarise than the undergraduates. However, the flip side of the argument is that they are more involved in research-related work; hence the opportunities to plagiarise are more. Strong (1994) also mentions that students infringe on copyright in the digital age simply because it is easier, faster and cheaper.

Is it dishonest to use a graph without citation?	**Number**
Yes	57
No	7
Spoilt response	2
No response	4

Table 2: *Using a graph without citation*

Table 2 indicates that 81% of the student respondents agree that such action equates to plagiarism. Some of the comments were: if the work belongs to somebody else you need to cite the source. Other respondents said that in terms of copyright act and academic ethics one must acknowledge the sources. All these responses show that most students in the sample are knowledgeable about these issues.

Using a graph without citation is a case of *textual reuse* as defined by Collberg and Kobourov (2005) albeit it for the case of self-plagiarism. Although this question was not explicitly tested in any of their scenarios, there seems to be general agreement that the use of graphs, diagrams, etc. without acknowledging the source is not acceptable, both for the students and lecturers.

Roebke (2000) mentions that it is dangerous to use material without citation because one may be stealing the material of someone he/she personally knows and suffer consequences because of that.

Stating a point you already had in mind	**Number**
Yes	30
No	23
Spoilt response	5
No response	12

Table 3: *A point you had before reading an article*

Table 3 shows that students plagiarise unintentionally (33%). However, it appears that they are unsure as to what they are actually referencing. The two main responses provided also seem to be challenging each other.

This kind of plagiarism does not have a direct equivalent in the Collberg and Kobourov (2005) framework. The closest match could be reuse by cryptomnesia, which is an unawareness of previously published work. This question was unfortunately not tested by Collberg and Kobourov (2005) but it seems plausible that the academics in their sample would probably have rejected reuse by cryptomnesia. After all how could one prove beyond reasonable doubt that you were unaware of the existence of similar work?

Website Usage Without Citation	**Number**
Yes	11
No	51
Spoilt response	2
No response	6

Table 4: *Usage of Website source with possibly non-expert opinions*

Table 4 shows that 73% of the respondents are against the use of personal website information if it happens to be an opinion. The suspect reuse of website information was not covered by the Collberg and Kobourov (2005) survey but such practice could be classified as any of textual, semantic, selective and opaque reuse.

Fournier (2002) mentions that some people are stealing intellectual property by copying an article from a website and publishing it on their own website. This would be a case of *blatant reuse*. The Collberg and Kobourov (2005) participants would certainly reject this practice as well.

Dishonest to present someone's work as your own?	**Number**
Yes	54
No	5
Spoilt response	1
No response	10

Table 5: *Presenting somebody's work as your own*

A large percentage of students (54/70) agree that such practice is dishonest. Students have always been using printed journals and books to do

their academic work, but now through the advancement of technology students use computers to access the Internet. Roebke (2000) states that as the Internet becomes busier, theft of material online is increasing. He argues that sometimes this is the result of lack of knowledge about what is considered theft.

Presenting someone else's work as your own is classified as *blatant reuse* in the Collberg and Kobourov (2005) framework. Such reuse is a practice condemned by all sane academics, e.g. one of the respondents in the Collberg and Kobourov study wrote: I think this [deserves] public flogging'.

Writing a paper for someone else	**Number**
Yes	42
No	18
Spoilt response	1
No response	9

Table 6: *Writing for someone else and getting paid*

Sixty percent of the students reflect that a person who pays another person to write a paper for him or her is guilty of plagiarism. This is questioning the value of intellectual property because it means people can buy qualifications that are part of becoming a theoretical expert. Smith (1995) rightly points out that cheating in academia ultimately destroys the value of the education. It is unfair and discouraging to those students who pursue their studies honestly. To use shortcuts in this way promotes plagiarism and defeats the idea of genuine education and learning.

The Collberg and Kobourov (2005) framework does not include this kind of activity and future work may well look at ways of expanding their framework accordingly.

Is it plagiarism to be credited without making a contribution?	**Number**
Yes	41
No	18

Spoilt response	3
No response	8

Table 7: *Getting credit without contribution to the group*

The study reveals that about 59% of the students say that it is plagiarism to give credit to someone who did not work for it. Reid (*cited* in Smith, 1995) states that academic honesty is a keystone for the reputation of all academic institutions and must be accepted and flagged as a responsibility of academic staff and students alike.

Again the Collberg and Kobourov (2005) framework is silent about this issue and future work may well have to expand their framework by addressing this kind of activity.

Is it a plagiarism to use other's work to teach?	**Number**
Yes	5
No	54
Spoilt response	0
No response	11

Table 8: *Using the work of others to teach*

In response to the question the majority of students felt that it is not plagiarism to use the work of others to teach. The important issue is that such material should be used for teaching purposes only. In fact, all textbooks have such a stipulation at the front. Fournier (2002) states that in the case of using web material ask permission before using it, and comply with the creator's requests.

Naturally Collberg and Kobourov (2005) did not address this point from a teaching perspective but with regards to self-plagiarism one could equally well ask whether it is acceptable to reuse some of your previously written material in a new set of notes without at least mentioning the former. It is not apparent how the academics in their sample would respond to this question. Nevertheless such action would be a candidate for any of the above categories of reuse, except possibly cryptomnesisa.

Should a student warn those who are copying?	**Number**
Yes	33
No	19
Spoilt response	4
No response	14

Table 9: *Copying on a test or an assignment*

Table 9 shows that students are unsure of what is expected of them when it comes to academic ethics. The consensus is that students operate according to their general social norms and values, in other words individuals act on how they feel, not because it is their duty to do that.

In the Collberg and Kobourov framework copying on a test or an assignment could be categorised as any of textual, blatant or selective plagiarism. Strong (1994) states that copying in the digital age is faster and cheaper than copying during the paper-driven days. He further notes that the tools for illicit copying will be more widely distributed and become more sophisticated.

Do you have to cite DVD information?	**Number**
Yes	27
No	29
Spoilt response	2
No response	11

Table 10: *Usage of information from DVD-film*

The question in Table 10 attempts to find out from students whether they recognise the importance of acknowledging the source of information when they are doing their academic work. The findings reflect that students are not clearly informed about when and when not to acknowledge the sources of information. About 60% of the respondents are unsure when they should acknowledge DVD material. Strong (1994) claims that the use of DVDs and CD-ROMs involves the physical transfer of a tangible entity, containing the publisher's work to a reader. It is, therefore, relatively easy to acknowledge such sources.

The categorisation in the Collberg and Kobourov (2005) structure is similar to any other medium (paper, electronic, etc.) discussed above.

Is it academically honest to simply copy a bibliography into a publication?	**Number**
Yes	28
No	31
No response	11

Table 11: *Use your own work, and plagiarise only a bibliography*

Copying of an existing bibliography into a new publication could also be seen as putting unused references in your list of references. Respondents noted as follows: 40%-yes and 44%-no. It shows that students, when it comes to a broader and deep understanding of plagiarism as a concept do not know what is expected of them. A concern here is that no apparent set of guidelines could be detected among the students when they write their academic work. It is not academically incorrect to list unused references (which then become a bibliography instead of a list of references) but students do not know that.

The plagiarism of an entire bibliography could be classified as an instance of *blatant* reuse in the Collberg and Kobourov (2005) framework. It is plausible that most academics would not have that much of a problem with such practice.

Is it dishonest to ask someone to edit your work?	**Number**
Yes	2
No	57
No response	11

Table 12: *Rewrite the work for improvement by an editor*

Table 12 indicates that most respondents believe it to be not academically dishonest to get people to edit your work (81%). Some respondents said that editing might take on different forms, for instance a supervisor editing draft chapters of a student's dissertation. Some respondents also raised the issue of language editing by an expert, which, however, is an accepted practice.

A related problem is when an author rewrites part of a paper after it has been accepted but before the final version is returned to the conference chairs. One of the respondents in the Collberg and Kobourov survey felt that for certain parts of a paper this could be acceptable, e.g. rewriting part of the Introduction, cf: 'This is something I've done to some extent [...] but the way I deal with it is by thinking that I'll rewrite if the paper is accepted'. However, sometimes rewriting part of a paper after acceptance could be problematic, especially if some main results are omitted in favour of some less impressive results. The author could then reuse the main results to get another paper accepted at another conference. This sort of virtual reuse is not covered by the Collberg and Kobourov (2005) framework and could certainly form a new category.

Does your institution have a policy on plagiarism?	**Number**
Yes	4
Don't know	65
No response	1

Table 13: *Institutional policy on plagiarism*

In response to the question whether the University has a policy or not, 93% of the students reflect that they 'do not know'. The understanding of plagiarism depends on the students. Straub and Collins (1990) state that policies are most effective when they include assignments of penalties and criminal liabilities to employees who violate policies for proper system use.

In line with the Collberg and Kobourov (2005) survey it might be an interesting experiment to ask of an author who submits to a conference or journal whether such author is aware of any plagiarism policy of the relevant conference or journal. For example, the ACM policy on prior publication (www.acm.org/pubs/sim_submissions.html) requires the new paper to be substantially revised. Collberg and Kobourov (2005) interpret this as being at least a 25% difference.

Is a student asked to sign the code of conduct?	**Number**
Yes	3
No	45

Don't know	10
No response	1

Table 14: *Ethics statement to be signed*

Seventy nine percent of the students claimed that they were not asked to sign the code of conduct. Of the 4% of the respondents who said 'yes', none of them could explain what the circumstances were or when they were given the code when the authors asked them.

		Gender	**Usage of a graph without a Citation**
Gender	Pearson Correlation	1	-.208
	Sig. (2-tailed)	.	.084
	N	70	70
Usage of a graph without a Citation	Pearson Correlation	-.208	1
	Sig. (2-tailed)	.084	.
	N	70	70

Table 15: *Correlation of gender and usage of a graph without a citation*

Table 15 presents the correlation between the gender and the usage of a graph without a citation. The purpose was to determine the relationship between gender and the usage of a graph without a citation. The results indicate a weak correlation.

		Year	**Usage of a graph without a citation**
Year	Pearson Correlation	1	-.357(**)
	Sig. (2-tailed)	.	.002
	N	70	70
Usage of a graph without citation	Pearson Correlation	-.357(**)	1
	Sig. (2-tailed)	.002	.
	N	70	70

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

Table 16: *Correlation: year and usage of a graph without a citation*

Table 16 indicates some correlation between the year and usage of a graph without citation. The values suggest that year (as a level of study) is related to the understanding of plagiarism, unless one is taught properly on how to acknowledge the sources of information. It is for this latter reason that Couger (1989) states that he never thought ethics were something that could be formally taught. He claims that ethics is something you learn growing up at home, in school, and through religion. The findings in Table 16 indicate that the correlation is negative (-.357) and is significant at the 0.01 level.

Summary of Findings

In this paper we reported on the findings of a survey done on the viewpoints of students at a residential university regarding possible plagiarism scenarios. From the survey it became clear that students lack the knowledge to identify acts of plagiarism. Students find the underlying referencing policies confusing and they end up doing whatever it takes to get their work done. We also incorporated a previously developed framework (Collberg & Kobourov 2005) for analysing possible scenarios of self-plagiarism and we showed how the questions posed to the student sample became instances of the generic framework. Having observed these instantiations it is apparent that parallels may be drawn between on the one hand students using the literature without proper referencing and copying from their peers, and academics at the other end who reuse their own previously published work, also without proper referencing.

Research Questions

The research provided some answers to the 4 questions posed above:

1. When and how do students perceive copyright infringements?

The study indicated that students have insufficient knowledge about plagiarism as well as proper sophisticated mechanisms for assessing the academic work to determine whether there is any dishonesty involved or not.

2. Is this a problem at tertiary level (higher institutions)?

The authors found that the problem is not only at a particular residential university. Rather, it is ubiquitous, even in the business world. Clough (2000) gives an example of a programmer who worked for a company, later changed to another company and allegedly re-used previously developed software from the first company. The outcome of the case was that copyright was infringed.

3. What can be done to reduce these copyright infringements?

Much can be done to reduce the syndrome of plagiarism among *students* in a University; it is envisaged that all three the role players could make a difference in this regard. Academic institutions ought to have a plagiarism policy in place and students should be pointed to the existence of as well as the content of such policy. Lecturers and tutors should ensure that their students are taught how to do correct referencing. Students should also be made aware of what would happen to them should they be found guilty of such conduct. In one of the comprehensive ODL (Open Distance Learning) institutions a plagiarism note is added to the tutorial material sent to students. In there it is stated that they would be given a mark of zero should they be found guilty of plagiarising from either their peers or from the Internet. It is hoped that the serious expression shown by lecturers and tutors to the students will move students to understand that plagiarism is a serious offence in the university, one that destroys the value of their education. They have to start to respect writing procedures and the oral presentation of academic work.

The latest South-African Higher Education Qualifications Framework (HEQF) to be found on http://www.che.ac.za/index.php mandates the introduction of coursework on HIV/AIDS, poverty alleviation, etc. In the same way institutions may consider the introduction of coursework on plagiarism.

The problem of researchers who plagiarise their own work may be harder to address. Conferences and journals may consider providing guidelines as to what practices are considered as self-plagiarism, as well as measures that would kick in, in the event of clear-cut cases of self-plagiarism or reuse without referencing.

In all instances lecturers and reviewers of research publications could consider using any of a number of plagiarism software packages available, for example TurnItIn on http://turnitin.com/static/home.html.

4. Can the proposed framework for self-plagiarism be used to model the student survey?

The Collberg and Kobourov (2005) framework was developed to model self-plagiarism among researchers. It was, however, found that quite a number of the questions in the student survey fit into the said framework. It is not entirely clear whether this was to be expected or not. One could argue on the one hand that the issue is simply about plagiarism, be it students doing their studies or university lecturers publishing. In a way both these groups are trying to further their careers. On the other hand self-plagiarism and plagiarising someone else's work could be viewed as two very different procedures. Be as it may, it was found that some questions could not comfortably fit into the proposed framework; hence room exists to enhance the framework.

Future Research

Future work may be conducted in a number of directions. The student survey done at a residential university could be repeated among students at an ODL institution. These students are mostly part-time, working students who are older and more matured; hence it may be of value to see how their views would differ (if any) from those expressed by the full-time, younger students.

We indicated above that the Collberg and Kobourov (2005) framework sometimes did not address the questions we used in our student survey. In a way this could be expected, since their framework was developed for self-plagiarism among researchers. Nevertheless one could certainly investigate the possibility of extending their framework to include some of the additional issues addressed in our student survey.

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The Case for Cyber Forensic Linguistics

Rembrandt Klopper

Abstract

This contribution focuses on one of the most vexing problems facing present-day higher education, namely how to identify, curtail and eliminate plagiarism among students and academics alike according to robust forensic audit protocols that do not leave institutions open to subsequent legal challenges. Academia is faced with the stark choice between taking a leap of faith by trusting software programs that algorithmically establish superficial similarities between text fragments on non-semantic grounds, or by using an array of text analysis procedures that scientifically determine degrees of similarity between texts on rational grounds by employing proven principles of linguistic and text analysis. This article presents a multi disciplinary conceptual framework that integrates Forensic Computing and Forensic Linguistics into a comprehensive forensic auditing framework within a mother interdiscipline like Informatics, Information Systems & Technology or Computing. I specifically propose the formal recognition of a new interdiscipline within the field of forensic analysis, namely *Cyber Forensic Linguistics*. This nascent area of learning can be created by identifying and integrating the analytical procedures used in disciplines like Linguistics, Informatics and Auditing into a coherent curriculum that will go a long way to combat plagiarism on semantic grounds, and help promote ethical academic writing.

Keywords: Anaphora, categorisation, computer forensics, cyber forensics, computational forensics, conceptual framework, deep web, ethical academic

writing, ethics, forensic audit, forensic linguistics, internet, invisible web, lexemes, phoric referencing, plagiarism, problem-solution oriented research, semantic roles, surface web, word frequency analysis, world wide web.

A Problem-Solution Oriented Research Approach

This contribution implements a problem-solution oriented approach to research that was developed as a dissertation writing framework in Klopper (2008). It forms the basis of the procedure that is proposed for cyber forensic audits of electronic documents where authorship is at issue.

A problem-solution oriented approach implements the procedure of assessing the extent to which one is able to answer research questions that have been derived from research problems. In order to identify a problem that causes a system to malfunction the researcher first has to inferentially diagnose the problem and then envisage how the system should be when functioning optimally. Finally, the researcher has to detail how the system should be reconfigured so that it would function optimally. The essence of the problem-solution oriented approach therefore is a bifocal perspective that alternates between problematic and ideal versions of the system under scrutiny.

The Problem-set under Investigation

The alignment matrix given as Table 1 below summarises the problems identified and their associated research questions:

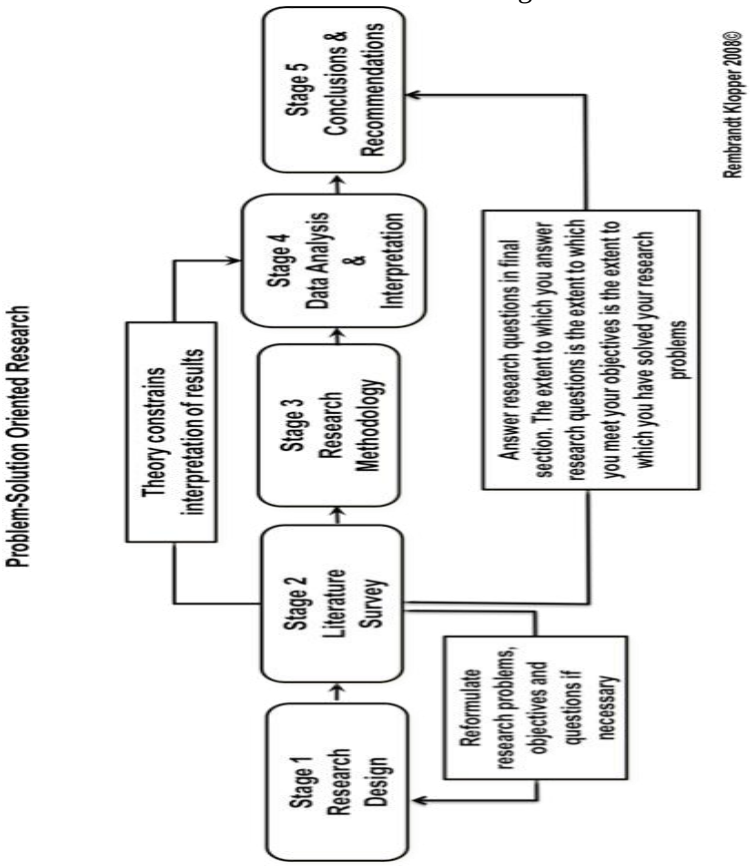
Table 1: Problem-research question alignment matrix

General Problem	**Subproblems**	**Research Questions**
Academics do not yet understand the extent and sources of plagiarism in academia.	1. The sources of plagiarised academic material have not yet been identified. 2. The resources for tracking and eliminating plagiarism have not yet been identified. 3. It has not yet been determined how methods of text analysis	1. Where on the Internet do plagiarists obtain plagiarised sources? 2. What resources can be used to track and eliminate plagiarism? 3. What methods of

	could serve as forensic tools to assess the quality of ethical academic writing.	text analysis could serve as forensic tools to identify plagiarism on linguistic grounds?

The problem-solution oriented approach to research is outlined in Figure 1:

Figure 1: Problem-solution oriented research design



At the most basic level the prevention of plagiarism is a problem of an *epistemic* nature, namely ignorance (lack of knowledge) among members of the academic community regarding the full extent of electronic information directly available for download on the Internet (the so called surface web), let alone data only indirectly available for download on the deep web/ invisible web with the aid of specialist online resources or services (Bergman (2009), Wright (2009)). The concepts 'surface web' and 'deep web' are briefly discussed in a subsequent section.

It should also be acknowledged that the distinction between learning from others, and pretending that one is the author of a particular idea or set of ideas isn't always straightforward. Due to the way in which humans think and learn it isn't a simple matter to identify the dividing line between genuine research and mere regurgitation. Learning in general, and scientific advances in particular, are collective enterprises that are deeply analogical in nature – what we know we have learnt from others. We learn to look beyond the horizon of present-day knowledge by standing on the shoulders of those who set out to mend gaps in our knowledge before we did. In order not to trivialise and debase our disciplines while under pressure to 'publish or perish' our only hope is to conduct research guided by ethical principles, by identifying real problems that need to be solved, to learn from our peers by consulting and acknowledging the solutions that they have proposed to the problems that we identified, by critically engaging with their solutions—and finally, by being willing to have one's own solutions critically assessed by one's peers. This contribution proposes, as a measure of last resort, a conceptual framework to implement cyber forensic auditing as the sharp end of critical engagement in order to distinguish between genuine research and mere regurgitation.

The weakness of anti-plagiarism programs is that they determine similarities between text fragments on non-semantic grounds and that they only compare documents of questionable authorship with documents that are directly accessible on the surface web rather than also accessing documents that are only indirectly accessible on the part of the Internet known as the deep web.

Anti-plagiarism programs like MyDropBox and TurnitIn are therefore mainly useful to identify instances of crass plagiarism because they function on non-semantic grounds, often misidentifying text fragments like

'with his hat on' or 'most Sundays' as having been copied, often identifying multiple sources for it on the internet. It is also not generally appreciated in academic communities that students, or their paid *agents provocateurs*, use such programs to polish up poorly referenced documents lifted from the surface and deep web by merely referencing the sources 'identified' by the programs.

The Nature of Conceptual Framework Design

Because this contribution proposes a conceptual framework for conducting a forensic audit of documents to determine plagiarism, it is appropriate that the nature of conceptual frameworks be briefly explained. Also, because the process of conceptual framework design is not commonly used in research, I briefly characterise it and its role during the research process.

The term 'conceptual framework' refers to a pre-empirical procedure that is employed during the planning phase of research in emerging fields of research where little or no prior research has been done. A conceptual framework interrelates all relevant factors that need to be brought to bear during analysis to explain why something is being done in a particular way, or needs to be done in that way. It is devised to guide analysis. If one for instance wanted to perform content analysis of a document, one would first devise an analytical framework of all categories for which one would systematically identify exemplars throughout the document, as well as a system of codes that one would employ to tag each occurrence of exemplars that belong to the different categories, and finally a quantification procedure to calculate the relative occurrences of members of each category. Therefore, conceptual frameworks first have to be designed to direct and constrain analysis, before actual analysis can be performed.

Only four definitions have been found on the Internet for the term 'conceptual framework':

(1)

- 'A conceptual framework is used in research to outline possible courses of action or to present a preferred approach to an idea or thought' (Wikipedia 2009, Conceptual Framework).

(2)

- 'The Conceptual Framework is a linked set of agencies that assist in the critical analysis of art. They can be discussed as separate entities or linking to the Frames (cultural, structural, subjective, and postmodern). The four agencies are enumerated as follows:
- The Role of the Artist (Artist)
- The Roles and Values of the Audience (Audience)
- Artworks As Real Objects (Artwork)
- How Interests in the World Are Represented (World)' (Wikipedia 2009, The Conceptual Framework).

(3)

- 'Because of the richness and complexity of the material, coverage [of the term conceptual framework] has been planned in accord with the following broad categories or subject areas, each of which has been further subdivided by particular topics' (Hattendorf 2005).

(4)

- 'A [conceptual framework is a] theoretical model devised to establish a series of conceptually sound practical accounting rules' (Pearson Education 2004).

According to the above definitions conceptual framework design is employed in academic protocols as diverse as research design, critical analysis of art, maritime studies (Hattendorf 2005) and the formulation of accounting rules (Pearson Education 2004). These definitions also reveal that conceptual frameworks are used to outline *possible courses of action*, or *preferred procedures*, that they can be used to detail *agency role relationships* relevant to particular fields of inquiry, and that they could stipulate conceptually sound *procedural ('accounting') rules*. All of the before-mentioned approaches have in common that they are forms of qualitative research that systematically focus on meaningful relationships among the elements of the entity that is being studied.

This synthesis of the nature and function of conceptual frameworks that I have presented here is taken as point of departure for designing the conceptual framework that I am proposing for integrating electronic forensics

and forensic linguistics into a comprehensive framework of forensic auditing in order to curtail plagiarism and promote sound academic writing.

To summarise, the conceptual framework that is proposed here implements:

1. The best-practice procedure for forensic auditing,
2. The use of agency role relationships to analyse interactions between the parties involved in events like authoring, replicating, copying and pasting information in written documents that require the forensic audit, and
3. Conceptually sound procedural rules for forensic auditing.

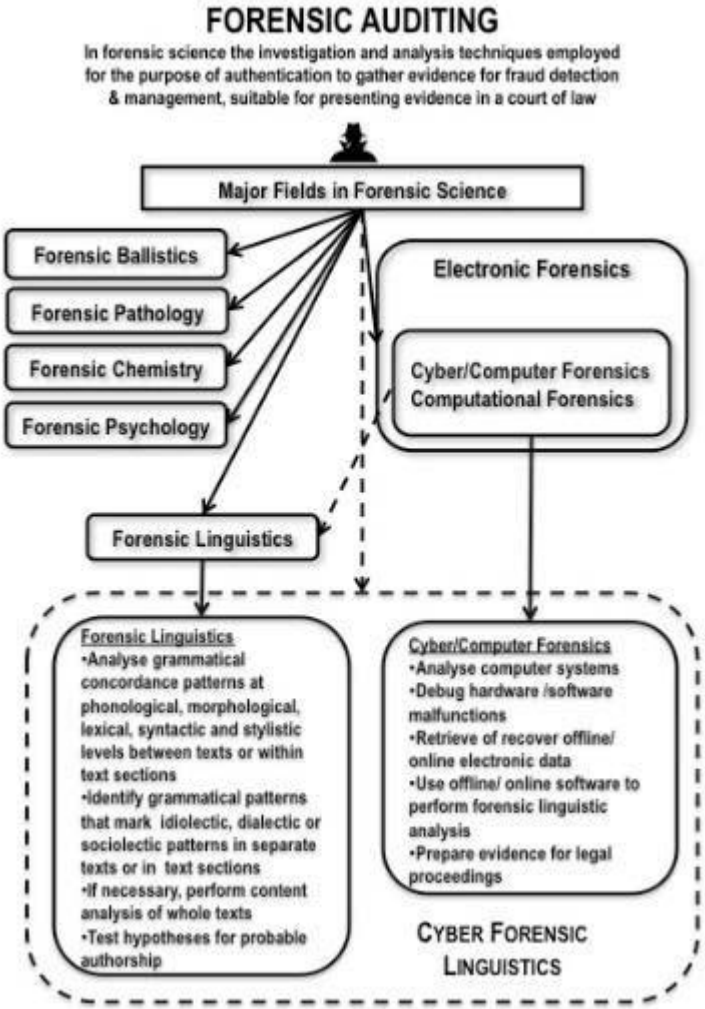
Computer Forensics and Computational Forensics

In this section I provide clarifications for the terms 'computer forensics' and 'computational forensics,' after which I point out a major shortcoming of these two approaches.

- 'Computer forensics is a branch of forensic science pertaining to legal evidence found in computers and digital storage media. Computer forensics is also known as digital forensics' (Wikipedia 2009).
- 'Computational forensics is a quantitative approach to the methodology of the forensic sciences. It involves computer-based modeling, computer simulation, analysis, and recognition in studying and solving problems posed in various forensic disciplines. CF integrates expertise from computational science and forensic sciences.' Computational forensics is used to analyse objects, substances and processes that are investigated, mainly based on pattern evidence, such as toolmarks, fingerprints, shoeprints, documents etc., but also physiological and behavioral patterns, DNA, digital evidence and investigation' (Wikipedia 2009).
- In Figure 2 below I list the major fields or forensic science, and I indicate how the procedural integration of two of those fields – electronic forensics and forensic linguistics – could create an

emerging new field of forensic science, namely *cyber forensic linguistics*.

Figure 2: Proposed field of cyber forensic linguistics among major fields of forensic science on which forensic auditing draws



From the point of view of using computer forensics and digital forensics to identify and counteract plagiarism, the major shortcoming with the above-mentioned two approaches clearly is that forensic auditors who depend on these techniques tend to restrict electronic evidence gathering and analysis to individual machines or local area networks, whereas the crime scene is distributed to wherever the boundless resources of the Internet are misused during plagiarism. It is therefore self-evident that the scope of cyber forensics/ computer forensics/ digital forensics and computational forensics should be widened to include remote data search, retrieval and analysis protocols.

Because the protocols for cyber forensics and computational forensics are well documented (e.g., Marcella and Greenfield (2006), ISACA (2004), Forensic Magazine (2009) and Carrier and Spafford (2004)), but those for forensic linguistics are less well documented, and because linguistic analytical procedures are central to the establishment of the likelihood of authorship in electronic documents during forensic audits, I will briefly outline the main aspects of forensic linguistics in the next section, followed by a brief explanation of the forensic audit process.

Anti-plagiarism software and services on the Internet

Although I have done a fair amount of research about the online and downloadable electronic resources available for cyber forensic auditing, I am identifying resourcess in this contribution without assessing their usefulness, to ensure that the focus of the case that I am presenting for cyber forensic auditing does not become unfocussed. I am identifying software programs (referenced in the bibliography) besides MyDropBox and TurnitIn that work on similar principles, and that can therefore also be used to help identify instances of Internet plagiarism on the surface web (URLs provided in the References section):

1. Article Checker
2. CopyCatchGold
3. CopyScape
4. Dupli Checker
5. Eve2
6. Glatt Plagiarism Screening Program
7. Google as an Anti-Plagiarism Tool

8. Jplag
9. Pl@giarism
10. PlagiarismDetect
11. SafeAssign

Deep Web and Shallow Web Search Engines

While Internet users assume that they *directly* retrieve data from servers on the Internet when making search engine queries, they actually access historical data which has been pre-retrieved from accessible areas of the internet by search-engine-based programs known as crawlers, spiders or bots, that constantly scour the internet for new data which is then saved on the mainframe servers of the search engine companies. Therefore, when one uses a particular search engine, one only *directly* accesses the pre-retrieved data that relate to one's query from the mainframes of the search engine companies. It is also not generally appreciated that such crawlers can only access the *shallow web*, the relatively limited part of the internet where data is *directly* available via search engines, and that search engine crawlers cannot retrieve and save information that is *indirectly* available on the part of the internet that is know as the *deep web*.

According to Bergman (2009) public information *indirectly* available on the deep web is 400 to 550 times larger than information *directly* accessible on the Internet (the world wide web), consisting of an estimated 550 billion individual documents, amounting to 7,500 terabytes of information (compared to 19 terabytes on the Surface web). Bergman also states that on average the deep web receives about 50% greater monthly traffic than surface sites, that deep web sites tend to be narrower with deeper content than surface web sites, with nearly half of deep web content residing in topic-specific databases, and finally that nearly 95% of the deep web contains publicly accessible information for those who know how to access it.

Meta-search engines simultaneously search the shallow web via other search engines to broaden the spectrum of information retrieved. As indicated, the internet is divided into the *surface web*, referring to homepages and databases that are directly accessible via search engines and meta-search engines, and the *deep web* (sometimes also referred to as the invisible web),

referring to homepages and databases that are only indirectly accessible. The resources listed below have been proven to be effective to access the deep web:

- **SurfWax**: This meta-search engine searches the Deep Web.
- **Academic Index**: This meta-search engine only searches databases and resources that have been approved by librarians and educators, including repositories for online dissertations and other scholarly documents that are available for download.
- **Clusty**: Clusty simultaneously searches multiple search engines, then clusters the search results, thereby making visible information that would normally be hidden far back in search results due to low ranking.
- **Turbo 10**.: This meta-search engine has specifically been designed to search the Deep Web.
- **World Curry Guide**: This meta-search engine has a strong European orientation.

Semantic Search Engines

Semantic search engines emulate the way the human brain categorises information to ensure more relevant search results. Prominent semantic search engines are:

- **Hakia:** This semantic search engine only accesses websites that have been recommended by librarians typically websites that contain online dissertations and scholarly documents.
- **Zotero:** This is an add-on for the Firefox browser that helps one to organise research material by collecting, managing, and citing references from material downloaded from the Internet.
- **Freebase:** This is a community-powered database that covers information on millions of topics.
- **Powerset:** One can enter a topic, phrase, or question in the search slot to find information from Wikipedia with this semantic application.

- **Kartoo:** One can enter any keyword in the search slot to receive a visual concept map of information available on the Internet that pertain to that keyword. By hovering one's mouse pointer over each information node one gets a thumbnail of the website where the data is located.
- **DBpedia:** This another Wikipedia-specific resource, allowing one to ask complex questions to get answers from Wikipedia.
- **Quintura:** When one enters a search term in the search slot the web page splits into two panels. On the left hand side a 'cloud' of related terms appear, and on the right hand panel links appear for the search term. When one hovers one's mouse pointer over a related term or phrase an entirely different list of links, appropriate for the new term, appears on the right hand panel.
- **Evri:** This search engine provides one with results across a range of media, from articles, papers, blogs, images, audio, and video on the Internet.
- **Gnod:** When one repeatedly uses this search engine to search for information about books, music, movies and people on this search engine, it remembers your interests and focuses the search results in that direction.

The Concept 'Ethical Academic Writing'

Ethical academic writing clearly forms part of ethical behaviour. In this section I focus attention on the concepts 'ethical behaviour' and 'moral behaviour' in view of the fact that a clear distinction is often not drawen between the terms 'ethics' and 'morality' in scientific and philosophical literature. The first facts that I want to report is that only one definition has been foud for 'ethical behaviour' on the Internet, and that no definitions have been found for 'moral behaviour'.

- **Moral:** '(concerned with principles of right and wrong or conforming to standards of behavior and character based on those principles) *'moral sense'; 'a moral scrutiny'; 'a moral lesson'; 'a moral quandary'; 'moral convictions'; 'a moral life'* (WordNet Search—3.0).

- **Moral Philosophy:** 'Moral philosophy is the area of philosophy concerned with theories of ethics, with how we ought to live our lives' (Moral Philosophy .Info).
- **Ethical behaviour:** 'Ethical behaviour is behavior that conforms to accepted professional standards of conduct' (Donneley (2005)).

A comparison of the above definitions shows that no clear distinction is made in academic and philosophical circles between concepts that relate to personal and professional norms for ethical and moral behaviour, including norms for ownership of intellectual property. Such norms of intellectual ownership form a crucial part of a forensic auditing framework to curtail plagiarism and promote ethical academic writing.

Forensic Linguistics

Non-linguists tend to underestimate how complex human language is because we are neurologically hardwired to develop innate language capacity from shortly after birth. Whatever languages one uses to think and communicate, one does so subconsciously. The complexity of language as a symbolic system has led to the establishment of a variety of schools of linguistics over the past two hundred years. Involving Linguistics in forensic analysis therefore presents a particular challenge, because of the phletora of schools of thought, such as Descriptive Linguistics, Lexical-Functional Linguistics, Applied Linguistics, Stylistics, Relational Grammar, Generative Grammar, Socio-linguistics, Psycholinguistics, Computational Linguistics, Corpus Linguistics and Cognitive Linguistics, to name but a few. Whatever system of linguistic analysis one utilises as part of forensic linguistics, one analyses the structure of language at the phonological (sound pattern) level, the morphological (word structure) level, the syntactic (phrase and clause structure) levels, the semantic level and the stylistic level. These aspects of linguistics will be briefly attended to in the section that follows.

A Short and Intense Introduction to Linguistics

This section synthesises particular aspects of linguistics – words and their meanings, and the relationship between such words and other words in

sentences—that reveal inferential relationships between language forms that enable one to make a nuanced analysis of texts to help establish authorship. McMenamin *et al.,* (2002) provides a sound introduction to the basic aspects of Forensic Linguistics, focusing on particular aspects of linguistics relevant to Forensic Linguistics, like the areas of Applied Linguistics, Stylistics and Linguistic Variation that are relevant to Forensic Linguistics. The additional primary references consulted for this summary are Quirk *et al.,* (1974), Sampson 1980), Johnson (1987), Lamb (1998), Klopper (1999, 2003), Taylor (2003), Ungerer and Schmid (2006), Holcombe (2007), Baldwin *et al.* (no date), Baldwin *et al.* (2009) and Haas (no date). These texts describe grammatical patterns from the highly compatible perspectives of Lexical-Functional Linguistics, Cognitive Linguistics, Computational Linguistics and Corpus Linguistics.

In view of the fact that this project focuses on written language, various aspects of spoken language (sound patterns, also known as phonology, the importance of analysing pronunciation of words in particular regional dialects, degrees of emphasis on particular syllables of polisyllabic words and tone of voice) are acknowledged as crucial aspects of general linguistics, but are nonetheless excluded from this contribution.

The information that is provided about Linguistics here is done with the objective of clearly demonstrating the level of complexity of human language as a symbolic system, in order to emphasize that any course in Cyber Forensic Linguistics should impart in-depth knowledge of language patterns, and that a Linguistics-light approach would doom the project to failure from the outset.

From Concept Conflation to Word Formation

Humans build up concepts about things around them by combining basic image schemas like point, line, centre, periphery, circle, square, triangle, long, short, horizontal, vertical, diagonal, close proximity, distant proximity, in front of, behind, smooth, coarse, regular, irregular, move, rest, source, route/path, target etc. These image schemas emanate from our physiological makeup and our vertical orientation when we are active (Johnson 1987). By combining basic image schemas into complex image schemas humans derive dynamic concepts. If one for instance combines the image schemas long and

vertical in relation to an entity that is perceived as a single whole, one conceptualises the word *tall*. By combining the image schemas centre, periphery, vertical, move, regular sequence, same direction and balance one conceptualises words like *rotate, spin* and *pirouette*.

The Fundamental Role of Categorisation in Word Formation

Categorisation forms a crucial part of humanity's language capacity. Humans use the shared and differentiating attributes of entities in inter-linked neural pathways in the brain (Lamb 1998) to categorise things, processes and events. We discern attributes such as compact, diffuse, round, square, smooth, coarse, bright, dull, dark, sweet, sour etc. by means of our senses (sight, hearing, taste, smell and feeling), and we use such attributes to categorise and inter-link words.

Humans categorise entities on at least three levels, namely a superordinate level (*plant*), a basic level (*tree*) and a subordinate level (*oak tree*). Ordinary people have pictographic gestalts for entities at the basic level, but not at the superordinate and the subordinate levels. We can doodle basic level images of a *man* or a *woman*, but only an artist can 'doodle' posture-rich subordinate level human figures that suggest specific body postures or body movements as in Figure 3:

Figure 3: Basic level images of a man and a woman (Webdings font set), followed by subordinate level, detail-rich images of humans (Ihminen font set).

According to Mandler (2004), babies develop mental problem-solving skills like the ability to compare and categorise entities and the ability to distinguish between purposeful, goal-directed behaviour from non-purposeful behaviour between six and nine months old, clearly before they actually develop language-specific competence and they learn basic level words before they learn superordinate or subordinate level words Markman (1990). They for instance learn *cat* and *dog* before they learn *animal* or

Siamese cat and *bull terrier*. Basic level words tend to form part of figurative language more often than superordinate level or subordinate level words. Humans for instance represent their ancestry by means of *family trees*, not by means of *family plants* or *family oak trees*.

Prototypical and Atypical Members of Lexical Categories

Categories have prototypical members that share all major attributes, and atypical members that share only some attributes (Taylor (2003) and Ungerer & Schmid (2006)). *Mammals* for instance are warm-blooded, hairy, earth-bound animals with four limbs and teeth, whose offspring are born alive from the female member of their species, and who obtain nourishment by suckling her mammary glands during the early stages of their existence. By this definition *antelope, lions, rhinos, wolves* and *humans* are prototypical mammals, but *bats* are not because they are flying mammals, nor are *beavers, seals, walruses, whales, dolphins,* or *manatees* because they are aquatic mammals.

Meaningful language symbols are known as lexemes. Lexemes are associated with particular grammatical categories. A word like *crazy* is a prototypical adjective, while a set expression like *off his rocker* is an atypical one. *Atypical lexemes are more useful than prototypical ones during text analysis to attribute likely authorship.*

The Conflation of Concepts in the Formation of Lexemes

Words are associated with lexical categories like nouns (*woman*), verbs (*break*), adjectives (*tall*), adverbs (*forwards*), pronouns (*you*) and prepositions (*on*).

Each lexeme consists of a number of concepts that are conflated (combined) and associated with a particular sequence of speech sounds or written letters. The sequence of speech sounds [m]+[æ]+[n], and the letters *m+a+n* are neurologically associated with the concepts [living, male, adult member of the human species]. Lamb's relational network theory of language, presented in Lamb (1998), provides a credible explanation for how the production of speech sounds and the formation of concepts are neurologically interrelated.

Conceiving Entities and Events in Schematic and Detailed Formats

Humans have the ability to conceptualise entities in *schematic* (very general) or in *detailed* terms. One can for instance say: *There is something under the table*, or *There is a little red metal toy motor car with plastic windows and scratched bumpers under the table.*

All elements of language, including grammatical structures, are *symbolic* (meaningful). Particular grammatical structures have *schematic* (general) background meanings that give them the valence (binding potential) to accommodate particular words.

Sentence Patterns: Phrases and Clauses, Topic and Focus

In *transitive* clauses for instance the major grammatical structures have the following schematic meanings: *Subject*: the party that supplies the energy for an interaction and that actively controls the course of an event which affects another party. *Transitive verb*: portrays an interactive event during which energy is transferred from an active, controlling party to a passive, affected party. *Object*: the passive party that is controlled and affected by the actions of an active party. Because a transitive clause has the above-mentioned schematic meanings it casts a semantic shadow that enables it to accommodate a great variety of utterances that portray interactions, like for example: *The dog is chasing the cat, my aunt is writing a novel, James cooked dinner last night* and *the boy is slicing the salami.*

Sentences are technically referred to as 'clauses' in most syntax textbooks, and portray real-world interactions in the course of events. More precisely, they portray the interactions between entities during actual or envisaged (hypothetical) events.

Sentences are made up from two types of clauses, namely independent clauses as in [**INDEPENDENT CLAUSE** *The child is shivering*], and dependant clauses that are subordinate to independent clauses as in [INDEPENDENT CLAUSE *The child is shivering,* [**DEPENDENT CLAUSE** *because he is feeling cold*]], or the less common [[**DEPENDENT CLAUSE** *Because he is feeling cold*] **INDEPENDENT CLAUSE** *the child is shivering*]]. A clause contains only one verb, but can contain a number of nouns such as in [**SENTENCE** [**NOUN 1** *the dog*] [**VERB** *chased*] [**NOUN 2** *the cat*] *up* [**NOUN 3** *the tree*] [**NOUN 4** *this morning*]].

Sentences are organised on a binary pattern according to which the first phrase of the clause occupies the privileged Topic position, with the rest of the sentence occupying the Focus position, the new information that is being provided about the topic under consideration. In transitive clauses the subject noun phrase occupies the Topic position and the verb phrase the Focus position as in [$^{\text{SENTENCE}}$ [$^{\text{TOPIC}}$ [$^{\text{SUBJ NP}}$ *the dog*] [$^{\text{FOCUS}}$ [$^{\text{VERB PHRASE}}$ [$^{\text{VERB}}$ *chased*] [$^{\text{OBJ NP}}$ *the cat*] *up* [$^{\text{PLACE NP}}$ *the tree*] [$^{\text{TIME NP}}$ *this morning*]].

Topicalisation is the process according to which sentence elements that are not normally used in the Topic position, are promoted to the Topic position for special attention as in [$^{\text{SENTENCE}}$ [$^{\text{TOPIC}}$ [$^{\text{TIME NP}}$ *this morning*] [$^{\text{FOCUS}}$ [$^{\text{SUBJ NP}}$ *the dog*] [$^{\text{VERB PHRASE}}$ [$^{\text{VERB}}$ *chased*] [$^{\text{OBJ NP}}$ *the cat*] *up* [$^{\text{PLACE NP}}$ *the tree*]], or as in the passive construction [$^{\text{SENTENCE}}$ [$^{\text{TOPIC}}$

[$^{\text{OBJ NP}}$ *the cat*]] [$^{\text{FOCUS}}$ [$^{\text{VERB PHRASE}}$ [$^{\text{VERB}}$ *was chased*] *up* [$^{\text{PLACE NP}}$ *the tree*] *by* [$^{\text{SUBJ NP}}$ *the dog*] [$^{\text{TIME NP}}$ *this morning*]].

Phrases essentially are lexical categories like noun, verb, article, adjective and preposition that are hierarchically linked to provide a coherent brief account of an event. Examples are given of two prepositional phrases, namely *with a knife,* which encodes instrumentality and *for what he believed in,* which encodes the reason for the event, respectively shown in Figures 4 and 5:

Figure 4: English prepositional phrase encoding instrumentality

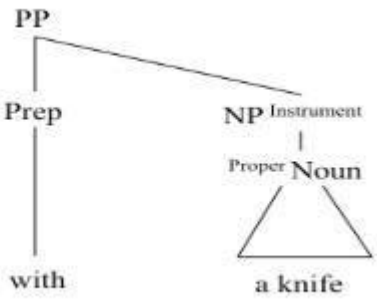
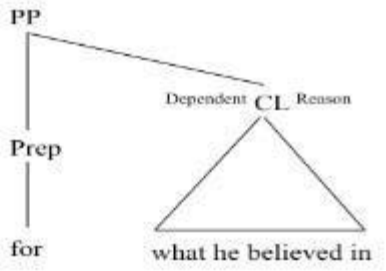
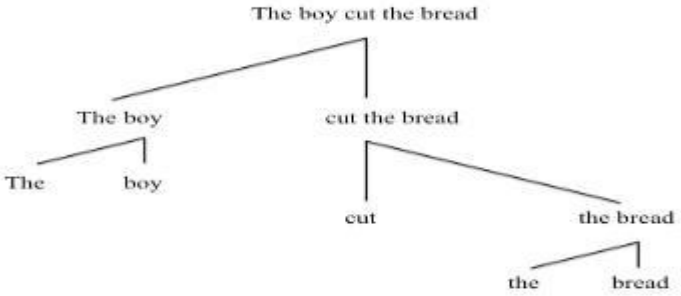


Figure 5: English prepositional phrase containing a dependant clause encoding the reason for the portrayed event



One of the basic types of clauses is the transitive sentence that hierarchically links a subject noun phrase with a verb phrase, which in turn requires an object noun phrase as complement. This is known as the SVO word order of transitive sentences that encode transitive cause-and-effect events. In such transitive constructions the entity stipulated by the subject noun phrase provides the energy for the event stipulated by the transitive verb and controls the course of the event, while the entity stipulated by the object noun phrase is passively involved, absorbs the energy and is affected by it as in *the boy cut the bread* in Figure 6:

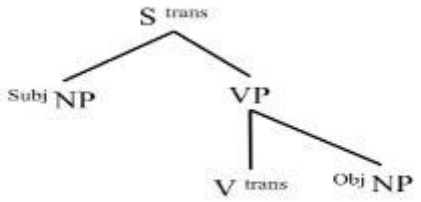
Figure 6: The hierarchic organisation of a typical English transitive clause



The formal notation for such transitive clauses is given below, showing that a transitive sentence (S^{trans}) consists of a subject noun phrase

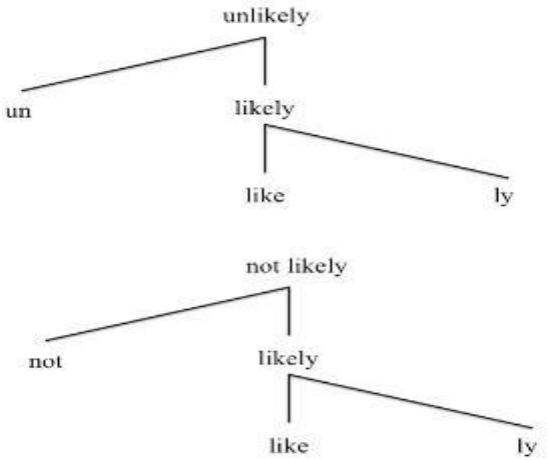
($^{\textbf{Subj}}$ NP) and a verb phrase (VP), which in turn consists of a transitive verb (V $^{\textbf{trans}}$) and an object noun phrase (($^{\textbf{Obj}}$ NP), as shown in Figure 7:

Figure 7: The hierarchic organisation of English transitive sentences



Morphological constructions (complex lexemes built up from smaller lexical units known as 'morphemes') are organised on the same hierarchical principles as clauses as can be seen in Figure 8:

Figure 8: The hierarchic organisation of the English complex lexeme 'unlikely'



From Structure to Meaning: The Distribution of Semantic Role Relationships within Sentences

In order to distinguish nouns from one another in a clause one conceptually assigns semantic roles like Agent, Patient, Experiencer and Stimulus to them. Other semantic roles used to identify entities during interactions are Source, Target, Path, Goal, Benefactor, Beneficiary, Instrument, Locus/Place and Time.

During conversation participants automatically assign semantic roles to the nouns in a clause like *the dog chased the cat up the tree this morning*, which will give the following representation: [$^{\textbf{SENTENCE}}$ [$^{\textbf{NOUN 1, Agent}}$ *the dog*] [$^{\textbf{VERB}}$ *chased*] [$^{\textbf{NOUN 2, Patient}}$ *the cat*] *up* [$^{\textbf{NOUN 3, Locus}}$ *the tree*] [$^{\textbf{NOUN 4, Time}}$ *this morning*]]. From a forensic linguistic point of view it is important to note that recipients (listeners or readers) inferentially assign semantic roles to noun phrases in texts, and that cut-and-paste plagiarism could be detected by looking for discontinuities between sections of a text where the semantic role for a particular noun phrase is unexpectedly switched with another role.

Humans experience a great variety of interactions between entities in real life, but only use 5 basic patterns to express our thoughts about such events:

Agent dominates Patient

a. The boy broke the plate
b. The lady is wearing a blue dress
c. John wrote a poem
d. Sally sang a song

Co-agent cooperates with co-agent

a. John and Peter are taking (with/to one another) *or* John is talking to Peter
b. John and Peter are helping one another or John is helping Peter

Counter-agent competes with counter-agent

a. Sue and Jane are competing/arguing/debating (with one another) or Sue is competing/ arguing/debating with Jane
b. The dog and the cat are fighting (with one another) *or* The dog is fighting with the cat

Experiencer experiences stimulus

a. Jack loves Judy
b. Andy hates peas

Stimulus stimulates Experiencer

a. Peas nauseate Andy
b. Horror movies frighten young children

The being, doing and happening schemas present relatively mundane, background scenarios, used to set the scene for the more interesting interactions that involve agents and patients co-agents and counteragents, experiencers and stimuli. We use the being schema to simply situate entities in time and space. We use the happen schema to portray passive processes. We use the do schema to portray individuals engaged in activities on their own. By contrast, we use the different types of agency schemas ([sole] agent, co-agent and counteragent) to portray human interactions, and the stimulus-and-experiencer schema to portray the psychological effects external stimuli on experiencers' mind states. The schema that interrelates stimulus and experiencer is fundamental to cognition and to the interpretation of the narratives that we tell one another. Whenever we try to make sense of what we observe around us, or interpret what others are communicating to us, we are experiencers, subject to stimuli that influence our perceptions and conceptions through our senses.

Humans have an anthropocentric perspective of our environment. We mostly take for granted the time and place of events, and the instruments that we use, and often leave them out of sentences—the most basic mini-stories that we tell one another. We populate our sentences, and the narratives that we weave by combining sentences, with types of agents and patients that we construe as heroes, villains and victims. In sentences agents, patients, stimuli and experiencers are obligatory roles, while it is optional to stipulate instruments, time and place, as in *He sliced the cake (in the kitchen) (with a knife).* Instruments can be foregrounded by using them in theme position at the head of sentences, as in *the dog fetches the paper <u>every morning</u>*, which becomes *<u>every morning</u> the dog fetches the paper*. Similarly, instruments can be foregrounded by using them in the theme position, as in *he killed his opponent <u>with this dagger</u>* which becomes *<u>with this dagger</u> he*

killed his opponent. Instruments can also be foregrounded by reconceptualising them as agents, as in *this dagger killed his opponent.* When an instrument is promoted to the role of the agent, it is used in the subject position at the head of the transitive sentence.

Plagiarised texts often have a feel of ill fitting sentences and paragraphs because the semantic role relationships that were used to deploy the theme of the original text do not fit together in the plagiarised text.

Text Cohesion: Phoric Reference Relationships within and between Sentences

Phoric referencing relates to the use of provisional text elements (pro-forms) like pronouns and pro-adverbs that are used in texts to set up thematic reference chains throughout texts by referring back to previous text elements or by referring forward to subsequent text elements. Halliday & Hassan (1976), Van Hoek (1992; 1997), Liddy *et al.*, (2007), Lyons (1977), Beaver (2003), and Wikipedia (http://en.wikipedia.org/wiki/Pro-form) present good introductions to phoric text referral. The most commonly used form of text reference is anaphora, or backward referencing. Table 2 provides examples of phoric text reference in English:

Table 2: Anaphoric, cataphoric and exophoric text referencing by pronouns

Pronoun	**Explanation**	**Example**
Anaphora	Pronoun refers back to prior noun/ noun phrase/ clause	'This' in: We're lost. *This* is our problem. 'he' in: John said *he* will come
Cataphora	Noun refers forward to subsequent noun/ noun phrase/ clause	'This' in: *This* is our problem. We're lost. 'he' in: *He* will come, John said.

Exophora	Noun refers to item/s outside text	'This' in: Take *this* to your mom. 'they all' in: *They all* ran away.

Table 3: Anaphoric, cataphoric and exophoric text referencing by pro-adverbs

Pro-adverb	**Explanation**	**Example**
Anaphora	Pro-adverb refers forward to a prior adverbial element	'Afterwards in: Now sleep. *Afterwards* rest. 'When' in: Immediately go and call me *when* you have arrived. 'subsequently' in: He resigned and *subsequently* emigrated to Australia.
Cataphora	Pro-adverb refers to subsequent adverbial element	'When' in: *When* you are home safely, call me
Exophora	Pro-adverb refers to item/s outside text	'When' in *When we were young…*

Less commonly used than anaphora is cataphora, where a provisional form refers forward to a subsequent text element as shown in Table 3 above. Plagiarism that is the product of cutting and pasting from a variety of documents often is signalled by improper phoric reference links.

Other language forms of cataphoric reference that provide text cohesion, and that are often disturbed during plagiarism:

- **Enumeration** as in: firstly… secondly… thirdly…, a)… b)… c)…, 1.1… 1.2… 1.3…

- **Previewing** as in: 'We will first define the key concepts of the study before proceeding to discuss them', 'The following six symptoms could occur during dehydration:… '
- **Scope setting** as in 'In general, … More specifically…'
- **Reinforcing** as in: 'In summary…', 'In conclusion…' , 'when all is said and done…'

Using Frequency of Usage as a Predictor of Likely Authorship

We have seen that for written language the term 'grammatical pattern' relates to the combinatory principles that are used to generate lexemes (e.g. *cat* and *uneducated*), phrases (e.g. noun phrases like *the dog* and *the tall man on the horse* or prepositional phrases like *in the air* and *up against the fence*), and clauses (e.g. *we rested* or *pick up the tin can that you tossed*). Lexemes essentially are a combination of written signs (letters, numbers, diacritic signs) that form symbols (l+y+n+x forms the word label 'lynx'), which is then associated with clusters of concepts as shown below:

> **Lynx: '**The lynx is a medium-sized cat characterized by its long ear tufts and short (bobbed) tail with a black tip. It has unusually large paws that act as snow shoes in very deep snow and its thick fur and long legs make it appear larger than it really is' (Defenders of Wildlife (2009).

The above definition of the word 'lynx' shows that categorization is at the heart of lexicography. It firstly reveals that we are dealing with a subcategory of cats, a particular type of cat, and secondly that we distinguish this type of cat from other types of wild cats like bobcats, caracals, cheetahs, cougars, genets, leopards, lions, lynxes, ocelots, panthers, and tigers, based on specific distinguishing attributes like ear tufts, a shot bobbed tail and large paws.

An important aspect of lexicography is that lexemes that belong the same subcategory, as in [**Cat** [**House Cat** …] [**Wild Cat** bobcat, caracal, cheetah, cougar, genet, leopard, lion, lynx, ocelot, panther, tiger …]], could be used at different frequencies by everyday language users as can be seen in Table 4:

Table 4: Frequencies with which lexemes referring to different types of wild cat are used on the Internet, based on a Google search

Types of Wild Cat	**Google Hits (Million)**	**Types of Wild Cat**	**Google Hits (Million)**
caracal	1,69	genet	9,88
ocelot	2,21	cougar	13,8
bobcat	5,28	panther	22,1
lynx	6,1	leopard	40,2
lion	7,6	tiger	138
cheetah	9,48	genet	9,88

Lexemes with a low frequency of usage tend to be better predictors of likely authorship than ones with a high frequency of usage when used in phrases as can be seen from the Google search results for the phrases *land of the tiger* and *land of the caracal* as seen in Table 5:

Table 5: Frequencies with which the lexemes 'tiger' and 'caracal' are used on the Internet in the phrase 'land of the X', based on a Google search

Phrase	**Google Hits**
'Land of the tiger'	61,600
'Land of the caracal'	0

Given that two lexemes can share the same subcategory in the English lexicon, the knowledge domain in which a lexeme is used, it is important for forensic audit purposes to establish the frequency of usage of lexemes. For instance, in the domain of narrative fiction two lexemes are used to refer to a person who invents or recounts fables, namely *fabler* and *fabulist*. While these two synonyms are semantically equally weighted in the English lexicon, *fabler* is used with a significantly higher frequency than *fabulist* as can be seen in Table 6:

Table 6: Frequencies with which the lexemes 'fabler' and 'fabulist' are used on the Internet in the clause 'he is a X', based on a Google search

Phrase	**Google Hits**
'he is a fabler'	165,000
'he is a fabulist'	2

Consider the following forensic linguistics auditing scenario: the lexeme *fabulist,* which has a low frequency of usage in texts, is encountered in the same syntactic context in two different manuscripts of which one author alleges plagiarism and the other author alleges independent authorship. If a third manuscript, predating the two in question is encountered in which the accused author is also using the term *fabulist* a good case could be made for independent authorship. If, however, the third manuscript has been written by the author who alleges that s/he has been plagiarised, a good case would be made to support the plagiarism allegation.

Nonstandard Language Forms as Predictors of Likely Authorship

When considering the utility of grammatical patterns to attribute likely authorship of documents a clear distinction has to be drawn between different *varieties of written language*. One can for instance distinguish the standardised variety of a language that is used in formal settings like when one writes an academic paper, a thesis or a funding proposal. In such formal settings full forms of words, like *cannot, will not* and *is not* tend to be used, rather than contracted forms like *can't, won't* and *isn't.*

There however, also are a number of nonstandardised varieties of a language like regional dialects and social dialects that must be kept in mind during forensic auditing, where nonstandard variants like *cain't* and *ain't* appear in writing, or the nonstandard dialect variant *brung* for the past tense of the verb *bring* rather than the standardised variant *brought*. Such nonstandard varieties of language are considered to be markers that may reveal the social dialect, regional dialect or the idiolectic (individualistic) affiliation of a language user.

It is also important to note that during *spontanious communication* in informal settings, like when people are excited, angry or emotionally upset they tend to use language patterns *subconsciously*. By contrast, in formal settings, like when one is reading a written a speech, while one is answering questions during a an interview, or during a written examination one tends to *self-monitor* one's language output, often tending to reformulate or further clarify earlier statements.

From the above examples it should be clear that individual language users may subconsciously leak language forms that will could be used by forensic investigators to attribute likelihood of authorship of written documents.

The Forensic Audit Process

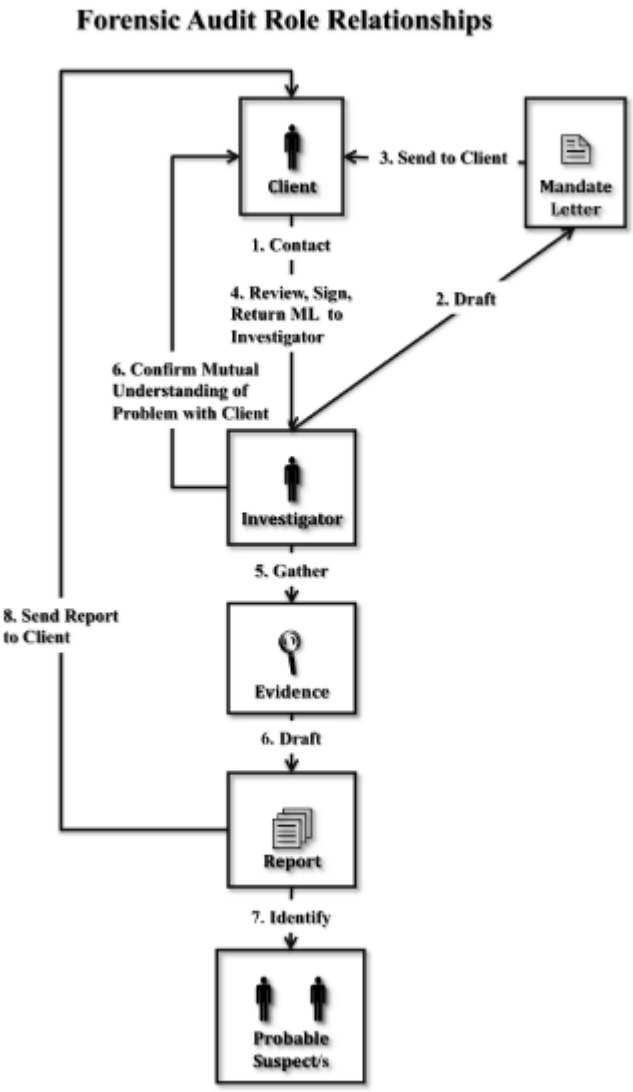
This section outlines the forensic audit process according to which shallow and deep web search protocols will be implemented to retrieve and analyse possible source texts that have been plagiarised.

The first aspect of such a forensic audit that has to be noted is that the process requires the systematic implementation of a systematic pre-planned procedure.

The second aspect is that each phase of the audit should be meticulously noted because such notes form the basis of professional reports, and assist the auditor to coherently answer questions in case of subsequent legal proceedings.

The third aspect that is important is that due to the transactional nature of forensic audits, semantic role analysis works well to characterise the forensic audit process itself. The same semantic roles that were identified as part of text analysis apply to the forensic auditing process, because the auditor acts as an agent on behalf of a client after having received a mandate from the client to investigate the likely authorship of a document, using a variety search instruments to locate relevant documents on the shallow web as well as the deep web, in order to determine whether a suspect legally is the actual author of a document, or merely a plagiarist. The role-based forensic audit procedure is shown in Figure 9:

Figure 9: The participant role relationships in forensic auditing



Conclusions

In this contribution plagiarism has been identified as one of the major problems that plague present-day academia. A problem-solution oriented approach was implemented to identify the appropriate electronic resources that could be used to retrieve potential electronic source documents for forensic audits to establish likelihood of authorship. The information reviewed enabled me to answer the three research questions posed at the beginning of the article, namely:

1. Where on the Internet do plagiarists obtain plagiarised sources?
2. What resources can be used to track and eliminate plagiarism?
3. What methods of text analysis could serve as forensic tools to identify plagiarism on linguistic grounds?

With regard to research question 1 (relating to the sources of plagiarised material) it was shown that plagiarists can obtain sources from the shallow web as well as from the deep web.

With regard to research question 2 (relating to the resources available for tracking and eliminating plagiarism) the ineffectiveness of current algorithm-based anti plagiarism tools was highlighted, additional computer-based as well as online resources and services were identified.

With regard to research question 3 (relating to the methods of text analysis that could be used as forensic audit tools) it was emphasised that a nuanced analysis of documents requires semantic-based analytical procedures to help distinguish between authors and plagiarists. An overview was provided of the lexical, semantic, syntactic, variational and stylistic aspects of language that would enable auditors to make a nuanced semantic analysis if documents, also with regard to likelihood of authorship.

Finally, the case was presented for combining Cyber Forensics and Forensic Linguistics into a coherent interdiscipline that would enable forensic auditing of documents on semantic grounds. Such a course of studies would ensure that relevant knowledge in informatics, linguistics and auditing can be harnessed to counteract plagiarism and promote ethical academic writing.

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The Problem with Passwords

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Abstract
The study that is reported here investigated password security and related issues at a South African tertiary institution. The main reason was to investigate why password security is such a problem for students. This was because students fell victim to people using their Internet identification to send nasty e-Mail, to visit pornographic websites, etc. The study used a questionnaire and IS&T students at the University of KwaZulu-Natal as respondents. The data shows that more than 60% of the students surveyed actively use passwords to protect their data and account security while 36% just used passwords when required by regulations. The researchers' primary recommendation is that tertiary institutions should rigorously enforce security regulations.

Keywords: Account, data protection, hacking, internet identification, log-in, password security, password sharing.

Literature Review
According to a minority staff statement during the 1996 USA Congressional Hearings on Intelligence and Security, a password is 'a protected word or string of characters that identifies or authenticates a user for access to a computer system, or a specific resource such as data set, file, or record.' Similarly, Wikipedia (2006) defines passwords as a form of authentication, which uses secret data to control access to a resource. In most cases, the key security mechanism is a password to verify to the operating system that the

associated account really belongs to the person who is using it to log on (Confirmed by Shinder, 2003). It is important that a user chooses a password that is hard to guess and that users keep this password a secret. A user password is a key to an account and anyone who knows it has access to files.

Shinder (2003) states that the basic concept of 'locking' an account with a password is simple. When a user account is created, a password is usually assigned to the user by the administrator. Depending on the type of user account (local account that can only log onto the computer or network account called a domain account), a database is stored either on the local hard disk or on an authentication server which Microsoft calls a domain server. The database contains a list of all the user accounts and their corresponding passwords. When a user logs on and enters the credentials, they are checked against this database, if the password matches, access is granted. Entering the user name and password every time a user wants to access a different resource on the computer or network would be cumbersome, so the authentication process is made transparent to the user after the initial logon.

On average, only about half of the users will actually use a password that satisfies the policy (Lemos, 2002). If 900 out of 1,000 employees use strong passwords, a password cracker can still guess the remaining 100 user/ID password pairs. When it comes to strong passwords, anything less than 100% compliance is weak (Lemos, 2001). With modern processing power, strong passwords are no match for current password crackers. While some user ID/ password pairs may take days or weeks to crack, approximately 150, or 15%, can be brute forced in a few hours.

Strong passwords are expensive. The second highest cost to help desks is related to resetting forgotten passwords. Many companies have full-time employees dedicated to nothing more than password resets. Bradley (2004) adds that, although alternatives for user authentication are available today, users log onto their computers and remote computers using a combination of their username and. The password 'jyg2&ti5' is harder to crack than 'bradley1'.

Description	Examples
1. English Upper Case Letters	A, B, C, … Z
2. English Lower Case Letters	a, b, c, … z
3. Westernized Arabic Numerals	0, 1, 2, … 9
4. Non-alphanumeric (‘special characters’)	For example, punctuation, symbols. ({}[],.<>;:''?/|\`~!@#$%^&*()_-+=)

Table 1: *Password characters*

Labmice.net (1998) adds that adopting password policies is one of the ways to ensure system security. It is up to each customer to determine how strong enough. A complex password that cannot be broken is useless if one cannot remember it. For security to function, one must choose a password one can remember and is complex. For example, Msi5!YO (My Son is 5 years old) OR IhliCf5#yN (WE have lived in California for 5 years now.

Bradley (2004) also states that sometimes less is more. System administrators force a password length of 8 characters and may even require a special character. In reality, a 7 character password is more secure than an 8, 10 or even 12 character password on Windows NT systems. When Windows NT stores a password in its local archive it breaks it down into 7-character chunks, pads the chunks to fill 2 complete chunks and encodes each chunk separately.

Hacking Passwords

As much as advanced passwords are designed and created, hacking will always be there. In the 1060’s computers were mainframes, locked away in temperature-controlled, glassed-in lairs. Smarter people created what they called ‘hacks’programming shortcutsto complete computing tasks more quickly (Granger, 2002). Security experts estimate that more than a million passwords have already been stolen on the Internet. A hacker will launch a dictionary attack by passing every word in a dictionary (which can contain

foreign languages as well as the entire English language) to a login program in the hope that it will eventually match the correct password. Users are too predictable in their choice of passwords (University of Michigan, 1997). Some companies are utilizing the expertise of convicted hackers to update their security features. These hackers come from a ready market for their expertise, and financial rewards.

Password Policies

Shinder (2003) states that some of the policies can be enforced through operating system or third party software. It is useful to enable security auditing and have the system write an event to the Security log when failed logon attempts are made one can determine when the attempts are occurring (Shinder, 2003). Over the past couple of years, the potential of information systems (IS) and its equally important support to organizational activities (to gain competitive advantage) has been recognized. Competencies in the area of IS are becoming important in business organizations (Quinn & Paquette, 1990). At one level of strategy, there are some organizational activities dedicated to looking at the vulnerability of data (i.e. data falling in the wrong hands, trying to maintain the availability, confidentiality and integrity of data at all times) (Quinn & Paquette, 1990).

Research Questions

A number of the problems mentioned have been solved. However, there are still some issues that need to be answered.

1. What efforts are institutions trying in order to improve security?
2. How will the institution benefit from password improvement measures?
3. What are other intended benefits of this research?

Research Options

The Researchers decided to apply quantitative research in the study. It is a numerical representation and manipulation of observations for the purpose of describing and explaining the phenomena that those observations reflect. The

aim was to gather valid, reliable, unbiased and discriminatory data from a representative sample of respondents (Technology Assessment, 2001). In this study, the characteristics of the subjects, and the independent and dependent variables defining the research question were measured.

It was decided to use a questionnaire to answer the research questions. The instrument was divided up as follows:

- Questions 1-3 deal with demography;
- Questions 4-5 deal with computer usage;
- Questions 6-11 deal with passwords;
- Questions 12-20 deal with physical security, software and system policies.

Results

This section is based on the analysis of results acquired from research questionnaire. This section addresses the treatment of data, the reliability of that treatment, the data analysis, and the results.

Demographics

The sample of one hundred and forty (140) students was evaluated for the ability to supply relevant data with regard to the research question. Of this sample, one hundred and seven (107) completed questionnaires were collected and collated. Gender in this research was mainly a criterion used to highlight the difference in interests between the two genders. The dominating age group was the 21-25 yea group. The final range of ages included in the analysis is from eighteen to twenty six and above years.

Online Log-in Accounts

As more people are resorting to technology and the internet, some are still sceptic. It is apparent that students indulge into online participation. Institutions and companies that conduct various sorts of activities on the Internet have become the target of fraudulent e-Mail and Web site scams. These scams are known as ‘phishes,’ (pronounced ‘fishes’) and they attempt to illegally obtain clients' personal and account information.

Using of the Same Password

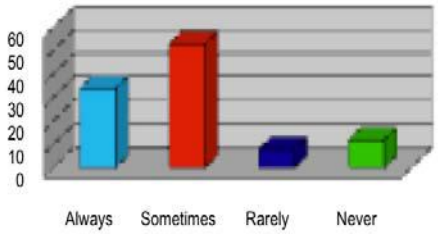

Figure 1: Using the same password to access multiple accounts

Users are still not aware of the implications of using the same password to access multiple accounts. This could be as a result of lack of awareness or just simple users being naive which could result in serious impacts. Since passwords were introduced in the 1960s, the notion of a 'good' password has evolved in response to attacks against them. First there was no rule about passwords except that they should be remembered and kept secret. As attacks increased in sophistication, so did the rules for choosing good passwords. Each new rule had its justification and, when seen in context, each one made sense. People rarely had trouble with any particular rule: the problem was with their combined effect (Shinder, 2003).

An early and important source of password rules was the Department of Defence Password Management Guideline codified the state of the practice for passwords. In addition to various technical recommendations for password implementation and management, the Guideline provided recommendations for how individuals should select and handle passwords. In particular, these recommendations yielded the following password rule: Passwords must be memorized. If a password is written down, it must be locked up (Shinder, 2003).

Password Sharing

Most of the respondents responded negatively when asked whether they share their passwords. This is an indication of an understanding of privacy, where accounts, data or even information is concerned. Shared accounts

confuse the lines of accountability and should be avoided. Each user on the system should have an individual account. The bad habit of sharing a password may be broken by selecting passwords that would create embarrassment if shared with anyone else. Change a password as soon as possible after it has been used in an emergency by someone other than the person with whom it usually is identified. When an account has been used illegally, it often turns out that someone gave away the password involved (Gates, 2004).

From a security standpoint non-technical steps should be taken to try to alleviate the 'users sharing passwords' problem, because it is a breach of security on a network. It's a step to figure out how to limit users to a single connection, but the problem is stopping users from sharing passwords. Depending on the current configuration of an account and password policies, a suggestion would be frequent password changes and account lockouts to drive home the point (Hunter, 2004).

Changing Passwords

The unfortunate part with the response for this question is that the majority responses were negative. According to the results, students take lightly to the concept of updating and changing of passwords. A password should be changed often. An account should always be created in a manner that forces the new user to change the password (Gates, 2004).

Response	Always	Sometimes	Rarely	Never
Number of Respondents	5	12	53	37

Table 2: *Frequency of changing passwords*

Forgetting Passwords

Figure 2 represents the respondents who forget their passwords. Forgetting a password can be dangerous since passwords are more or less used as keys for data and loosing a key can result in negative results. Some facts about people's use of passwords have emerged from a survey of over 3,000 IT

professionals and business executives. Just under a quarter have eight or more different names and passwords to access different parts of their computer system. Over half (55 %) of people have written their password down at least once, with most having written them down about three times. Nine percent of people always write their passwords down (McCarthy, 2003).

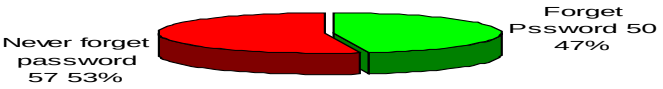

Figure 2: *Forgetting one's password*

Figure 2 represents the respondents who forget their passwords. Forgetting a password can be dangerous since passwords are more or less used as keys for data and loosing a key can result in negative results. Some facts about people's use of passwords have emerged from a survey of over 3,000 IT professionals and business executives. Just under a quarter have eight or more different names and passwords to access different parts of their computer system. Eighteen per cent are lucky enough to have just one, with most stuck with between three and four passwords. Over half (55 %) of people have written their password down at least once, with most having written them down about three times. Nine percent of people always write their passwords down (McCarthy, 2003).

Response	Always	Sometimes	Rarely	never
No of respondents	6	38	23	40
%	5.60%	35.50%	21.40%	37.30%

Table 3*: Logging on for visitors*

While just under half claim they have never forgotten their passwords, thirty-seven percent state just once or twice, and 10 % three or four times. Two percent of people admit to having forgotten their passwords eight or more times. Usernames and passwords are just a part of using computer systems (McCarthy, 2003). Forgotten or lost passwords can cost money. Technology Researchers Gartner estimates it costs US$ 14 -US $ 28 for companies to reset a password (Hunter, 2003).

Computer Security Problems

Respondents were asked if they experienced computer security problems. While security experts say the publicity has highlighted a serious problem, they are sceptical about the ability to do anything about it (Fester, 1998). He reports that computer security breaches were up 16% from 1996 to 1997, and computer-related crime including security breaches cost 241 surveyed organizations $136 million.

Response	Don't know	yes	no
No of respondents	70	32	5
% Respondents	65.40%	29.90%	4.60%

Table 4: *Intrusion detection system*

Intrusion detection is the art of detecting inappropriate, incorrect, or anomalous activity. Intrusion detection systems that operate on a host to detect malicious activity on that host are called host-based ID systems. The term intrusion is used to describe attacks from the outside; whereas, misuse is used to describe an attack that originates from the internal network.

Guidelines for Changing One's Password

Response	No	Yes
No of respondents	80	27
%	74.70%	25.20%

Table 5: *Guidelines for changing password*

A user password is the only means the computer system uses to verify identity. If an intruder gains access to an account, they can then compromise the security of the entire cluster. There are password requirements that have to be complied with:

1. A password should not be the same as a username, nor should it contain a username or simple permutations of it. (e.g., John should not use any of the following for passwords: bigboote, BigBoote, bootebig, etc.) A password should not contain any personal data or simple permutations thereof.
2. A password should not contain correctly spelled English words.
3. A password should not contain names of famous people, places, things, fictional characters, movies, TV shows, songs, etc. John should not use buckaroo, banzai, star trek, Kirk, etc, as passwords.
4. Do not use any example passwords given for a password.

Embed extra characters in the word. Symbols and control characters are especially good. Digits are good, too (e.g., abb@8d instead of abbaed, or buck@r0o, or ba%nz! Ai, Misspell words, e.g. buckarew or bonzaye). Use unusual capitalization. All lowercase, or all capitals, or capitalizing first letter of words (or all but 1st letters) are somewhat common; randomly capitalizing a letter or two is better. So John might want to use buckaroo or baNzaI. Embed one word in the middle of another, or interleave the letters of two words, e.g. stkirkar (Kirk in star) or sktiarrk (star and Kirk), combining two or three of the above is better.

If a user thinks that s/he has found a security problem on the University's data network or suspect a breach in security on any computer, whether it is an IS, a Departmental system or a personal system or computer systems there should be a method for reporting the findings. System policy refers to the management of the system (i.e. network and systems management; policy definition; policy objects; policy enforcement; policy monitoring). To prevent operators from drowning in detail, the level of abstraction needs to be raised in order to hide system and network specifics.

Correlations between Surveyed Factors

The Researchers used correlation to measure the relationship between the variables he used in the compilation of this study.

Always	many	44
	few	22
	one	8
Sometimes	few	18
	one	3
Rarely	few	4
	one	8

Table 6: *Comparison of regularity of computer usage and number of email accounts*

		OFTEN	ACCOUNTS
OFTEN	Pearson Correlation	1	.552(**)
	Sig. (2-tailed)	.	.000
	N	107	107
ACCOUNTS	Pearson Correlation	.552(**)	1
	Sig. (2-tailed)	.000	.
	N	107	107

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

Table 7: *Correlation table between gender and computer skills*

There was a strong relationship of .552. This proves that the more users use computers, they are very likely to have multiple user accounts, be it online or not. However this shows that as a result of more user accounts, the higher there is a chance of breach, due to the reason that number of accounts is dependant on regular usage of computers (University of Michigan, 2002).

Correlation between Year of Study and Computer Security Problems

First	always	5
	sometimes	2
	rarely	3
Second	sometimes	8
	rarely	4
Third	sometimes	16
	rarely	5
Fourth	always	3
	sometimes	29
	rarely	11
	never	5
Postgraduate	sometimes	8
	rarely	5
Masters	always	3

Table 8: *Year of study and computer security problems*

As the table shows, there is a weak relationship between the two. This means that regardless of which year of study a user is, they still experience security problems thus security problems is independent of the year of study.

		YEAR	COMPSEC
YEAR	Pearson Correlation	1	.068
	Sig. (2-tailed)	.	.485
	N	107	107
COMPSEC	Pearson Correlation	.068	1
	Sig. (2-tailed)	.485	.
	N	107	107

Table 9: *Correlation table between year of study and computer security problems*

Correlation between Forgetting Passwords and Computer Security Problems

Yes	always	2
	sometimes	34
	rarely	14
No	always	9
	sometimes	29
	rarely	14
	never	5

Table 10: *Passwords and computer security problems*

		FORGETP	COMPSEC
FORGETP	Pearson Correlation	1	.017
	Sig. (2-tailed)	.	.866
	N	107	107
COMPSEC	Pearson Correlation	.017	1
	Sig. (2-tailed)	.866	.
	N	107	107

Table 11: *Correlation between forgetting passwords and computer security problems*

Table 11 is an illustration of a correlation between the number of people who forget their passwords and people who experience computer security problems. As the table implies there is a 0.017 weak correlation. This means that if one forgets a password the chance of a user experiencing security problems is more likely the same as another user who does not. The reason for this is that as long one uses a password, accounts are kept secure at all times. Therefore using a password at the end of the day is for security Physical…, 2004).

Correlation between Gender and Sharing of Passwords

Male	always	2
	sometimes	16
	rarely	6
	never	38
Female	sometimes	3
	rarely	14
	never	28

Table 12: *Gender and password sharing*

		GENDER	SHAREP
GENDER	Pearson Correlation	1	.156
	Sig. (2-tailed)	.	.109
	N	107	107
SHAREP	Pearson Correlation	.156	1
	Sig. (2-tailed)	.109	.
	N	107	107

Table 13: *Correlation between gender and sharing of passwords*

Tables 12 and 13 above show the correlation between gender and sharing of passwords. The purpose of this correlation was to investigate how gender differs in terms of confidentiality. As shown by the graph, although there is a correlation, it is weak. This means that neither variable is dependent on the other. Whatever a user's gender is, it is likely that they share their passwords with other users and these pauses as a threat in terms of security.

Correlation between Number of User Accounts and Using the Same Password

Table 15 shows a correlation between number of user accounts and using the same passwords. The figure shows a negative and weak correlation. This means that the more accounts a user has does not necessarily mean that s/he is likely to use the same password for different accounts. Having different passwords for different accounts is advisable but at the same time might lead to users having to use easily guessable passwords that can be remembered and this is exactly how password security is weakened.

Many	always	5
	sometimes	32
	rarely	2
	never	5
Few	always	12
	sometimes	19
	rarely	5
	never	8
One	always	17
	sometimes	2

Table 14: *User accounts and using the same passwords*

		ACCOUNTS	SAMEP
ACCOUNTS	Pearson Correlation	1	-.332(**)
	Sig. (2-tailed)	.	.000
	N	107	107
SAMEP	Pearson Correlation	-.332(**)	1
	Sig. (2-tailed)	.000	.
	N	107	107

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

Table 15: *Correlation between number of user accounts and using the same password*

Recommendations and Conclusion

This section has been the analysis of the results acquired from the research questionnaire. This analysis included graphs and table as a method of presentation of data and results, which were then discussed as to what they mean. After this analysis, the author has realized that there is in fact importance of security (computer security) at the institution.

Password Security Challenges

User passwords are one of the security headaches, especially when users put their passwords on sticky notes that hang from their monitors; select easy-to-guess passwords like a child's name; use the same, weak password for all of their work and home accounts; and/or share their passwords with others when asked (Physical, 2004). The security measures that users should take to protect their passwords (e.g. using different passwords for different sites). The computer industry requires that passwords are of limited value, and means of augmenting those passwords are becoming mainstream. The best solution is two-factor authentication, combining a password with a piece of hardware that users have to carry around with them to get access to a secure system (Wagner, 2004).

Password Privacy

The point of password privacy cannot be stressed enough. Passwords should never be shared because it is only good if it is kept a secret. Ideally, passwords should never be written down, although, in reality, most like to document their passwords. Users should be sure they don't keep a password list in a computer or in any obvious place. If users want to keep a password a secret, remember a password can be stolen by observation. Be cautious of anyone looking over a shoulder when one types in a password (Berger, 2007)

If one loses a wallet, a person would probably know the sense of vulnerability that comes with it. Someone might be walking around with a false identification, pretending to be someone else. If someone stole passwords, they could do the same thing online. Each time user accesses personal account information a unique access code and password combination has to be entered. It is important that users remember never to share their password with any other person.

A Proposal for Constructing Strong Passwords by Using Mnemonically-based Passwords

One of the major problems that leads computer users to lax password protocols is that a single user often has to remember six or more passwords—one password to log on to a networked computer, a second password to log on to the institution's network, a third password to link on to her/ his bank account, a fourth password to log on to an online funds transfer facility like PayPal, a password for each of goodness knows many social networking websites where s/he is registered. To solve the problem of keeping track of multiple websites the authors propose a mnemonic device approach.

Wikipedia defines a mnemonic device as 'a memory aid' and then explains, 'Mnemonics rely not only on repetition to remember facts, but also on associations between easy-to-remember constructs and lists of data, based on the principle that the human mind much more easily remembers insignificant data attached to spatial, personal, or otherwise meaningful information than that occurring in meaningless sequences'.

The mnemonic device that the authors propose has three components, namely a prefix, a root and a suffix. Our proposal is that the root remains

constant across passwords, but that the prefix and suffix components change for each website password. Because the root is used constantly, and it therefore becomes easy to remember it, it could contain an unpredictable sequence of symbols like 1t0c3sp for which one devices a narrative mnemonic like 'one tea, no coffee, three sugars please'. The prefix and suffix elements of the password would depend on the website or network being accessed, for instance the prefix for one's online bank account could be lh (lolly house) and the suffix ae (almost empty). The computer user then constructs outer and inner narrative scenarios:

- Outer narrative: lolly house almost empty
- Inner narrative: one tea, no coffee, three sugars please

To access the university network one could use the prefix dh (varsity network) and the suffix bi (bloody irritating). This will render the passwords:

- Bank account: lh1t0c3spae—lolly house one tea no coffee three sugars please almost empty
- University network: dh1toc3spbi—damn hoops one tea no coffee three sugars please bloody irritating.

A related approach to formulate such a password could be to extract the root component from an easy to remember rhyme:

EoEhsasactfBAoAhdadabtr:
Eve oh Eve, how shiny and sweet and curved the fruit
But Adam oh Adam, how dark and deep and bitter the root

MTtlinft: Maggie Thatcher 'This lady is not for turning'

Being wary of using such a mnemonic approach to secure passwords is hardly a failure of memory, its a failure of imagination.

Password Guidelines

Passwords are a critical part of information and network security. Passwords serve to protect user accounts but a poorly chosen password, if compromised, could put the entire network at risk. Passwords are used to access any number of systems, including the network, e-Mail, the Web, and voicemail. Poor, weak passwords are easily cracked, and put the entire system at risk. Create a password that is easy to remember.

- Passwords should not be based on well-known or easily accessible personal information;
- Passwords should contain at least 8 characters;
- Passwords should contain at least 5 uppercase letters (e.g. N) or 5 lowercase letters (e.g. t) or a combination of both;
- Passwords should contain at least 2 numerical characters (e.g. 5) and should contain at least 1 special characters (e.g. $);
- A new password should contain at least 5 characters that are different than those found in the old password, which it is replacing;
- Passwords should not be based on users' personal information or that of his or her friends, family members, or pets. Personal information includes log-on ID, name, birthday, address, phone number, social security number, or any permutations thereof;
- Passwords should not be words that can be found in a standard dictionary (English or foreign) or are publicly known slang or jargon;
- Passwords should not be trivial, predictable or obvious;
- Passwords should not be based on publicly known fictional characters from books, films, and so on;
- Passwords should not be based on the company's name or geographic location.
- Generally Passwords should be changed every 60 days. Old passwords should not be re-used for a period of 6 months**.**
- Password Protection Guidelines
- Passwords should be treated as confidential information. No employee is to give, tell, or hint at their password to another person,

including IT staff, administrators, superiors, other co-workers, friends, or family members, under any circumstances;

- If someone demands a password, refer him or her to these guidelines or have him or her contact the IT Department;
- Passwords should not be transmitted electronically over the unprotected Internet, such as via e-mail;
- No employee is to keep an unsecured written record of his or her passwords, either on paper or in an electronic file;
- Do not use the 'Remember Password' feature of applications and do not create a 'hot key' for password use;
- Passwords used to gain access to company systems should not be used as passwords to access non-company accounts or information;
- If possible, don't use the same password to access multiple company systems;
- If an employee either knows or suspects that his/her password has been compromised, it must be reported to the IT Department and the password changed immediately;
- Do not use any of the password examples shown in this document;
- Finally, remember that there is no need to share IDs and passwords.

Password Limitations to be Taken into Account

Computer security is primarily concerned with ensuring the availability of information and protecting it against tampering, destruction or misuse. This is true when information is made easily available to a large community of potential users in multiple locations on networks.

However there are both use and time limitations:

- An account will be locked after three failed logon attempts.
- User passwords (online) will expire every 90 days
- After 90 days of inactivity, the user account will be locked.
- Passwords have a character limit and
- Passwords can be very easily lost and forgettable.

Answers to Research Questions

What Efforts are Institutions Trying in Order to Improve Security?

According to the findings of this study most institutions have some security measures implemented. However these measures are not enough since students do not just end by logging into the machines but also have other accounts, students can still get hold of other students registration numbers and access what is not theirs e.g. school assignments and e-mails, students still log on for other users, share their passwords, use the same password over and over again and there is no one to monitor such.

How will the Institution Benefit from Password Improvement Measures?

Students shall improve their education on security and acquire new knowledge. The information about child nutrition, agriculture and tertiary institutions application procedures will be provided by use of guidelines implemented by administrators at labs.

What are Other Intended Benefits of this Research?

The fewer complaints there are about security the more satisfied the students are. This will contribute to accurate and reliable work, thus providing a secure environment for studying and for promoting the use of computers for day-to-day activities by students; this will also give them a chance to improve their knowledge (where technology is concerned).

Conclusion

As intended to trust digital technology providers' users require protection from credentials, theft and unauthorized access to our personalized online resources, credit cards, accounts etc. Security is fundamental to virtually every organization today, yet not every company has achieved the fundamental goal of effectively securing itself.

One of the ways to protect information or physical property is to ensure that only authorized people have access to it. Verifying that someone is the person they claim to be is the next step, and this authentication process

is even more important, and more difficult, in the cyber world. Passwords are the most common means of authentication, but if you don't choose good passwords or keep them confidential, they're almost as ineffective as not having any password at all. Many systems and services have been successfully broken into due to the use of insecure and inadequate passwords, and some viruses and worms have exploited systems by guessing weak passwords.

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An Information Systems Auditor's Profile

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Abstract
The increasing dependence upon Information systems in the last few decades by businesses has resulted in concerns regarding auditing. IS auditing has changed from auditing "around the computer" to auditing through and with the computer. However, technology is changing and so is the profession of IS auditing. As IS auditing is dependent on Information Technology (IT), it is essential that an IS auditor possesses IT and auditing knowledge to bridge the gap between the IT and auditing professions. The aim of the study is therefore to define the roles and responsibilities expected from IS auditors, based on the different types of audit assignments and the steps involved in performing an IS audit assignment. It will also describe the basic IT and audit knowledge required from IS auditors based on the roles and responsibilities identified, discusses the soft skills required from IS auditors to successfully perform an IS audit assignment and define the main types of IS audit tools and techniques used most often to assist IS auditors in executing IS audit roles and responsibilities. The study finally presented a suggested IS auditor's profile.

Keywords: Auditing, audit knowledge, information systems auditing, IS auditor's profile, integrity of information, IT knowledge, soft skills.

Introduction
The increasing dependence of organizations on computerized systems in

recent years has led to concerns and challenges. Some of these concerns and challenges include security vulnerabilities, fraudulent activities and the speed of transaction processing. Watne and Turney (2002:5-6) argue that the concerns have an influence on the auditing process since data and programs are stored internally, modifications and manipulations can be made to data and programs, the diminishing of audit trails, the transmission speed of processes and the rapid emergence of artificial intelligence. Hall and Singleton (2005) argue that recently developments in Information Technology (IT) had an impact on the field of auditing. IT has inspired the reengineering of traditional business processes to promote more efficient operations and to improve communications within the entity and between the entity and its customers and suppliers. Auditors therefore, need both computer and task proficiency to perform their daily tasks efficiently and effectively (Bedard, Jackson, Ettredge and Johnstone, 2003).

It has been noted that it is no longer possible to meet the expectations of users of financial and other business performance information without using IT (Ahmed, 2003:20). Although the objectives of an audit remain relatively unchanged, the process an IS auditor follows in executing the audit has been affected as shown from the above statements. Doughty and O'Driscoll (2002:33) support this by explaining that a fundamental requirement for effective auditing is to provide an opinion to the executive team and the board audit committee on the adequacy of the internal control framework operating within the organisation's IT and telecommunications (IT&T) environment.

With the increasing use of IS by most organisations and the problems encountered in the auditing profession a new challenge emerged. Two, once independent, professions need to be integrated into a new emerging impartial profession, relying on the knowledge, skills, expertise and experience from both the audit and IT professionals. The integration of the two professions is supported by Pathak (2004) stating that IT auditing has been accepted as a distinct profession carved out of two distinctly separate professions of IT based data communications and auditing.

Fink (1997:21) states that organisations rely on auditors to evaluate and improve the integrity of their IS. A specialist group of IS auditors has emerged to deal with systems which have become technology complex and diverse. This is explained by Hall and Singleton (2005:3) who state that an

IT audit is associated with auditors who use technical skills and knowledge to audit through the computer system, or provide audit services where processes of data, or both, are embedded in technologies.

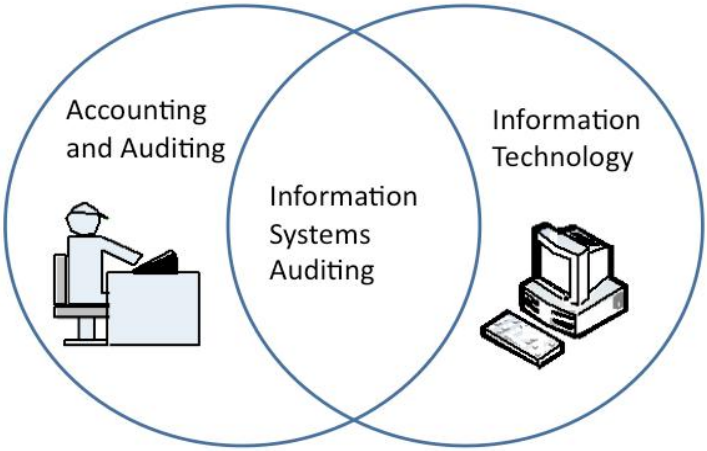

Figure 1: *Integration of two auditing professions*

IS auditors are faced with the challenge of being involved in the planning and organising of IT projects, implementation of proposed solutions, delivery and support of IS and the monitoring of the process, controls, assurance and evaluation (Kimpton & Martin, 2001:49). Previously, auditors have audited "around the computer" by auditing manual processes and controls. This is no longer effective and it is essential for auditors to follow an approach of auditing through and with the computer. Internal auditors focus on the testing of IT processes and controls mitigating identified business risks and although also true of external audits. External IT auditors' focus on the testing of controls related to the fair representation of the financial statements. It is therefore necessary for IS auditors to engage in learning and obtaining knowledge of both IT and auditing to be successful.

In the past research has focused on how IT changes the role of IS auditors, the available tools for IS auditors, the scope of IS auditing, the importnce of training, and the inclusion of audit software in the curricula for

undergraduate and postgraduate students. A limited number of studies were done to define an IS auditor's profile as a search by Google Scholar has proved. The main objective of the study will therefore be to determine an IS auditor's profile.

The paper's layout is as follows: It starts with a background study and the research methodology, then it disucssed the data collected, create a profile based on the literature and then it recommend how the study can be applied and end with a brief conclusion.

Background

IT is defined by Whitten, Bentley and Dittman (2001:8) as the combination of computer technology (hardware and software) with telecommunication technology (data, image, and voice networks). IS are defined as an arrangement of people, data, processes, information presentation, and IT that interact to support and improve day-to-day operations in a business as well as to support the problem-solving and decision-making needs of managers and users (Whitten *et al.,* 2001:8).

According to the South African Auditing Standards (SAAS) 200, the objective of an audit of financial statements is to enable the auditor to express an opinion as to whether or not the financial statements fairly present, in all material respects, the financial position of the entity at a specific date, and the result of its operations and cash flow information for the period ended on that date, in accordance with an identified financial reporting framework and or statutory requirements.

Traditional auditing objectives as defined above are influenced by the impact of IT and IS, where manual inputs and outputs are no longer processed and more risks are threatening the security of businesses, their financial statements and fraudulent activities. Weber (1999:10) defines IS auditing as the process of collecting and evaluating evidence to determine whether a computer system safeguards assets, maintains data integrity, and allows organisational goals to be achieved effectively and user resources efficiently.

Hinson (2004:5) expands on this by stating that computer (IS) auditing is all about a branch of general auditing concerned with governance (control) of information and communication technologies (ICT). Computer auditors

primarily study computer systems and networks from the point of view of examining the effectiveness of their technical and procedural controls to minimize risks. According to Hall and Singleton (2005:3) an IS audit is associated with auditors who use technical skills and knowledge to audit through the computer systems, or provide audit services where processes or data, or both, are embedded in technologies. Lucy (1999:44) summarises the definitions effectively when he stated that management utilises IS auditing as a tool for ensuring:

- ✓ Reliability and integrity of information;
- ✓ Compliances with IT policies and procedures;
- ✓ Safeguarding of IT assets;
- ✓ Economical and efficient use of IT resources; and
- ✓ Accomplishment of established IT objectives and goals.

It can be concluded that IS Auditing is the examination of an IS and surrounding procedures to express an opinion as to whether or not the data involved in processing, is fairly represented at a specific date. It is also done to ensure completeness, accuracy, validity and timeliness of data and transactions and to scrutinise the controls implemented to mitigate identified risks as well as to provide assurance on the safeguarding of organisational assets and resources.

Bagranoff and Vendrzyk (2000) argue that the evolution in audit and IS has forced auditors from auditing around the computer to auditing with and through the computer by incorporating the necessary knowledge and skills from IT specialists. In the early stages, IS auditors were actually financial auditors with some interest in IS. They note that the auditors conducted a review of IS-related controls and have reported on the strengths or weaknesses. Financial auditors had little understanding of the work done by the IS auditors and IS auditors did not always understand the implications of control weaknesses on the financial statements (Bagranoff & Vendrzyk, 2000:33).

According to Bagranoff and Vendrzyk (2000:33), IS audit is largely supportive of financial audit, but started to spend time at developing and offering client services such as security, IS consulting, business continuity planning and technical reviews and risks assessments. IS Auditors began to

understand that IS can be used to their advantage and used as a tool rather than be seen as an adversary. IS reached the point where auditors could no longer audit around the computer and were forced to use computers as the target of their audit, since all information was processed internally which increased processing speed and storage capacity and was utilising artificial intelligence. With emerging technologies the work for IS auditors kept on increasing, and so is the specialised knowledge and skills needed by IS auditors.

Taken the above into account, it can be concluded that IS auditors need to understand the process flow of transactions or information in IS, which include technical knowledge and an understanding of the controls needed to ensure accuracy, validity, timeliness and completeness of organisational information, resources and assets. For this reason the combination knowledge, skills, experience and daily roles and responsibilities of IT and auditing professionals fall under the profession of IS auditing. Thus, professionals coming from different backgrounds (IT and/or auditing) are forced to learn and develop the skills necessary to meet the demands of the IS auditing profession as they are unlikely to have both the required IT and auditing knowledge.

Research Methodology and Data Handling

From the literature review and the background a research question was set: What are the IT and audit knowledge and soft skills required from an IS auditor, for an IS auditor to optimally perform his or her daily roles and fulfil his or her professional responsibilities?

To define the IS auditor's profile, a qualitative research approach was followed, based on a combination of non-empirical (literature survey) and empirical studies (structured interviews). The qualitative research data consists of two main sources. Firstly secondary information was derived from the available body of knowledge through a literature review. The construction research method was followed to obtain, analyse and present a summary from the literature survey. Secondly, an IS auditor's profile was designed following a survey approach based on an empirical study method. The responses from the structured interviews were regarded as qualitative

responses (non numeric data) and were used as the preferred data collection method for this study.

The interviews were conducted with respondents based on a distributed judgmental sample selection. The sample selection adhered to the following criteria: Background (IT or Auditing); Years experience in IS auditing (4 or more); Level (Management or higher); and Type of audit role (External or Internal).

Ten interviewees were selected based on an equal split between the different business sectors and whether the company performs internal or external audits (five internal audit and five external audit companies). The interview population included the following business industries containing IS auditing divisions: Audit Firms; Government Departments; Retail Industry; Banking Industry; and Telecommunications Industry.

The primary data obtained through structured interviews were interpreted and compared to the secondary data obtained by means of the literature review. The aim was to combine primary and secondary data to define an IS auditor's profile. The interpretation, comparison and combination of the primary (interview response) and secondary data (literature review) is presented according to characteristics such as Roles and Responsibilities of IS auditors; Knowledge; Soft Skills; and IS Audit Tools and Techniques.

Roles and Responsibilities

The roles and responsibilities vary according to the level of responsibility. For the purpose of this study, the roles and responsibilities were divided into three responsibility levels, namely: Consultant; Manager; and Director. The roles and responsibilities of an IS auditor are perceived as very important attributes of the IS auditor's profile and set the direction for performing IS audits based on the type of audit assignment. In order to perform an IS audit through the defined roles and responsibilities IS audit tools and techniques are required to enable and assist the IS auditor to perform these responsibilities and a certain set of soft skills are needed to drive the successful completion of the audit (also supported by Weber, 1999 and Hall and Singleton, 2005). The roles and responsibilities defined for the IS auditor's profile is presented in Figure 2.

1. Scoping and pre-audit planning	2. Planning and preparation	3. Fieldwork	4. Reporting and follow-up	5. Closure	PROCESS
→					
Client's business Responsibility/ Objective	Identify risks and controls; Compile audit program	Perform fieldwork; Gathering of evidence; Testing of controls	Identification of risks; Reporting of control weaknesses (findings and recommendations)	Enhancement of skills; Broadening of technical skills; Understanding of methodologies	CONSLTANT
Client relationship management (CRM), quality and control assurance					
Selling and marketing; Client's Business	Engagement planning	Review of audit programs and working papers	Report on risk areas; Reporting & advice to management; Follow-up on findings	Evaluations; Client satisfaction survey; Exit interviews; Notes for future audits	MANAGER
CRM, quality, control assurance and management of audit teams, resources, time and budget					
Identify client needs; Engagement setup; Ensure independence	Assist with engagement setup	Assessment & management of risk; Monitoring/review of findings, conclusions and engagement quality	Monitoring/review of findings, conclusions and final report to management	Final assurance and follow-up open items	DIRECTOR
CRM, quality, practice management, development of staff and control assurance					

Figure 2: *An IS auditor's roles and responsibilities*

It can be concluded that roles and responsibilities consists of the IS audit process and the roles and responsibilities according to a responsibility levels (consultant, manager or director) (e.g. during the "planning and preparation phase" (step 2 - Figure 2), a manager's responsibilities will include engagement planning. Engagement planning includes (according to

the interview responses): Establishing and agreeing on purpose and objective of audit and clearly communicate to audit team; Prepare client requirements; Manage timing of the audit (scoping, available time, people and budget), etc.

Knowledge

The basic knowledge required from an IS auditor to ensure the execution of the assigned roles and responsibilities were defined using the common entry routes into the IS auditing profession and employment requirements obtained during the interviews. These common entry routes/employment requirements were found to be from either the IT/IS or auditing/accounting backgrounds. The knowledge required of IS auditors was therefore divided into IT knowledge requirements and audit knowledge requirements. The IT and audit knowledge requirements as per summary from the secondary (literature) and primary (interview responses) data, are presented in Table 1 (on the next page).

In understanding the concepts of IT and audit knowledge and the relationship between them, it can be concluded that audit knowledge should be applied to IT knowledge to enable an IS auditor to executes his or her daily roles and responsibilities (Lucy, 1999) (e.g. to help clarify the statement that audit knowledge should be applied to IT knowledge: an audit knowledge concept, "understanding of the concept of risk" should be applied to a specific area of IT knowledge depending on the scope and objective of the audit).

The auditing concepts of (understanding the concept of risk) may be applied in the IT knowledge area, information security which will entail the risk associated with information security being defined (e.g. (i) Unauthorised access to application data and physical assets and resources (servers); (ii) Unlicensed versions of software loaded on the entity's machines; and (iii) Resources and data are unprotected against virus attacks).

Another example is the auditing concept of obtaining and interpreting relevant audit evidence. To ensure that IT strategies and policies and procedures are aligned to business objectives (IT knowledge area: IS management/IT governance), the ICT strategy, policies and procedure document should be obtained from IT management. The document should be evaluated and compared with mission, vision and objectives statements

(usually stated in minutes of a steering committee meeting or power point presentation).

IT knowledge	Audit knowledge
Application programs / ERP systems	Understanding of the concept of risk
Basic Information systems and Information Technology general concepts	Know about applicable standards and best practices
Programming languages and procedures	Audit planning (understanding the objectives of the audit, the scope of the audit and the areas of significance)
Computer communications and Networks (including routers, switches and internet)	Audit testing methods (including compliance testing, substantive testing and analytical review procedures)
Data structures and database	Understanding of the concept of control
Information security (physical and logical access)	Understand basic accounting principles
Information systems management / IT governance	Business understanding
Operating Systems	Obtaining and interpreting relevant audit evidence
System analysis, design, development, testing, implementation and maintenance (SDLC)	Independence
Business Continuity and Disaster Recovery planning	
Information systems operations	
Specialised areas	

Table 1: *IT and audit knowledge*

Given the logic of audit knowledge being applied to IT knowledge, individuals from an auditing background have an advantage because these individuals understand the auditing concepts and are able to identify the impact of risks on the financial statements. Individuals from an IT background have the advantage of understanding the more technical and IT concepts and can identify risks and controls within IT knowledge areas.

The challenge of people from different backgrounds presents the gap between the IT and auditing professions. Individuals are forced to interact with each other within the working environment to transfer knowledge and skills especially if the employees are from different professional backgrounds. Extensive additional training is also recommended to bridge the gap (see also Kimpton & Martin, 2001). The IT and audit knowledge required by IS auditors is considered to be an enabler for the process of performing an IS audit, because an individual who does not understand the auditing or IT concepts will not perform the required audit steps, especially steps 3 and 4 (refer to Figure 2).

Soft Skills

IS auditors need to adapt to the different circumstances and environments to perform IS audit functions. Having the required IT and audit knowledge and IS audit tools and techniques is not enough for an IS auditor to execute an IS audit assignment. In order to define the IS auditor's profile, the soft skills needed by IS auditors should be defined. Information obtained during the fieldwork phase (step 3 - Figure 2) needs interaction of the client and the audit team. Soft skills are needed to obtain supporting evidence, observe processes, document conclusions and finding and interviewing staff (Lucy, 1999).

To complete step 4 ("reporting and follow-up" – Figure 2) in the audit process, it is essential that the IS auditor utilises the skills such as: (1) Conflict resolution: client management may not accept that business processes are not operating as intended and may disagree with findings; (2) Communication skills: verbal for client meetings and written for report; (3) Not understanding the client business or environment; and (4) Strength of character: it sometimes takes strength of character to stand up to pressure from a client not to publish negative audit findings (Pathak, 2004). The relevant soft skills, as detailed in the literature review and interview responses, are illustrated in Table 2.

The soft skills provided in this study are only a guideline and only focused on the basic levels of skills required. It can be concluded that an IS auditor's soft skills are the drivers towards successfully completing an IS audit assignment.

Soft Skills
Analytical / systematic
People's person / people knowledge
Communication skills (both written and verbal, including interviewing techniques, persuading, presentation, managerial communication and negotiating)
Initiative
Managing people, resources, time and budgets (leadership)
Resilience
Good listener
Passion for auditing
Understand client environment / business
Team player
Conflict resolution
Constant learning / seeking new knowledge
Decisive / Judgement
Diligence and detail
Establish rapport
Inquisitiveness
Punctual
See the "bigger picture"
Strength of character
Tact
Tenacity

Table 2: *Soft skills needed by an IS auditor*

IS Audit Tools and Techniques

IS audit tools and techniques are part of the solution to the increasing complexity of applications, software and networks. IS audit tools and techniques enable the auditor to audit through the computer rather than auditing around the computer (as in traditional methods) (see also Doughty & O'Driscoll, 2002).

IS audit tools and techniques are essential in assisting the IS auditor to evaluate and assess detailed transactions in the fraction of the time of normal manual evaluations. The following categories of IS audit tools and techniques are presented based on the interpretation of the primary and secondary data:

- Generalised audit software: includes CAATs used for data analysis purposes (e.g. the most popular applications are: ACL, IDEA, Microsoft Excel and in-house developed SQL queries and scripts);
- Specialised analysis tools (e.g. security analysis tools (e.g. Sekchek and ESM) and application analysis tools (e.g. analysis tools interrogating SAP and Oracle applications));
- Audit methodologies, standards, guidelines and audit programs: assisting the auditor in executing IS audit assignments. According to the interview responses, the following standards and guidelines are used by IS audit organisations and professionals: COBIT (100% response); In-house developed methodology (70% response); COSO framework (60% response); Internal auditing standards (60% response); International auditing standards (50% response); Itil (40% response); and ISACA guidelines and frameworks (40% response);
- General Applications: these applications include document management, planning and audit software and enable the auditor to create working papers, reports and other related documents.

According to the interview responses, the types of applications often used by IS audit organisations and IS audit professionals are: Microsoft office (Word, Excel, Visio, Power Point, Projects and Outlook); AuditPro (auditing software); MyClient (Teammate – auditing software); and Peoplesoft (billing and project management). Generalised audit software (e.g. ACL) (as defined under IS audit tools and technologies) can be used during a data analysis audit (as defined under IT and audit knowledge). The audit software will enable the IS auditor to identify duplicated journals or unapproved journals.

An IS Auditor's Profile

Audit knowledge needs to be applied to IT knowledge (as illustrated in Table 1). Knowledge is regarded as the enabler for the execution of an IS audit, since an IS audit assignment cannot be completed without the individual having adequate knowledge. The roles and responsibilities of an IS auditor are presented based on the steps performed in an IS audit per responsibility level (as shown in Figure 2). Soft skills are regarded the drivers of the audit

to ensure successful completion and are applicable to all responsibility levels (as per Table 2). Soft skills though, are usually more mature at director level than, for instance, at consultant level. The audit tools and techniques are regarded as the supporting functions available to assist the IS auditor in performing IS audits (per the defined audit process). For examples per category refer to the above section.

It is important to note that the IS auditor's profile as presented in this study, is not the only or optimum IS auditor's profile, since the characteristics may differ according to person and business or educational institution. The profile provided is only a guideline and has focused on the basic level of IT and auditing skills, soft skills, audit tools and techniques and roles and responsibilities. For a graphical presentation of this profile see Figure 2.

Recommended Use of the Profile

By determining the roles and responsibilities and the concepts applicable to IS auditing, the knowledge and skills required and the IS audit tools and techniques used in supporting the IS auditor, the following institutions and individuals can benefit by the established IS auditor's profile:

- Educational institutions may incorporate the concepts presented in the IS audit profile in the curricula of students, especially the concepts related to IT knowledge, audit knowledge and the IS audit tools and techniques. The terms and concepts as listed in Figure 3 can be used to incorporate these terms or concepts in the curricula for auditing students to ensure that they meet the minimum level of IT and audit knowledge requirements. The IS audit tools and techniques, especially the generalised audit software (e.g. ACL or IDEA), could be used as a guideline as to what types of IS audit tools are available and mostly utilised by organisations (according to the interview responses);

  The auditing profession will be able to utilise the profile to assess employees and benchmark them against their progress according to the defined concepts (e.g. according to the responsibility matrix, it is required that an IS audit manager reviews

audit programs and working papers during the fieldwork phase (step 3)) (refer to Figure 3). To enable the manager to perform a review, the necessary audit knowledge (e.g. "Understanding of the concept of risk"; "Audit testing methods used"; "Business understanding"; "Know about application standards and best practise"; "Understand the concept of control"; and "Relevant audit evidence") should be applied to the relevant IT knowledge area (as per the scope and objective of the audit defined in the planning phase (steps 1 & 2) (e.g. "Application programs / ERP systems"). The following IS audit tools and techniques are applicable for step 3 (review of work papers by manager): (1) Generalised audit software (since it is an application review, ACL, IDEA or SQL queries can be used to perform data analysis which the manager should review); (2) Audit methodologies, standards, guidelines and best practise (the manager should ensure that the work performed adheres to audit methodologies and meets all audit objectives. Findings can also be compared to best practise to identify weaknesses (e.g. Password settings should be 6 characters or more); and (3) General applications (document management applications (ensure version control of working papers) and Microsoft office (Word and Excel) for work paper documentation). The soft skills (e.g. "Communication skills" (verbal communication with consultants and written communication in review notes and the report); "Managing people" (audit team); "Diligence and detail" (to ensure accuracy, completeness, validity and timeliness of work papers); "See the bigger picture" (see audit as a whole and not as isolated parts per working papers); and "Decisive / Judgment" (decide and make judgment calls on weaknesses or risks identified and reporting to management) drive the manager to successfully complete step 3 in the audit process.

Professional institutions will also be able to use the IS auditor's profile to recruit employees based on the required level of knowledge and skills. They can also use the roles and responsibilities illustrated to define the job descriptions of employees at the different responsibility levels.

- Individuals in the IS auditing profession can define their roles and responsibilities to execute audit assignments successfully and benchmark these in the IS auditing profession (refer to the example above). They can use the knowledge and skills base to evaluate their current knowledge and skills, identify gaps and work towards the desired level.

Conclusion

This article has defined the IS auditor's profile according to the following main characteristics: roles and responsibilities; knowledge; skills; and IS audit tools and techniques. This study contributes to the existing body of knowledge by means of enhancing the definitions related to the roles and responsibilities, knowledge, skills and IS audit tools and techniques available and to provide insight to the relationship between these concepts as illustrated by the IS auditor's profile.

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An Information Systems Auditor's Profile

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Editing *Alter*nation: A Fifteen Year Retrospective

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Abstract

*Alter*nation was established as an interdisciplinary journal in the Arts and Humanities in 1994. Fifteen years on, this article provides a brief timeline of the thirty-three book-length issues published, *Alter*nation's discursive themes, the managing, refereeing and administrative systems with a special focus on the guest-editing system, and the journal's website. In conclusion, the article closes with a few remarks on four incentives by the Academy of Science of South Africa in pursuit of the further development of the research systems in South Africa.

Keywords: *Alter*nation, scholarly journal editing, guest-editing, peer refereeing system, Academy of Science of South Africa (ASSAF).

1 Introduction

With the imminent dawn of the new democratic South Africa on the horizon, a number of scholars met at the former University of Durban-Westville to talk about the possible establishment of a SAPSE-accredited research journal that would be able to accommodate our collectively envisaged new research. The research was to be launched from the then newly founded *Centre for the Study of Literature and Languages in Southern Africa* (CSSALL), under the leadership of Johan van Wyk (see Smit & Van Wyk 2001). One of the immediate needs was to develop an editorial board, and transparent refereeing systems beyond established expectations and practices. Another was to open the

space for inter-disciplinary research—research that would be able to draw on larger research discourse complexes than those entrenched in existing fraternities and filiations. This would allow the fostering of a new dynamics of engaging collective research in the Arts and Humanities focused on specifically southern African socio-political, economic and other related phenomena by authors across the southern African landscape. We also reasoned that this venture would open the prospects of continuing those critical postcolonial and anti- and post-apartheid authorial, publishing and research sentiments to more scholars as well as induct new scholars in similar critically-constructive research.

The main platform for the initial phase of *Alter*nation publications was the developing of an inclusive Southern African Literature and Languages Encyclopaedia (see Van Wyk 2000; Stewart 2007). The content of the Encyclopaedia grew from 4 009 to 35 000 entries over a five year period as a project-within-a-project intended to found a tangible ready-reference tool for the archive, and to serve the CSSALL research agenda of exploring the different South African literatures and languages as one system. Later incorporated into the web-based Wiki of the Encyclopaedia of South African Arts, Culture and Heritage (ESAACH), the encyclopaedia continues to offer an extensive open resource of references to underpin inter-disciplinary research in this area[1].

The incentive was championed by CSSALL with a number of national and international scholars participating in the venture. On the one hand, CSSALL would develop this international focus especially through its bi-annual international conferences. On the other hand, it would induct and cultivate new and emerging researchers and scholars through its Southern African MA and DLitt programmes, as well as the facilitation and nurturing of research among emerging scholars and researchers in the Arts and Humanities. A principle aim was the facilitation and fostering of research in inter-disciplinary nexuses important for the development of the disciplines.

Following the first two issues of *Alter*nation (1994), in 1995 we sought to bring the published research to SAPSE-set levels and in 1996 we achieved SAPSE recognition. As primary editor of 7 issues, co-editor of 4,

[1] Visit the *Encyclopaedia of South African Arts, Culture & Heritage* at: http://www.esaach.org.za. Click on 'encyclopaedia'.

editor-in-chief with guest-editors of 20, and nearly 25 guest-editors[2], I reflect on some of the journal's discursive developments, the systems put in place to build *Alter*nation to what it is today, and some of the lessons learnt. In the process, I also provide perspectives on important developments around the journal, together with some relevant statistical data. In closing, I shall also comment on four important initiatives[3] managed by the Academy of Science of South Africa to both assist the further development and fostering of scholarly research and publication in South Africa and to promote accountability and transparency.

2 A Brief Timeline of the *Alter*nation Publication Record

1 1995. *Alter*nation 2,1 (157 pp.)
Literature and Languages
Ed: Smit

2 1995. *Alter*nation 2,2 (223 pp.)
Literature and Languages
Ed: Smit

3 1996. *Alter*nation 3,1 (202 pp.)
Literature and Languages
Ed: Smit

4 1996. *Alter*nation 3,2 (253 pp.)
Literature and Languages
Ed: Smit

5 1997. *Alter*nation 4,1 (261 pp.)
Literature and Languages
Ed: Smit

6 1997. *Alter*nation 4,2 (277 pp.)
Literature and Languages
Ed: Smit

[2] The developing of *Alter*nation as interdisciplinary journal and the specific thematic issues we have produced over the years would not have been possible without the very constructive contributions of the pool of cooperating guest-editors. In this regard, I need to single out the inputs of the members on the editorial committee who have served as guest-editors, the associate editor, Judith Lütge Coullie, and Catherine Addison, Mandy Goedhals, Rembrandt Klopper, Stephen Leech, Jabulani Mkhize, Shane Moran, Priya Narismulu, Thengani Ngwenya, Mpilo Pearl Sithole, and Graham Stewart. I need to especially thank Rembrandt Klopper for taking on the challenge of developing the journal research themes in the areas of Cognitive Science, Management Studies, and Information Technology.

[3] Since 2005, this initiative has run parallel to and aims at strengthening the regular systems, reports and submissions required by the Department of Higher Education and Training.

7 1998. *Alter*nation 5,1 (275 pp.)
Current Theoretical Perspectives
Gst.Ed: Moran

8 1998. *Alter*nation 5,2 (321 pp.)
Marginal Lit. Figs. and Genres SALit
Eds: Mahonga, Van Wyk & Smit

9 1999. *Alter*nation 6,1 (300 pp.)
The Arts and the African Renaissance
Eds: Ntuli & Smit

10 1999. *Alter*nation 6,2 (300 pp.)
Current Perspectives: Lit & Lang
Ed: Smit

11 2000. *Alter*nation 7,1 (253 pp.)
S.A. Autobiograpical Writing
Gst. Eds: Ngwenya & Mkhize

12 2000. *Alter*nation 7,2 (192 pp.)
Aspects of Development: Humanities
Gst. Eds: Filatova/Goedhals/Leech/ White

13. 2001. *Alter*nation 8,1 (304 pp.)
Symptoms, Theories and Scholarship
Gst. Ed: Coullie

14 2001. *Alter*nation 8,2 (239 pp.)
Critical Perspectives on Intellectuals
Gst. Ed: Moran

15 2002. *Alter*nation 9,1 (261 pp.)
Intercultural Communication
Gst. Ed: Addison

16 2002. *Alter*nation 9,2 (317 pp.)
Humanities Computing
Gst. Ed: Stewart

17 2003. *Alter*nation 10,1 (347 pp.)
Perspectives on Cognitive Science I
Gst. Ed: Klopper

18 2003. *Alter*nation 10,2 (383 pp.)
Perspectives on Cognitive Science II
Gst. Ed: Klopper

2003. *Alter*nation Special Edition 1. (200 pp)
Translations from Baulelaire
Translator and Editor: Mduduzi Dlamini
Cover Design and Layout: Grassic

19 2004. *Alter*nation 11,1 (396 pp.)
Perspectives on Literature and Politics
Gst. Ed: Mkhize

20 2004. *Alter*nation 11,2 (473 pp.)
Sociolinguistics
Gst. Ed: Ramsay-Brijball & Narismulu

21 2005. *Alter*nation 12,1a&b(649 pp.)
Informatics in S.A. Higher Education
Gst. Ed: Klopper

22 2005. *Alter*nation 12,2 (309 pp.)
Informatics in S.A. Higher Education
Gst. Ed: Klopper

2005. *Alter*nation Special Edition 2. (444 pp)
The Study of Religion in Southern Africa.
Essays in Honour of G.C. Oosthuizen.
Editors: Smit & Kumar

23 2006. *Alter*nation 13,1 (357 pp.)
H.E., H.E. Mergers & Africanisation
Gst. Ed: Mekoa

24 2006. *Alter*nation 13,2 (308 pp.)
Social Polarisation
Gst. Eds: Khan & Pattman

25 2007. *Alter*nation 14,1 (316 pp.)
Themes in Management Studies
Gst. Ed: Klopper

26 2007. *Alter*nation 14,2 (237 pp.)
Nature and Power: Forests
Gst. Eds: Addison & Bob

27 2008. *Alter*nation 15,1 (366 pp.)
Nature and People
Gst. Ed: Bob & Addison

28 2008. *Alter*nation 15,2 (426 pp.)
Literature, Language & Cultural Politics
Gst. Eds: Mkhize, Sandwith & Moran

29 2009. *Alter*nation 16,1 (368 pp.)
Themes in Management and Informatics
Gst. Ed: Klopper

30 2009. *Alter*nation 16,2 (383 pp.)
Birds: In and Out of Literature
Gst. Eds: Louw & Mason

2009. *Alter*nation Special Edition 3.
(In preparation)
Religion and Diversity
Editors: Smit & Chetty

3 *Alter*nation's Discursive Developments

In the midst of the launching of *Alter*nation and the Centre for the Study of Southern African Literature and Languages, two especially important discursive considerations occupied our deliberations, e.g. the developing of an inclusive scholarship and knowledge of the literature and languages of southern Africa, and to engage this through interdisciplinary approaches.

Firstly, we felt that since we come from the abject divisionary educational politics of apartheid impacting on the whole population in various ways, an inclusive approach would celebrate and expose those previously marginalised languages and areas of knowledge to rejuvenation and development. In line with the later S.A. Constitutional commitments (adopted in Cape Town on May 8 1996), this focus would be fully inclusive of the earliest inhabitants of our subcontinent—the San and Khoesan—and give full recognition and support to the official languages, the developmental obstacles they experience, and the cultivation of constructive debates and policies to feed into this vital area of education and basic and continued educational and learning nurturing.

Secondly, given the diverse nature of the history of southern African literature, this vital area required projects ranging from the living memory of oral narrative through protest and popular political literature to modern post-apartheid and new generation literary products. Given the dynamic nature of

the literary forms and their responsiveness to time and context, this remains a vital area for continuous development and cultivation, not only in the area of reading and critical analysis but especially that of authorship—as has been recognised, initiated and practiced at a number of institutions in southern Africa.

Thirdly, given the variable local and international significance of the arts and literary productions in, on and from southern Africa, the archaeological or discursive study of the disciplines' archival significance was an equally important area of engagement. Given the various institutional and scholarly archival sedimentations and their international discursive and ideological connections, the important interdisciplinary work on the humanities archive opened the questioning of the archive itself beyond mere scholarly genre and oeuvre studies. Since such research can lay bare some of the dynamics of institutional developments and dynamics in the present, this remains a vital area for further investigation and critical consideration. Moreover the continuous development of this field and the training of a new generation of leaders fully *au fait* with these dynamics, remains a singularly significant challenge.

A further discursive complex was the cultivation of an inquiring and productive research knowledge in the Arts and Humanities. Granted that important questions and research programmes emanating from the post-European Enlightenment and Modernity impacted on southern Africa academia as well as founding ready-made officially sanctioned institutional structures, apparatuses and support for their own ideological persuasions and objectives, it was equally important to develop specifically southern African scholarly tools to continue the deconstructive work started during the last years/decade of apartheid and produce constructive critical tools and thought for the challenges of the new nation.

Fourthly, there was the need to draw on and cultivate often marginalised approaches and thought systems, while on the other hand to bring marginalised experience into the centre for consideration so as to work towards the elimination of all forms of racial, sexual, class and sectarian marginalisation and oppression. The attempt was and remains to continue the study of the excesses of colonial and apartheid modernity and also to critically engage the challenges of the new socio-economic dispensation, as it is still determined by this specific history.

Fifthly, due to its push towards cultivating interdisciplinary research, it soon became clear that the exclusive focus on literature and languages needed expanding. As important as this focus is for archival and discursive studies—the archive represents itself in different forms of literature and language representation—the study of disciplinary productions related to settler and colonial activities and practices, frontier interactions related to natural history, anthropology, geography, and religion as well as the significance of indigenous historical movements, became necessary. For this purpose it was decided to switch *Alter*nation's subtitle from 'International Journal for the Study of Southern African Literature and Languages' to 'Interdisciplinary Journal for the Study of the Arts and Humanities in Southern Africa' from the beginning of Volume 11 of 2004. This has opened the way for a more rigorous scholarly engagement of current issues impacting on the Arts and Humanities—such as the rising disciplinary complexes of Cognitive Science, Information Technology and Management Studies—as well as the broadening of the disciplinary field to ecological and other related areas of study.

Finally, many participants engaged in a wide variety of debates on many of the issues mentioned. Since the days when questions were raised about the singular in 'Literature' and the plural in 'Languages' in the CSSALL nomenclature, to the current questions around ecology, *Alter*nation's commitments remain with the issues mentioned above, as these form important elements of the unfinished project of the alter-nation.

4 *Alter*nation Systems

4.1 The Editorial Board

There are different understandings of the notion of the scholarly editorial board. In general, however, the board of a scholarly journal comprises members who regularly serve as referees, and a number of international and/ or national advisory board members. This is how *Alter*nation started out. However, due to its interdisciplinary focus, it soon became clear that we needed to draw in more members than planned to cover the refereeing of submissions existing members could not cater for. The next phase was to realise that the few from the different disciplines co-opted for refereeing purposes could not cover all the aspects of the refereeing process; we thus decided to move into a full-scale guest-editing system. This system allows for the assembling

of a specialist referee panel focused on each individual themed issue. In order to give due recognition to these scholars' contributions to the production of the journal issue, we decided to publish their names in each issue. In future, they will form part of the 'editorial associates', with the editorial board becoming a more limited number of scholars, responsible for the setting of the journal's research agendas and the functioning, managing, associated with the journal.

In terms of my experience, editorial board changes can take place on a continuous basis as some scholars withdraw and others are added. As a rule of thumb, however, one should consider making more substantial changes on at least a five year cycle. This will enable scholars who have made a commitment to the journal's projects to plan in terms of their own time limits, and permit those who have 'moved on' to resign. This will ensure that the journal does not carry members who have changed direction in their scholarly endeavours, lost interest or failed to indicate their decision to withdraw. In this way, a five year re-assessment of the board will also create openings for young and new researchers interested in developing their own research interests and career profile, in a planned and coordinated way.

4.2 The Guest-editing System

The period since 1994 saw a number of complex challenges confronting academia in southern Africa. One of the main kinds of response came from governmental and parastatal think-tanks and policy development initiatives. Another came from the implementation of systems and structures so produced. The ultimate question, however—as has been recognised by many of our country's leaders too—concerns the quality of the personnel that would develop, institute, populate, occupy positions and manage and steer these systems and structures, in line with constitutional and other societal expectations, challenges, incentives and exigencies. The kind of intellectual we want to function in our systems for the benefit of the people will be determined by the kind of country we want to live in[4]. It is in answering this question that

[4] This problematic inclusive plural is being defined variously by different role players in the country. Even so, in *Alter*nation perspective, this forms part of the collective that is continuously being negotiated in our multicultural and plural society.

*Alter*nation has engaged the research issues it has[5], but more significantly, cultivated nearly 25 academic editors. All of the editors learnt our editing skills at the coal-face of *Alter*nation's editing process—where the production of one volume normally takes about a full year from start to finish—work which is undertaken in addition to one's regular teaching and research duties. Initially it became necessary to employ guest-editors merely because the volume of work became too much for only a few individuals taking responsibility for all the activities related to the refereeing and editing processes. With the related discursive developments around Alternation (pointed to above), it also became necessary to cultivate scholars who could become key leaders in the area of their own interdisciplinary interests. This is the most important area for cultivating future research leaders and academic research managers. The most obvious procedure to follow is to register a research project with a number of like-minded researchers and graduate students, go through the research process, and produce a SAPSE recognised journal issue as at least one major outcome. Rigorous double blind peer-review forms one of the keystones of the SAPSE system, and as southern African scholarship raises the quality levels and increases the impacts of its scholarship, this will become an even more important feature for international recognition and collaboration. Teams of researchers working on specific issues can then collectively produce knowledge that covers a broad field in coordinated ways. In these processes, the cultivation of research specialists can follow a coordinated and forward planning process. The guest-editing system can play a crucial role here and may ensure that we receive intellectuals into working life who are not only knowledgeable and informed about the latest developments in the research fields, the cultivation of the appropriate measures, mechanisms and attitudes towards the actual implementation of such knowledge but more importantly, relevant knowledge production.

[5] See for instance: *Report on a Strategic Approach to Research Publishing in South Africa*, published by ASSAf in March 2006 at: http://www.assaf.org.za/images/assaf_strategic_research_publishing.pdf.
See especially the 'Conclusions and Recommendations for a Strategically-enhanced Research Publishing in South Africa' by Wieland Gevers, Xola Mati, Johann Mouton, Roy Page-Shipp, Monica Hammes, and Anastassios Pouris at: http://www.assaf.org.za/images/Report/assaf_chapter6.pdf.

4.3 The Guest-editing Process

At *Alter*nation, we devised a very basic guest-editing application process. Together with guidelines for the refereeing process, leading up to the final submission for publication to the editor, the prospective editor(s) also receive a very basic form that has to be completed and submitted to the editor. The form requires the personal details and CV(s) of the prospective editor(s), the provisional theme of the issue, a brief critical overview and explanation of the significance of the research theme with secondary themes, the positioning of the research in the larger field, and the names of prospective authors with provisional abstracts of their papers for the journal issue. The prospective guest-editors should also sign an agreement that they will follow all rules and requirements laid down by the Alternation Board, in terms of the ASSAf *National Code of Best Practice in Editorial Discretion and Peer Review for South African Scholarly Journals*. At this stage, editor(s) may also indicate which of the prospective authors as well as alternative scholars in the field will serve as referees. This is a very important part of the exercise because it will indicate from the outset the standing, the potential research impact, the issue may have in the field. Applications that form part of an existing research group's prospective research output—such as a colloquium—or research projects registered with the NRF or other national and international research funders are especially encouraged.

If the project is approved—which may be prior or subsequent to the commencement of the research project or on completion of the colloquium—the guest-editor(s) will identify a final number of reviewers—at least two per manuscript—for the proposed articles for the reviewing process. They will simultaneously set dates for the authors' final manuscript submissions. As these are received, the editors will email them out for reviewing, minus the authors' names or personal details. Normally we set about '6 weeks or a.s.a.p.' as the turn-around time for reviews to be submitted. In situations where the guest-editor(s) have any queries, they may approach the editor-in-chief and/ or his/ her nominee. When the review process is completed, the guest-editor(s) will formulate a summary of reviewer comments, recommendations for improvement, or reasons for the non-acceptance of a manuscript, and email that to the author. Authors whose manuscripts have been accepted for publication will have about 6 weeks for resubmission. Changes can be resubmitted in marked-up format for the editor to then accept or decline the

improvements or changes to the manuscript. If there are some reviewer recommendations not attended to, the author needs to provide the reasons to the editor(s). When this process is completed, all approved and improved manuscripts are submitted to the editor-in-chief for the editorial board or its nominees' final scrutiny and approval. In consultation with the editor-in-chief, this committee may appoint independent specialist referees willing to form part of the final screening and reviewing of the articles. If any improvements are still required, or if an article is not accepted, as well as the information about the articles which have passed the final screening process, will then be conveyed to the guest-editor(s), who will inform the authors.

Guest-editors are responsible for matching reviewers fit to review each of the articles in terms of their specific interdisciplinary representation. This ensures that if one reviewer turns the article down, the second reviewer report may indicate whether one should merely submit to a third reviewer or refer it back to the original reviewer to provide more information about how it may be improved. This is best practice, because even if the article is poor, such reviewers normally give positive feedback for improvement, if they see potential in the article. Even in cases where an article is not accepted for publication, reasons need to be given, as well as comments about whether the article might have potential if certain issues are attended to. It is also recommended that reviewers not merely turn an article down, but that they provide reasons for doing so or provide reasons and recommendations in terms of the potential of the article. If editors have any doubts at any point in the process, they can always consult with fellow editorial committee members or the editor(s) in chief.

Ultimately, the editorial board's main objective remains the mentorship and induction of new and young editors into the editing processes. Even more than training researchers, it is the training of research editors which form an important challenge for bringing the research knowledge the South African scholarly community produce, into the public domain.

4.4 The Refereeing System

*Alter*nation publishes a large variety of research articles. Among others, these include those engaging critical discourse development in specific areas, literary-critical analyses and interpretation, empirical research papers involv-

ing both qualitative and quantitative research, and critical scholarly position papers. Over the last few years, the editorial board has developed a number of referee forms that cater for each of the kinds of thematic issues each journal deals with. Depending on the kind of research involved in the papers submitted for a specific issue, the following are items that guest-editors should consider including in their review forms where reviewers will be required to rate and comment on each paper in terms of a selection of the following items:

Form 1: Individual Items

1. Meeting of national and international standards of scholarly publications;
2. Comparison and rating of article with previous publications in *Alter*nation;
3. Recommendation for publication and reasons why/ why not;
4. Assessment of the relationship between theory and practice in the article;
5. Assessment of the quality of the argument;
6. Comprehensive and exhaustive covering of available literature/ bibliography on the topic;
7. Use of sources and efficient integration of references;
8. Articulation of argument and conclusions drawn in the article;
9. Clarity and accuracy in formulation;
10. Recommendations for the improving of the article;
11. If the paper is turned down, the reviewer needs to provide reasons and some advice to the author with regard to why it has been turned down.

Form 2: The Standard Social-scientific Research Report Format

Articles that report empirical results should comply with *the logic of scientific discovery*. This means that they should have at least the following sections (which may very well have more imaginative headings) and be reviewed in terms of each of these:

1. A statement of problem/s section;
2. A research methodology section. In the case of articles based on quantitative analysis, the author must briefly explain how s/he identified a representative sample of respondents or interviewees (in the case of interviews) from among the target population, and how s/he collected and analysed the data. Did the researcher use a technique of convenience sampling or did s/he use some form of random sampling?
3. A literature review section. In the case of articles that are based on qualitative analysis, the author should make a critical comparative analysis of existing frameworks or models, or should use the principles of logic to derive and propose her/his own model.
4. An interpretation of results section; and
5. A conclusions and recommendations section.

An important part of the research is to evaluate the quality of the evidence[6] as it relates to:

- primary data collected by the researcher and the relevance of the data to the research problem;
- interpretation of secondary data that are already in the public domain, which were previously collected and analysed by other researchers, and which the author is subjecting to critical analysis and/ or different interpretive or analytical approaches. This could also entail a critical comparison of different sets of data;
- A critical analysis of conclusions of other authors regarding data, frameworks or models in the public domain;
- Unsupported statements or opinions of authorities in a field per se do not count as scientific data.

[6] See the report edited by Jonathan Jansen, Wieland Gevers and Xola Mati on *Evidence-based Practice: 'Double Symposium' on Problems, Possibilities and Politics* at: http://www.assaf.co.za/wpcontent/uploads/reports/ evidence-based/evidence_based_practice.pdf.

Form 3: Position Papers

Position papers should show sufficient knowledge of the field, discipline and/ or policy to then explore or critically discuss specific especially contentious issues with insight, in order to provide direction and contribute to the discourse development in the field. In order to stimulate debate and dialogue, position papers may also be provocative or of a problematising nature. They should be written lucidly, engage other authors critically and constructively, and display erudition regarding the issues under consideration.

4.5 Authorship and Co-authorship Policy

Authors and co-authors take responsibility for meeting all the basic requirements with regard to the sector-specific benchmarks and expectations of research ethics. Where researchers co-publish with colleagues, students and private sector individuals, the normal protocols must be adhered to. These include issues such as collective decision making with regard to the first author – normally the individual who made the most substantial input into the research – the final text of the article as the product-outcome of the research, critical perspectives, etc. All queries should be addressed to the guest editor(s) or the editor-in-chief or associate editor.

4.6 Conflict of Interest Policy

The primary reason why *Alter*nation functions through a guest-editing system is to train and foster the teaching and skilling of new academic editors on a continuous basis. Through this process, editors are empowered to become experts not only in their own disciplinary field but also in the relevant area(s) of adjacent related interdisciplinary fields of research and the articulation of fields in the interdisciplinary domain. For these reasons, editors are expected to undertake substantial research and other value adding contributions—such as book reviews, etc.—to the issues they edit. This ensures the cultivation of leaders in the research field, the continued development of the interdisciplinary field and the establishing of editors and collaborators as ‘owners’ of the knowledge do produced. This latter point means that the knowledge is not merely produced and left without application. It is the responsibility of the editor(s) to be at the forefront of the interpretation, application and use of the research and knowledge so produced.

In line with the objective of enhancing research capacity through the supervision of young and new researchers, editors will, where possible, involve and publish with supervised graduates and colleagues. This ensures that the knowledge produced at the graduate levels is brought into the public domain, and that the editor(s) and their collaborators then take responsibility to further the research-generated knowledge in the scholarly and public domains.

In order to ensure fair, transparent, and non-exclusionary processes, guest-editors who are responsible for the refereeing process (including the pool of referees for each issue), consult with the editor-in-chief on any difficulties which may arise, from matters such as conflicting referee reports, feedback for improving of manuscripts and rewriting, or non-acceptance. Depending on their own expertise, guest-editors as well as the editor-in-chief may function as referees, even though both parties also serve as part of the final approving committee, responsible for the final approval of the journal issue being edited. It is the responsibility of the editor-in-chief to oversee the whole editing process, mentor guest editors, and be updated on the progress of the editing of the issue, be informed about difficulties as they arise, provide guidance in related decisions, and constitute the committee that finally approves the issue to be published, after having perused all referee reports as well as the full final version of the issue to be published. An important aspect of the process is that when the editor-in-chief functions as editor of a special edition, the associate editor or a nominated editorial committee member will function in the capacity of editor-in-chief.

The editor-in-chief and guest editors are ultimately responsible for the compliance with best practice as laid down in the "National Code of Best Practice in Editorial discretion and Peer Review" developed by ASSAf.

4.7 Guidelines to Keeping the Alternation Referee Register

The main reasons for the keeping of a referee register are both practical and strategic. On the practical side, it assists in managing, coordinating and keeping track of a process that can potentially become muddled. Strategically, it ensures the confidentiality of authors and reviewers as well as the coordinated development of the knowledge produced—i.e. to meet the goals and objectives initially set for the colloquium or research project and how these

fit into the overall country-wide objectives related to strategic publishing[7]. On the practical side, the guidelines for the keeping of the Alternation referee register are as follows:

All Alternation referee registers are confidential. Only the guest-editor(s), editor(s)-in-chief and associate editor(s) have access to the register. Additional people may be provided with access on recommendation of guest-editor(s) and final approval by the editor(s)-in-chief and/ or someone designated by him/ her.

Before the submission of articles to reviewers editors must procure referee cooperation and contact details. Authors of articles of the specific Alternation issue may be used for the review of other articles submitted by authors where the editor(s) are not aware of any conflict of interests. (In line with regular practice, authors may identify peers they would not like to function as referees.)

All editors involved in the production of an *Alter*nation issue must decide on the referee form format to be used. They may use the standard one, one of the other two samples developed for empirical research projects, or they may develop their own in consultation with the editor-in-chief.

On receipt of an article, the guest-editor or his or the administrative assistant he or she works with, enter the author and title on the register and save the article in an appropriate file in the format 01 Coullie, 02 Narismulu, 03 Ngwenya, 10 Smit, 11 … 99. This ensures easy navigation of the articles in the file, up to the point where the final sequence of articles has been identified, just before the writing of the 'Introduction' to the volume.

Identify two referees to referee the article, and email the article together with the chosen form to the referee. Give the referee a maximum of 6 weeks (or a.s.a.p.) to read and referee the article. The reason for the 'a.s.a.p.' is that if given longer periods, referees may put the refereeing off till later, often forgetting about it. We have learnt that the a.s.a.p. works well because

[7] See the *Report on a Strategic Approach to Research Publishing in South Africa* above. Since conflict of interests may arise in this area—between reviewers or between a reviewer and an author—the register allows one to keep track of all correspondence, as well as provide members of the editorial team, with information on the process and the various communications between the reviewers and the authors involved.

it is something the reviewer can put on the urgent list but also remember to do before the 6 weeks expiry date.

If an article is accepted by both referees, inform the author. If the reviewers provided information on how the author could still improve on the article or, as in some cases, provided a marked-up version of the article, send that anonymous information to the author, i.e. not mentioning the names of the reviewers.

If an article is turned down by both referees, inform the author that it has not been accepted for publication. If the reviewers provided information on how the author could still improve the article, send that anonymous information to the author, indicating that the author may revise the article and submit it elsewhere.

If an article is turned down by one referee, and approved by another, identify a third referee and send the article to this referee.

If this referee turns down the article, then it is not accepted for publication. Inform the author that it has not been accepted. If the reviewer provided information on how the author could still improve the article, send that anonymous information to the author but state clearly that it will not be considered for *Alter*nation again.

If this referee recommends publication, then it is accepted. Inform the author that it has been accepted for publication. If the reviewer provided information on how the author could still improve on the article, send that anonymous information to the author.

If an article has potential according to the guest editor(s), but has been turned down by one or both referees, the article may be submitted to the editor-in-chief and/ or associate editor for recommendation of publication and/ or reconsideration by new or alternative referees. This process will only be followed in exceptional cases, with convincing persuasion by guest-editor(s).

As the refereeing process is in the process of being finalised, with the final content crystallizing, submit the articles for final approval and quality control to the editor-in-chief who, on acceptance of articles, will do a final reviewing of the accepted articles.

Galley-proofs are sent to guest-editors who then have to get formal confirmation of text and references from authors—with minor corrections where needed—within 6 weeks or sooner.

The refereeing process is completed, when all articles accepted for publication have been signed off by the guest editor(s) and accepted for publication by the editorial committee or its representative(s).

The editorial assistant is involved throughout this process and in different capacities. The guest-editor(s)' final activity is to submit the Referee Register, all electronic reviews—at least two per author—and other relevant correspondence, to the editorial assistant. These will be filed and archived for a five year period as prescribed by current research data convention.

4.8 Conclusion of the Process

This mainly deals with the collation and submission of all relevant documentation to the editorial assistant for audit and archival purposes. These include the reviews, the review register with the information of the reviewers, marked-up articles—where available—and relevant correspondence between the authors and guest-editors, and the latter and the editor-in-chief and the associate editor(s).

5 Value-adding

Apart from value-adding features such as a good editorial, a good and helpful introduction, an abstract and key concepts for each article, and book review articles and possible internet links to enrich the web experience and learning, one of the most sought after features is the book review. For this reason—and in consultation with guidelines from some international publishers *Alter*nation's guidelines for book reviews comprise of the following.

1. Description of book contents - topics, range of issues and focuses covered, field of study, interdisciplinary perspectives, etc.
2. Mentioning noteworthy features of the book - significant contributors, engagements of existing discourses, new insights, adding to existing knowledge, etc.
3. Pointing at valuable characteristics and deficiencies ranging from having an index, helpful appendices, to important existing research and scholars not engaged, being slapdash, etc.

4. Indicate potential readers, researchers, students and employees who might find it helpful, (scholars, general public, etc.).

Reviews must follow the Alternation style and references from the book reviewed, put in brackets referred to with (p. 00); or, (p. 000, n. 4); or, (pp. 00-00). The review must also be accompanied by

> *Title*.
> By Author(s)/ Editor(s)/ Translator(s)
> Place of publication: Publisher, date, total number of pages
> ISBN: ……

It is recommended that reviews not exceed 600 words. Longer reviews will however also be published.

6 The *Alter*nation Website

The *Alter*nation website is located at http://alternation.ukzn.ac.za. It contains all volumes produced so far and will be further developed throughout 2010 with links to other relevant websites and archival resources. Existing volumes will be re-edited to match the system currently followed, e.g. including an abstract for each article. An extensive subject list is also being developed for the search function.

7 Academy of Science of South Africa (ASSAf) Incentives

As part of the Partnership Project of the Academy of Science of South Africa (ASSAf), Department of Science and Technology (DST) and Department of Education (DoE), processes were initiated to enhance and advance scholarly research in South Africa.

7.1 The Accreditation Policy Study (2005)

This was an extensive questionnaire submitted to all editors for completion by February 2005. Aimed at the move towards the formulation of a coherent and coordinated accreditation policy study for SAPSE journals in South Af-

rica, it solicited data from editors of South African research journals, using a survey questionnaire as research instrument.

7.2 The National Code of Best Practice in Editorial Discretion and Peer Review (2008)

This document[8] was the result of the work one by the National Scholarly Editors' Forum[9]. It deals with the three important issues of:

1. Fundamental Principles of Research Publishing: Providing the Building Blocks to the Matrix of Human Knowledge;
2. The Core Role of Editors; and
3. The Indispensable Functions of Peer Reviewers.

7.3 The ASSAf Research Panel on: Ways to enhance incentives for Scholarly Journal Editors in South Africa (03 March 2009)

This brief questionnaire[10] was aimed at providing information on the personal views of editors in their editorial capacity. This became necessary because there is a general recognition of the very important work done by editors, honorary editors and the journals' editorial teams and associates; this work is done with no material incentives, official recognition for their work both in- and outside the scholarly community—e.g. professional peers, employers and funding agencies—or, in most cases, also no or very limited infrastructural and logistical support.

[8] See: http://www.assaf.org.za/images/National%20Code%20of%20Best % 20Practice%20Body% 20Content.pdf.

[9] See the *Terms of Reference of the National Scholarly Editors' Forum of South Africa* at: http://www.assaf.org.za/images/Terms%20of%20Reference %20Body%20Content.pdf.

[10] See the draft questionnaire at: Preliminary Questionnaire Directed to Editors by the Peer Review Panel. December 2008. http://www.assaf.org.za /images/CSPiSA_PRPs_ questionnaire.doc.

7.4 The Committee on Scholarly Publishing in South Africa (CSPiSA): Discipline-Grouped Peer Review of South African Scholarly Journals - Preliminary Questionnaire Directed to Editors by the Peer Review Panel

This committee[11] is one of ASSAf's committees and mandated by the Departments of Education and Science and Technology to develop and put in place a system for the quality assurance of South African scholarly journals. The process comprises of external peer review and related quality audits of our journals in five-year cycles.

8 Closing Reflections

It is one thing to be critical of past scholarship impacted on by colonial and apartheid discursive formations while one continues to remain incapacitated towards the production of a disalienating and inclusive scholarship and thought. Most of *Alter*nation's published research has pondered and engaged the challenges manifesting and emanating from this broadly postcolonial discursive space. The aim is to problematise from within our own discursive antinomies and conundrums. It is only when we untangle the specific kinds of socio-economic challenges we face, that we shall be able to develop the kind of liveable, just and humane postcolonial world we want. In this process, it is imperative that new and young researchers be allowed to 'think for themselves' and we collectively produce graduates who can develop their own research proposals, do their own research with, in, by, and for their own community, or more further a-field, do their own statistical analyses, and write it up in their own words without the need of a language or style editor[12]. It is in pursuit of these objectives that *Alter*nation serves the Arts and Humanities.

[11] See the decisions related to the founding of this committee at: http://www.docstoc.com/docs/18566557/ACADEMY-OF-SCIENCE-OF-SOUTH-AFRICA-(ASSAf)

[12] At present current computer programmes have developed to such an extent that even where English is not one's mother tongue, one could produce texts that meet the basic requirements of good grammatically correct writing. In the very near future, the same will doubtlessly be possible for our indigenous languages.

Apart from providing a brief retrospective on the fifteen years of *Alter*nation's and CSSALL's existence, another objective of this article was to provide a brief exposition of the processes and procedures we follow in the editing processes and procedures of *Alter*nation. This could be used to provide guidelines to prospective guest-editors as well as the instituting of similar guest-editing systems in other journals. We shall no doubt continue to develop and refine our own system.

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ARTICLES

Johannes A. Smit Editorial 1
Rembrandt Klopper Introduction 3
Christopher May and *Charles O'Neill* An Empirical Study of the Effects of Firm Size, Export Marketing Strategies of Firms and Type of Industry on the Performance of Firms in Export Markets 5
Kasthuri Poovalingam and *Pragasen Pillay* Brand Equity Optimization of Fast Moving Consumer Goods among Retail Chain Stores in South Africa 24
Debbie Vigar-Ellis, Nick Barrett and *Nigel Chiweshe* Positioning of Luxury Vehicle Brands in the Pietermaritzburg Area 51
N. Naidoo, S. Perumal and *S. Moodley* Ethical Dilemmas in Business Practices of Small and Medium Enterprises (SMEs) in South Africa 77
Raj Rajaram and *Charles O'Neill* Profit or No Profit— Does the SME Sector Really Know? 99
Simee Gareeb Sewcharan and *Sanjana Brijball Parumasur* Overcoming Barriers to Team Effectiveness..... 120
Fikile Mazibuko Contemporary Challenges to Knowledge Management in Higher Education: A Gateway to Excellence and Innovation in Africa 155
Udo Richard Averweg An Intranet to Facilitate Managing Knowledge and Knowledge Sharing 178
Rosemary D. Quilling and *Craig N. Blewett* Teaching 2.0: When the Student is Ready, Will the Teacher Disappear? 197
Huibrecht M. van der Poll Assessing Student Performance in a Theoretical Computer Literacy Course 223
Peter L. Mkhize, John A. van der Poll and *Sam Lubbe* Analysing Student Perceptions of Intellectual Property Rights in a Self-Plagiarism Framework 243
Rembrandt Klopper The Case for Cyber Forensic Linguistics 261
Sam Lubbe and *Rembrandt Klopper* The Problem with Passwords 295
Mariana Carroll, Alta van der Merwe and *Sam Lubbe* An Information Systems Auditor's Profile 318
Johannes A. Smit Editing *Alter*nation: A Fifteen Year Retrospective 336
Contributors 359
Editorial Associates 366

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