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Trends in Management, Informatics and Research in a 21st Century Digitally Connected World

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Editorial: Trends in Management, Informatics and Research in a 21st Century Digitally Connected World

Rembrandt Klopper

*Alter*nation Special Edition 8 of 2013 contains fourteen contributions that report the results of research that focuses on interdisciplinary aspects of management and informatics. A number of the contributions focus on the research process itself. Each of the contributions addresses some facet of the integration of management and informatics in the 21st century digitally connected world in which we live.

Krishna K. Govender continues a research theme on service quality that he has written about in past issues of *Alter*nation, sometimes as co-author with fellow researchers, but here on his own. Govender reports the results of measuring service quality by means of data collected with an electronic survey instrument among a group of postgraduates and research supervisors in a leading research university in South Africa.

Sybilon Phetlhe and Theuns Pelser report the results of research on the factors that affect tourism SMMEs' ability to adopt ICT in the Ngaka Modiri Molema Distrct of the North West Province of South Africa. They conclude that factors such as the size of an enterprise, its location, knowledge among owners, improvement of business performance in terms of revenue and financial resources and initial ICT costs, all have an impact on ICT adoption by tourism enterprises.

Najeena Sha and Kantilal Bhowan report the results of their research into whether Generation Y consumers interact with brands through social media platforms, specifically social networking sites, or whether consumers predominantly use such sites for socialising and/or other purposes. They

identify four social networking sites that are predominantly used by Generation Y respondents and two distinct market segments, one favourably inclined towards commercial activities on social networking sites, and another one that is not quite supportive of such commercial activity.

Yougan Aungamuthu reports the results of research into using ICT as a tool to engage access students' academic identities in Mathematics. Aungamuthu concludes that ICT boosted participants' self-efficacy, giving students new actual and designated identities, and concludes with recommendations for curriculum designers in higher education.

Sonia Swanepoel, Nicolene Barkhuizen and Carver Pop report the results of research into the role of mentorship in the retention of graduate interns. Their results show that mentorship is statistically significantly related to the graduate intern's intention to quit a graduate internship programme. Results further show a significant relationship between the opportunity to apply mentorship skills and the mentor's intention to employ the graduate intern upon completion of the programme.

Lesley Stainbank reports that a change to the National Senior Certificate (NSC) in 2008 caused uncertainty about what the admission requirements into Faculties of Commerce should be since one of the main filters is the grade obtained for mathematics in the Senior Certificate. This prompted her research into the impact of NSC Mathematics on the performance of first year B Com General and B Com Accounting students at the University of KwaZulu-Natal. Stainbank concludes that performance in subjects of the B Com General and B Com Accounting programs is most strongly correlated with prior school mathematics performance.

Huibrecht M. van der Poll and Nicholas M. Ndwiga report the results of research on the role of Management Accounting in creating and sustaining a competitive advantage in the banking industry. Their research focusses on a leading commercial bank in Kenya whose rapid growth and competitiveness they attribute to the application of innovative management accounting practices. The authors conclude that management accounting practices provide both internal and external competitive strategies that enable business organisations to create and sustain a competitive advantage.

Bhavna Jugwanth and Debbie Vigar-Ellis report the results of their research into customer complaint behaviour and companies' recovery initiatives with focussing on companies' responses to customer complaints

published on the international Hellopeter customer service website. According to Jugwanth and Vigar-Ellis the most common online complaints on the Hellopeter website were regarding delays in company responses, companies promising action and failing to then act, and unhelpful company responses. Common recovery strategies used by organisations were offering to be in contact with the complainant and acknowledging the customers' complaint. Offering the customer an apology was also a frequently used recovery initiative. From the consumers who responded to the recovery initiative it was found that a relatively low percentage of complainants were impressed with the recovery outcome and process. The findings also indicate that consumers had the most positive responses when an apology was provided as well as a reference number for the consumer to track their complaint.

Reshma Subbaye and Mudaray Marimuthu report the results of their investigation into barriers to Internet adoption, focussing on small and micro enterprises in the business-services sector. The authors conclude that while SMEs acknowledged that the Internet is relevant to their businesses, they also identified the main barriers to Internet adoption as concerns about the costs and complexity, issues around security and lack of support, when it comes to using the Internet.

Nehemiah Mavetera, Simon Mukenge Tshinu and Sam Lubbe write on incorporating the best practices embodied in different ICT management frameworks such as ITIL and COBIT into business process development. Their research used a qualitative research process consiting of unstructured interviews to collect data. The results reveal that there is a need for effective, well developed and managed business processes in organisations active in competitive business environments.

Sanjay Ranjeeth, Ashley Marimuthu and Manoj Maharaj propose a pedagogical intervention based on agile software development methodology. A combined academic framework, consisting of behavioural science and design science theory, was used to operationalise acceptance of agile methodology. Information Systems & Technology students at the Pietermaritzburg and Westville campuses of the University of KwaZulu-Natal were surveyed. The results indicate a high level of acceptance of agile methodology within the IS student community.

Kiru Pillay and Manoj Maharaj analyse the strategic use of Web 2.0

social media by civil society organisations. Their research led to the development of a model that has been statistically validated and subsequently modified, based on variables identified that naturally lend themselves to the generation of such a model.

Paulene Naidoo, Yasmin Rugbeer and Hemduth Rugbeer present the results of a comparative analysis of the role of intercultural communication in Japanese and South African intercontinental business ventures. The authors conclude that organisations could encapsulate a more intercultural and global environment and that advanced technology and the media are vital components of intercultural communication.

Rembrandt Klopper proposes a conceptual framework for tracking mobile communication technology trends during qualitative empirical analysis of online sources including e-documents, web sites, white papers, technical reports and visual materials such as video recordings. The framework identifies theoretical frameworks that could be appropriate for guiding empirical research and provides criteria that an appropriate framework should comply with.

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Exploring Postgraduate Research Service Quality: Comparing Supervisors' and Students' Perceptions

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Abstract

Since most studies on postgraduate (PG) research have been conducted from the PG students' perspective, this study explores the perceptions of PG research service quality from the perspective of both 'actors' in the PG service encounter. By conducting an electronic survey among a group of postgraduates and research supervisors in a leading research university in South Africa, using a specially developed and validated 26 items PG research quality measurement instrument (PGSQUAL), it was ascertained that although overall the perceptions between the groups does not differ much, however with regard to nine of the 26 service quality measurement items, there was a difference in perception. Since the difference in service quality perception between both groups should be minimal, after validating the study among a larger sample, university management responsible for PG research promotion and development, should focus on implementing strategies which minimize the 'gap' in service quality perception.

Keywords: service quality, postgraduate research, research service quality

Introduction

The post graduate (PG) higher education environment is becoming very competitive and higher education institutions (HEIs) are exploring and implementing various strategies, inter-alia, improving the service experience

and service quality, to attract and retain postgraduate (PG) students. Enhancing the PG experience and PG service quality (PGSQUAL) will serve to not only attract PG students through 'word of mouth' and other means, but may contribute to successful completion of masers and doctorates.

Considering that the interaction between the supervisor and PG student (the service encounter) is key to enhancing the service experience and service quality, it is important to understand how each 'role player' perceives the service quality so that differences in perception may be identified and strategies implemented to rectify the situation, by strengthening areas where there is agreement and modifying areas where differences occur.

Postgraduate Education as a Service

Two different approaches have been adopted in the way higher education institutions (HEIs) treat their students, namely the customer-oriented (student-customer) approach and, the student-product approach. While some researchers (Albanese 1999; Emry, Kramer & Tian 2001) contend that students should not be viewed as customers, there is overwhelming support for the contrary view, namely viewing students as customers and, adopting the principles of customer service and Total Quality Management to the education environment (Obermiller, Fleenor & Raven 2005: 27-36). Angell, Hefferman and Megicks (2008: 236) assert that given that higher education provision is a service, it is understandable for HE providers to adopt a more 'customer-led' approach.

Certain researchers (Sunanto, Taufiquarrahman & Pangemanan 2007; Liu 2010), argue that whether we view the (PG) student as a customer or not depends on how we define a customer. According to these researchers, if we think customers need specialized services and our assistance to accomplish a task, as is the case of PG research students, and if we believe students are full partners in their education and that they can help to improve our teaching through their thoughtful comments, then they should be considered as our primary customers. The aforementioned view, upon which this study is premised, implies that the theory and methodologies applied in services management, are equally applicable to the higher education environment. Thus, by borrowing from and, adapting the service quality

measurement and management literature and tools, the perceptions of PG research quality are determined from both the service providers' and service recipients' perspective.

Assessing Postgraduate Research Service Quality

Although the conceptualization and measurement of service quality as a subject and, service quality perceptions has been widespread, however measuring service quality in HE has received limited attention (Firdaus 2006). A review of the literature reveals that the most popular scale is the SERVQUAL (Parasuraman, Zeithaml & Berry 1988) instrument, which is also known as the GAPS model, since service quality is conceptualized as the gap between customer expectations and perceptions, presents the respondent with 22 service attributes grouped into five dimensions, namely tangibles, reliability, responsiveness, assurance and empathy, which they rate using a Likert-type scale response format.

Alridge and Rowley (1998: 200) assert that application of SERVQUAL in higher education has not been without criticism. Some of the criticisms include the need to ask the same questions twice, and the fact that the instrument captures a snapshot of perceptions at one point in time. To overcome some of the criticisms, Alridge and Rowley (1998) opted to survey perceptions only and exclude expectations in their survey of student satisfaction. Furthermore, Hair (2006: 11), asserts that the work carried out so far using SERVQUAL in a higher education context would seem to suggest that the instrument can be used successfully, as long as the modifications are kept to a minimum. However, the author goes on to state that there is little or no research specifically using SERVQUAL on PhD students or on supervisors.

Against a background of increased attention to quality and accountability in the Australian higher education sector, the PREQ (Postgraduate Research Questionnaire) was developed and introduced in Australia in 2002 (Drennan 2008). The PREQ is a multidimensional measure of graduate students' experience of research and research supervision and is based on the principle that student's perception of research supervision, infrastructural and other support, intellectual climate, goals and expectations will influence their evaluations of the outcomes achieved as a consequence of their research experience (ACER 2000, as cited by Drennan 2008: 490).

The PREQ was further modified to develop the SREQ (Student Research Experience Questionnaire) to investigate the PhD students' evaluations in which the focus was on the overall postgraduate experience at the broad level of university and disciplines (faculties and departments) within a university rather than at the effectiveness of the individual supervisor (Ginns, Marsh, Behnia, Cheng & Scalas 2009). Ginns *et al.* (2009: 582) emphasized that the SREQ's design applies theory derived from studies of teaching and learning in higher education to the experiences of PG research students. The PREQ which consists of 28 items using a five-point Likert scale ranging from 'strongly disagree' to 'strongly agree', as well as a 'do not apply' option was developed to gather data concerning the experience of research degree (masters and doctorate) graduates with respect to broad aspects of their studies. This research instrument focuses on six areas of the research higher degree experience, namely, supervision, climate, infrastructure, thesis/ dissertation examination, goal clarity, and generic skill development. Ginns, *et al.* (2009: 580) reported that the PREQ instrument had a clear factor structure, and the scales had acceptable internal consistency estimates of reliability.

For the purpose of this study, a 26 item PGSQUAL (postgraduate research service quality) instrument was developed (Govender & Ramroop 2011) primarily by adapting the SERVQUAL instrument which encapsulates the perceptions-expectations gap covering all five service quality dimensions (Parasuraman *et al.* 1988), and incorporating certain elements from the PREQ instrument, as was done in previous studies (Stodnick & Rogers 2008; Dann 2008; Drennan 2008). The adaptation entailed making minor changes to the SERVQUAL statements to fit the context and combining expectations and perceptions, as was done in previous studies (Govender 1998).

With respect to the 26 items (Table 1) pertaining to specific aspects of the PG research service quality, the respondents were requested to indicate their perceptions on a 5-point Likert scale whether the service quality was 'better' or 'worse' than expected, where 1= Worse than expected and 5= Better than expected.

Methodology
Two groups of respondents, PG research supervisors and graduating post-graduates were surveyed using the same (PGSQUAL) instrument. The first

group comprised masters and doctorate candidates who graduated at a large research university in 2011 and, PG research supervisors of the same group of students. The name list and e-mail contact details of the graduates was obtained from the graduations office, and two approaches were used to reach the graduates. The electronic version of the questionnaire, using QuestionPro (2010) was sent via an e-mail to all graduates by providing the specific link. This was supported by hardcopies of the questionnaire accompanied by an explanatory letter explaining the objectives of the survey and instructions on how to complete and return the questionnaires which were distributed at the graduation venues in special envelopes together with the degree certificates. Graduates were asked to return the completed questionnaire within a month from the date of the graduation.

A general e-mail was also sent to all PG research supervisors of the same university which produced the 816 research (masters and doctorate) graduates. The e-mail explained the purpose of the research and requested the research supervisors to follow the link to the questionnaire which was also uploaded onto QuestionPro. Regular (weekly) e-mail reminders were sent to the research supervisors appealing to them to complete the survey.

Empirical Findings
Response Rate and Biographic Data
Although 221 graduates (out of 816) viewed the questionnaire, the final response in terms of those who completed the questionnaire was 40%; and although 200 PG research supervisors viewed the questionnaire, only 46 started it and 44 completed it, implying a high (95.65%) completion rate, but a poor (22%) response rate.

In terms of supervision experience, for the majority (67.7%) of research supervisors, the modal supervision experience was 'more than 5 years'. The modal number of years that the respondents spent at UKZN was 1-5 years (27%), followed by 5-10 years (16.2%), and 15-20 years (16.2%).

Validity and Reliability of the Research Instrument
Since the PGSQUAL was a newly developed research instrument, there was need to validate it before being able to comment on the PG research

supervisors' perception of service quality. Coakes and Steed (2003: 140) state that although there are a number of different reliability coefficients, one of the most commonly used is the Cronbach's alpha, and that a value of 0.7 or higher is a very good value that can lead us to say that we will get the same results if we conducted this survey with a larger sample of respondents.

The 26 item PGSQUAL instrument administered to the research supervisors and PG research students produced Cronbach alpha values of 0.944 and 0.978 respectively, which implies that the questions and the scales used are fairly reliable, since they revealed good internal consistency.

Factor analysis was carried out to identify unique factors present in the data, and as such assess the discriminant validity of the measuring instruments. The Principal Components method was adopted with varimax rotation using the SPSS Version 18 software. It is evident from Table 1 that the PGSQUAL instrument used to assess the research supervisor's perception of the PG research service quality comprised fairly valid and reliable items, since the factor loadings exceeded 0.4 and, the Cronbach's alpha values for each factor was as follows: 0.94; 0.85; 0.88; 0.83; 0.70; 0.70, all of which exceeded 0.7 (Coakes & Steed 2003).

Table 1: Factor Loadings-PGSQUAL-Research Supervisor

	1	2	3	4	5	6
Delivering on promises made to PG students to do something by a certain time	-.82	.26	.25	-0.0	.24	-.02
Sincerity of staff in solving PG students' problems	.81	.36	.12	-.01	.22	.18
Performing the PG services right the first time	.79	.35	.13	.06	.09	.09
Opportunities provided to PG students for social contact with other PG students	.74	-.15	.15	.15	.07	.26
Always having the PG students' best interest at heart	.73	.45	.25	-.08	.24	.19
Research support services available to PG students	.72	-.22	.22	.37	-.14	-.00

The ability of staff to answer PG students' queries	.68	.20	.27	.24	.21	.34
Honouring promises made to PG students	.65	.34	.38	-.04	.18	.10
The personal attention given to PG students	.57	.44	.38	.12	.31	.20
Willingness of staff to assist PG students	.10	.78	.10	.13	.14	.47
The courteousness of staff towards PG students	.13	.77	.25	.17	.12	.34
Accuracy of PG records	.35	.77	-.09	.06	.12	-.00
Financial support for PG students' research activities	.24	-.18	.78	.32	-.06	.07
Never being too busy to respond to PG students' requests	.38	.38	.70	.03	.19	.08
Telling the PG student exactly when the services will be performed	.39	.22	.61	.15	.25	.31
The promptness of the services offered to PG students	.44	.16	.58	-.01	.27	.37
The personal attention given by staff to PG students	.46	.44	.47	.15	.24	.17
PG research ambience in the department/school	.14	.23	-.08	.87	-.05	-.00
Seminar programmes provided to PG students	-.03	.08	.39	.79	.11	.15
Opportunities provided to PG students to become integrated into the broader department/ school/university research culture	.07	-.13	.11	.65	.49	.13
Freedom allowed to PG students to discuss their research needs	.35	.40	.15	.55	.50	.13

The confidentiality with which staff deal with PG student issues	.29	.17	.31	-.11	.76	.10
Efforts made to ensure that PG students develop an understanding of the standard of work expected	.12	.23	.10	.46	.73	-.03
Modernness of library resources and services for PG students	.49	.14	-.31	.17	.50	.23
The convenience of university operating hours for PG students	.24	.12	.19	.14	-.04	.83
Ability of staff to understand PG students' needs	.14	.31	.08	.01	.17	.73

A similar procedure was implemented to validate the PGSQUAL instrument administered to the PG research students. The results reflected in Table 2, also indicate that the instrument was valid and reliable.

Table 2: Factor Loadings-PGSQUAL-Research Students

ITEM	DESCRIPTION	COMPONENT	
		1	2
SQ3	The willingness of staff to assist PG research students	.86	.20
SQ4	The courteousness of staff towards PG research students	.86	.17
SQ10	Delivering on promises to PG research students to do something by certain time	.83	.28
SQ5	The promptness of the services offered to PG research students	.81	.33
SQ13	Performing the PG research service right the first time	.81	.39
SQ2	The ability of staff to understand PG research students' needs	.79	.35

SQ14	The personal attention PG research students receive	.79	.44
SQ9	The ability of staff to answer PG research students' queries	.78	.32
SQ7	The personal attention given by staff to PG research students	.76	.42
SQ12	The sincerity of staff in solving PG research students' problems	.76	.46
SQ16	The convenience of operating hours for PG research students	.74	.52
SQ15	Telling PG research students exactly when the services will be performed	.73	.47
SQ11	Always having PG research students' best interest at heart	.68	.53
SQ8	The confidentiality with which staff deal with PG research issues	.67	.46
SQ23	The efforts made to ensure that PG research students develop an understanding of the standard of work expected	.66	.50
SQ1	The accuracy of PG research student records	.65	.35
SQ18	Honouring promises made to PG research students	.64	.57
SQ6	The convenience of operating hours for PG research students	.63	.39
SQ17	The financial support provided to PG research students	.26	.79
SQ19	The research support services provided to PG research students	.40	.79
SQ26	The opportunities provided to PG research students to become integrated into the broader department/school/university research culture	.29	.79
SQ20	The opportunities provided to PG research students for social contact with other postgraduate research students	.29	.73

SQ22	The modernness of library resources and services for PG research studies	.19	.70
SQ25	The freedom allowed to PG research students to discuss their research needs	.52	.69
SQ21	The PG research ambience in the department/school/university	.43	.68
SQ24	The seminar programmes provided for PG research students	.30	.68
	Cronbach's Alpha	**0.97**	**0.91**

Discussion of Findings

Table 3 reflects the respondents mean (on a scale of 1-5) service quality perception scores. Considering the nature of the scale, the mean values for the PGSQUAL (above 3 and closer to 4) show that for the majority of the questions, both the PG research supervisor and student perceived the PG research service quality to be 'better than expected'. The one sample t-test was conducted to further verify the proposition that the mean PGSQUAL score was equal to or greater than 3, and it was ascertained that at the 5% significance level, we accept the proposition, since the p-value is 0.000. Hence, it can be concluded that the perceptions of the respondents with respect to the overall PG research service quality is tending towards 'expected' or 'better than expected'.

Table 3: Mean Research Service Quality Perception Scores

ITEMS	DESCRIPTION	SUPERVISOR	STUDENT
SQ1	Accuracy of PG records	3.0000	3.8365
SQ2	Ability of staff to understand PG students' needs	2.9459	3.4257
SQ3	Willingness of staff to assist PG students	3.2703	3.6667

SQ4	The courteousness of staff towards PG students	3.2973	3.6700
SQ5	The promptness of the services offered to PG students	2.7838	3.4706
SQ6	The convenience of university operating hours for PG students	2.8108	3.6699
SQ7	The personal attention given by staff to PG students	3.4054	3.5294
SQ8	The confidentiality with which staff deal with PG student issues	3.5135	3.6117
SQ9	The ability of staff to answer PG students' queries	3.1622	3.4660
SQ10	Delivering on promises made to PG students to do something by a certain time	2.8108	3.4405
SQ11	Always having the PG students' best interest at heart	3.0811	3.2718
SQ12	Sincerity of staff in solving PG students' problems	3.1351	3.4902
SQ13	Performing the PG services right the first time	2.9189	3.4563
SQ14	The personal attention given to PG students	3.2432	3.3824
SQ15	Never being too busy to respond to PG students' requests	2.9189	3.3529
SQ16	Telling the PG student exactly when the services will be performed	2.7838	3.2079
SQ17	Financial support for PG students' research activities	2.4054	2.7885
SQ18	Honouring promises made to PG students	3.0000	3.2200
SQ19	Research support services available to PG students	2.7568	3.0294

SQ20	Opportunities provided to PG students for social contact with other PG students	2.2973	2.9608
SQ21	PG research ambience in the department/school	3.5405	3.2941
SQ22	Modernness of library resources and services for PG students	3.3243	3.6263
SQ23	Efforts made to ensure that PG students develop an understanding of the standard of work expected	3.4865	3.6408
SQ24	Seminar programmes provided to PG students	3.1622	3.3495
SQ25	Freedom allowed to PG students to discuss their research needs	3.5405	3.3922
SQ26	Opportunities provided to PG students to become integrated into the broader department/school/university research culture	3.0000	3.0194

It is also evident from Table 3, that PG research students did not perceive the financial support for PG research activities as well as the opportunities provided to PG research students for social contact with other PG students as meeting their expectations. These two items are clustered under the 'institutional support' factor. Furthermore, additional 'institutional support' items (SQ18-21; SQ24-26), produced a mean perception score of almost less than 3.500, implying that the PG research students' were almost 'neutral' about their perceptions of institutional support. Being 'neutral' does not mean that the HE institution should remain complacent since this could lean towards either 'better than expected' or 'worse than expected'. The objective should be to offer service which would result in PG research students perceiving the research service quality as being 'better than expected'.

However, the interpretation of the perception 'better than expected' should also be with some caution, since PG research students could have had

low expectations of the HE institution due to among other factors, the institutions' marketing of its PG research service and from informal conversations with other PG research students. A similar interpretation as the above could be made of items SQ2, SQ10-11; SQ14-16, with respect to the service offered by the research supervisor, since the mean perception score is also less than 3.500.

The Mann Whitney U test was then applied to ascertain significant differences between the two groups with respect to the service quality perceptions. As reflected in Table 4, there are significant differences between the two groups with respect certain service quality measures. At the 5% level, for all the p-values less than 0.05 (items SQ1-SQ6, SQ10, SQ13 and SQ20), it can be concluded that there is a significant difference between the supervisor and the PG research students. These items include: Accuracy of PG Records; Ability of staff to understand PG students' needs; Willingness of staff to assist PG students; The courteousness of staff towards PG students; The promptness of the service offered to PG students; The convenience of university operating hours for PG students; Delivering on promises made to PG students to do something by a certain time; Performing the PG services right the first time; Opportunities provided to PG students for social contact with other PG students.

Table 4: Difference in Service Quality Perception Scores

	ITEMS	Z	p-value
SQ1	Accuracy of PG records	-3.61	.00
SQ2	Ability of staff to understand PG students' needs	-2.10	.03
SQ3	Willingness of staff to assist PG students	-2.01	.04
SQ4	The courteousness of staff towards PG students	-2.21	.02
SQ5	The promptness of the services offered to PG students	-3.11	.00
SQ6	The convenience of university operating hours for PG students	-4.13	.00

SQ7	The personal attention given by staff to PG students	-.88	.37
SQ8	The confidentiality with which staff deal with PG student issues	-.68	.49
SQ9	The ability of staff to answer PG students' queries	-1.56	.11
SQ10	Delivering on promises made to PG students to do something by a certain time	-2.67	.00
SQ11	Always having the PG students' best interest at heart	-.58	.55
SQ12	Sincerity of staff in solving PG students' problems	-1.41	.15
SQ13	Performing the PG services right the first time	-2.38	.01
SQ14	The personal attention given to PG students	-.34	.72
SQ15	Never being too busy to respond to PG students' requests	-1.73	.08
SQ15	Telling the PG student exactly when the services will be performed	-1.70	.08
SQ16	Financial support for PG students' research activities	-1.63	.10
SQ18	Honouring promises made to PG students	-.76	.44
SQ19	Research support services available to PG students	-.93	.34
SQ20	Opportunities provided to PG students for social contact with other PG students	-2.67	.00
SQ21	PG research ambience in the department/school	-1.43	.15
SQ22	Modernness of library resources and services for PG students	-1.09	.27

SQ23	Efforts made to ensure that PG students develop an understanding of the standard of work expected	-.52	.59
SQ24	Seminar programmes provided to PG students	-.90	.36
SQ25	Freedom allowed to PG students to discuss their research needs	-.80	.42
SQ26	Opportunities provided to PG students to become integrated into the broader department/school/university research culture	-.23	.81

With regard to SQ2-SQ5, previous studies (Buttery & Filho 2005; Carrilat, Jaramillo & Mulki 2009) also confirm the findings of this study and emphasize the fact that research supervisors and research administrative staff need to be more courteous towards PG research students. It is therefore important that PG research institutions take note of all the differences in perceptions and implement strategies to minimize the differences, so as to create a PG research environment that reveres and promotes research. However, for the rest (SQ7-SQ9; SQ11-SQ12; SQ14-SQ19; SQ21-SQ260) of the items, since the p-values are all greater than 0.05, it is concluded that there is no difference between the PG research students and the supervisors with respect to these service quality items.

Conclusions, Limitations and Recommendations

In summing up, researchers and practitioners need to be cognizant that when researching the PG research students' perception of their research service quality experience, they should guard against what Schneider and Bowen (1995) refer to as falling into the 'human resources trap', by emphasizing both personal as well as the non-personal contact and embracing the broader definition of the service encounter to refer to anytime when students come into contact with any aspect, and use that contact as one basis for judging quality. The HE institution has to therefore manage all the evidence so as to

ensure a seamless service experience for the PG research student (Jospeh & Joseph 1997). In view of the supervisors' pivotal role, better support for supervisors (Zuber-Skeritt 1994) would be an effective mechanism to provide better support for postgraduate research students. Chung and Law (2010: 255) also assert that educational service quality should be assessed as the 'total experience' so as to capture the entire learning experience of the students during the period of enrolment at the university.

Considering that this study was conducted at the 'end' of the study period, the results may not fully reflect the reality. Thus futures studies should assess PG research students' perceptions before, during and at the end of their studies.

The relatively poor response rate, particularly from the research supervisors limited subjecting the data to specific statistical analysis. Since the study was conducted on the two groups separately, it was not possible to 'match' supervisors with PG students. This should be attempted in future studies.

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Tourism SMMEs Adoption of ICT in Ngaka Modiri Molema District of the North West Province

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Abstract

The issue of SMMEs utilising ICT to maximize profit has come into sharp focus in recent times. The opportunity for SMMEs to exploit information and communication technology has increased due to the improved affordability and sophistication of computing equipment, along with the development and utilization of the Internet. This article presents the findings of a study on the factors that affect tourism SMMEs ability to adopt ICT in Ngaka Modiri Molema Distrct of the North West Province in South Africa. Self-administered questionnaires were distributed to one-hundred and fifty tourism enterprises which resulted in a response rate of sixty eight percent. The results indicate that the level of adoption of ICT is highly influenced by the perception of ICT adoption of tourism SMMEs. Most of the tourism SMMEs uses ICT for business purposes. Factors such as size of enterprise; location of enterprise; knowledge among owners; improvement of business performance in terms of revenue and financial resources and initial ICT costs, have an impact on ICT adoption by tourism enterprises.

Keywords: small, medium and micro enterprises, tourism, information and communication technology, adoption, Ngaka Modiri Molema District

Introduction

The diffusion and adoption of Information and Communication Technology

(ICT) and its wide usage have transformed the way of communication as well as the processes through which human beings traditionally perform their exchange functions. Businesses are, one of the advantageous groups, achieving their competitiveness in utilising ICT to perform their promotion, communication, customer service and exchange functions. Cost, convenience, speed, efficiency and other uniqueness of the technology are the stimulating factors of successfully utilising ICT in different functional areas.

The issue of Small, Medium and Micro Enterprises (SMMEs) utilising ICT to maximize profit has come into sharp focus in recent times. The opportunity for SMMEs to exploit information and communication technology has increased due to the improved affordability and sophistication of computing equipment, along with the development and utilization of the Internet. In their paper, Lopez-Ncolas and Soto-Acosta (2010) argues that SMMEs have been slow to adopt ICT use despite the profound benefits these businesses should be able to achieve. This portrays the need to determine what factors contribute to the levels of adoption of ICT by one of South Africa's most important business sectors, the tourism sector with specific reference to SMMEs in the Ngaka Modiri Molema District of the North West Province.

In South Africa, SMMEs have crucial economic roles to fulfil. They contribute to a country's national product by either manufacturing goods of value, or through the provision of services to both consumers and/or other businesses, encompassing the provision of products, and to a lesser extent, services to foreign clients, thereby contributing to overall export performance. From an economic perspective, SMMEs are not just suppliers, but also consumers, who have an important role to play if they are able to position themselves in a market with purchasing power.

Tourism SMMEs arguably form a significant proportion of economic development in South Africa. In South Africa, the government encourages the development of SMMEs as a part of an industrial portfolio to complement existing businesses and industries. More importantly, SMMEs have been promoted as one of the tools driving the Accelerated and Shared Growth Initiative for South Africa (ASGISA), introduced in 2006 by the South African Government.

Problem Statement

According to Kapurubandara and Lawson (2006), the adoption of ICT by businesses in developing countries, especially Africa, has not been sufficiently researched. Considering the limited research in ICT adoption by businesses in developing countries, one might ask whether the results from such studies done in developed countries are applicable to developing ones.

Most definitely, findings from developed countries cannot be directly transferred to developing countries. In fact, in their paper, Karanasios and Burgess (2006) showed that differences in country-contexts can lead to different ICT use and impact patterns. The non-transferability of findings from developed-country-based studies is not the only reason for the necessity of this study, but also because of limited understanding of what drives ICT adoption among businesses in developing countries.

The overall aim of this article was to identify the factors affecting the adoption of ICT by tourism SMMEs. This study focuses on the adoption patterns of Ngaka Modiri Molema District of the North West Province of South Africa.

This research is significant for a number of reasons. Firstly, it helps fill the knowledge gap about ICT adoption in the North West Province of South Africa, and aims at identifying the factors that are important for encouraging willingness to adopt ICT. Secondly, the study focuses on a relatively unexplored and important sector in South Africa in general and the North West Province, the tourism SMME sub-sector of the tourism industry. The role and importance of tourism SMMEs in job creation and economic growth has been talked about at length. It is hoped that this new knowledge would help researchers and practitioners alike to better understand the factors that influence ICT acceptance and adoption among tourism SMMEs in Ngaka Modiri Molema District.

Such an understanding can be useful for government authorities and private businesses in drawing guidelines on how to encourage and motivate widespread adoption of ICT in the North West Province.

Literature Review

ICT currently play a prominent role in the field of commerce and trade.

While the developed world forges ahead with e-transformation of businesses, the developing world struggles to keep pace with emerging technologies. In challenging the global environment, effective use of ICT is critical for the success of businesses especially SMMEs (Kapurubandara & Lawson 2006: 1).

According to Hinson and Boateng (2007: 1), in the past 30 years, the tourism industry has been influenced by three major waves of information and communication technologies (ICT): the Computer Reservation System (CSR) in the 1970s; the Global Distribution System (GDS) in the 1980s and the Internet from mid 1990s onwards. Internet seems to have had the strongest impact on the tourism sector as cited form The European E-Business Market Watch (2008).

Kapurubandara and Lawson (2006: 3) state that SMMEs are vital to the economy in any country, in terms of wealth and number of people employed. With the development of ICT and the shift to a knowledge-based economy, e-transformation and the introduction of ICT is becoming an increasingly important tool for SMMEs, both to reinvigorate and promote growth of the national economy. They also indicate that despite advances in ICT and the acceptance by large organisations of such technologies, the same level of adoption is not evident among SMMEs (Kapurubandara & Lawson 2006). Despite the opportunities offered by ICT, its use within SMMEs in both developing and developed countries is plagued with many problems (Apulu & Latham 2009).

The Role of ICT in SMMEs

ICT is a broader term that involves the processing of information and transmission thereof. Information Communication Technology (ICT) is an umbrella term that encompasses a wide array of systems, devices and services used for data processing as well as telecommunications equipment and services for data transmission and communication (E-Business Watch 2008).

Verhoest, James, Marais and van Audenhove (2007), provide a preliminary study on ICT diffusion in cultural tourism, and the only one which has been carried out to date in the South African tourism sector,

provides evidence that access to ICT is problematic due to high costs ICT equipment, with generally low levels of understanding of ICTs.It is generally known that SMMEs are very important to the economy of most countries. They play a very important role in economic growth. SMMEs are the biggest employers of job-seekers and play an extremely important role in innovation (Apulu & Lathan 2009; Golding, Donaldson, Tennant & Black 2008).

Karanasios and Burgess (2006: 3) states that the vast majority of tourism enterprises around the world can be classified as small and medium-sized tourism enterprises. Most of them are micro enterprises (less than 5 employees) that generate a small amount of revenue and are dominated by family businesses, particularly in rural areas. Types of enterprises that comprise the tourism industry are:

(1) tour operators;
(2) travel agents;
(3) tourist guide services;
(4) airlines;
(5) transport bureaux;
(6) restaurants and cafes;
(7) hotels and guesthouses;
(8) museums and historical sites and buildings;
(9) sports and recreational sports services;
(10) nature reserve services;
(11) tourism education and training institutions; and
(12) craft industries (Hinson & Boateng 2007: 3).

Contemporary information society has made Tourism a highly information-intensive industry as ICT has a potential impact on tourism business. The use of ICT in the tourism industry cannot be underestimated and is a crucial driving force in the current information driven society (Shanker 2008: 51).

ICT has been revolutionising tourism sector over the years. It has provided new tools and enabled new distribution channels, thus creating a new business environment. The role of ICT tools (see Table 1) in the Tourism industry for marketing, operations, and management of customer services is widely known (Shanker 2008: 51).

Industry Aspects	Application
Site development	Geographic Information System (GIS) used for identification of Tourism site and destination.
Marketing	Advertising and promotion.
Operations	Buying and management of supplies and services.
Customer services	Management of customer relationships through travel booking etc.
Monitoring	Geographic Information System (GIS) and Global Positioning System (GPS) used for managing and monitoring tourist sites.

Table 1: ICT Tools in the Tourism Industry (Shanker 2008)

Impact of ICT on Tourism SMMEs

Technological progress in recent years has made tourism businesses across the globe more innovative. Following are three important innovations which have redefined the organisational structure of world tourism industry (Shanker 2008: 53), namely:

- Development of the Computer Reservation System (CRS).
- Development of the Global Distribution System (GDS).
- The Internet.

Numerous studies show that the tourism and hospitality industry has been transformed by ICT. The Internet has dramatically changed the way in which consumers plan and buy their holidays and other tourism products.

AL-allak (2010) and Shanker (2008) indicate that the World Wide Web has profoundly changed the production, distribution and consumption of tourism products and concludes that ICT is probably the strongest driving force for changes within the tourism and hospitality industry. For example in Egypt, Syria and Lebanon, which represents major tourism destinations in the Arab region, the Internet is used mainly as marketing tool, mostly for

promotional activities by SMMEs. Among tourism SMMEs in Turkey, a major tourist destination in the Middle East, only 26% had Internet access, and only 11% of those with access incorporated the Internet into meaningful marketing information system (AL-allak 2010: 89).

Barba-Sanchez, Martinez-Ruiz and Jimenez-Zarco (2007) and the Organisation for Economic Co-operation and Development (OECD 2006) suggest that on the whole ICT applications can provide several benefits across a wide range of intra- and inter- business operations and transactions.

Adoption of ICT

Since there are many benefits potentially available from the Internet, more and more companies especially small and medium scaled enterprises (SMMEs) are moving towards adoption of ICTs (Tan & Eze 2008). There are a lot of issues to be considered when technologies are being introduced in areas where there has never been any form of technology before. For example, who are the possible adopters? Do they have substantial reasons to adopt the innovation? Would the community perceive the need to adopt the innovation?

According Mapi, Dalvit and Terzoli (2008) and Tan and Eze (2008), diffusion is a process by which an innovation is communicated through certain channels over a period of time among the members of a social system. It is a process that begins with the introduction of the innovation to the population and ends when the population fully adopts it. An innovation is an idea, practice, or object that is perceived as new by an individual or other unit of adoption (Tan & Eze 2008). Serrat (2009: 2) defines innovation as successful exploitation of new ideas, a profitable outcome of creativity, which involves generating and applying in a specific context a products, services, procedures and processes that are desirable and viable. Innovation is a paradigm shift, a new path or pattern adopted by an individual or society; it is where customers change their old patterns and use the new product (Frey 2002).

Adoption is a decision to make full use of an innovation as the best course of action whereas rejection is a decision not to adopt an available innovation (Tan & Eze 2008). According to Mapi, Dalvit and Terzoli (2009), Serrat (2009) differentiate diffusion from adoption in that diffusion process

occurs within a society to all different groups, whereas adoption has to do with the individual's feelings and needs.

Factors that Determine Adoption of ICT by Tourism SMMEs

Tourism SMMEs are slow in adopting ICT in their business due to resource constraints. A number of challenges that reduce the uptake of ICT by tourism SMMEs worldwide include lack of training and capital, limited understanding of the potential of technology, and lack of clear business strategies. The factors that determine adoption of ICT by tourism SMMEs are classified into three major categories (Sahadev and Islam 2005):

(1) Location related factors: refers to the characteristics of the enterprise location, which could have an influence on the intensity of the use of ICT. The geographical location of the enterprise determines the profile of its visitors, the size of its market and the level of competition it has to face. Based on the profile of visitors, the size of the market, or intensity of competition tourism SMMEs may differ in their levels of adoption.

(2) Enterprise related factors: size of enterprise (e.g. number of hotel rooms), the scope of activities in terms of activities the tourism enterprise is engaged, the grade of the establishment, and age of the enterprise. Large tourism enterprises have been found to be more resistant to change than small enterprises and this only happens as long as the investment is not considered. Tourism enterprise with varied lines of activities would find more use in adoption of ICT than enterprises with relatively less span of activities.

The grade which indicates the economic class of the establishment target market may influence adoption of ICT. Establishments of higher grade which targets the high economic class may be more inclined to adopt ICTs due to demand by the customers as well as to enhance their image. Age also is a major influence in adoption of ICT since new establishments find it easier to adopt new technologies that need a complete revamp of the existing system.

(3) The technological resources of the business: effective adoption of several ICT technologies requires a substantial investment of resources. Lack of resources may affect the inclination of small enterprises to adopt costly ICT.

Barba-Sanchez, Martinez-Ruiz and Jimenez-Zarco (2007) and the OECD (2006) suggest that on the whole ICT applications can provide several benefits across a wide range of intra- and inter-business operations and transactions.

Research Methodology

The baseline objective of this study was to investigate the factors that influence the adoption of ICT by tourism SMMEs in Ngaka Modiri Molema District of South Africa. Given that this study was aimed at finding, testing and describing the factors of perceived strategic value of ICT and factors influencing its adoption among tourism SMMEs, the research purposes encompass exploratory, descriptive and explanatory research approaches.

Against the study's intended purpose to test the factors of perceived strategic value of ICT as well as factors that influence its adoption by tourism SMMEs, the appropriate research strategy for this study was a survey. In other words, due to the fact that in a survey respondents may be asked a variety of questions regarding their behaviour, intention, attitudes, awareness, motivation, demographic and lifestyle characteristics (Cooper & Schindler 2003), therefore by using this strategy, it was expected to receive suitable answers from tourism business owners and managers in order to test the factors of perception and adoption.

The implementation of a survey methodology in this study, as well as the information requirements, time constraints and respondent characteristics, dictated a survey questionnaire as the main data collection tool. In this research both fixed-response alternative and Likert scale questions were used in the self-administered questionnaire. Fixed-response questions required the respondent to select from a predetermined set of responses (Cooper & Schindler 2003) from strongly disagree to strongly agree. Using the Likert scale response method respondents showed their level of agreement to the statements with a numerical score. The employees of North West Parks and Tourism Board assisted in distributing, collecting and administering the questionnaires.

The population of interest was the tourism SMMEs in Ngaka Modiri Molema District of South Africa. The unit of analysis was the owner/manager of the tourism SMMEs. The sampling method in this study was probability sampling – a method based on the concept of random selection. Using the information on tourism SMMEs in Ngaka Modiri Molema District available on the database of the Research and Planning Unit of the North West Parks and Tourism, an adjusted sample was determined as acceptable. One hundred and fifty (150) questionnaires were then distributed among the tourism SMMEs in Ngaka Modiri Molema District. One hundred and three (103) responses were collected from the survey, resulting in a response rate of sixty nine (69) percent.

Data capturing was done using Microsoft Excel and the cleaned data was then exported to SAS (version 9.1.3) for statistical analysis. The questionnaires' validity had been ensured through a pilot test conducted to determine that the data collected provide required responses to the research questions to be addressed. Fifteen questionnaires were distributed among owners and managers of tourism businesses including the research manager in the Research and Planning Unit of the North West Parks and Tourism Board. After nine responses were received the necessary changes were made.

Data Discussion

Self-administered questionnaires were distributed to one-hundred and fifty (150) tourism enterprises of which one hundred and three (103) responses had been received, effectively giving a response rate of sixty eight percent. The following sections present detailed data analysis and interpretation of the results. Frequency tables were used and percentages of different variables were calculated.

Business Profile

The distribution of the type of tourism business is shown in Table 2. It indicates that the majority, 71 (68.9%) of the respondents in the tourism SMMEs are involved in providing accommodation; 4 (3.9%) are tour businesses such as travel agencies, 7 (6.8%) are attraction sites such as

museums and natural sites, 6 (5.8%) are restaurants and 15 (14.6%) are other tourism businesses such as event management and tour guiding.

	N	%
Accommodation	71	68.9
Tours	4	3.9
Attraction	7	6.8
Restaurant	6	5.8
Other	15	14.6
Total	103	100.0

Table 2: Type of Tourism Business

Table 3 shows that the majority, 47 (45.6%) of the respondents in Ngaka Modiri Molema District are located in the town of Mahikeng. Zeerust has the lowest, 8 (7.8%) number of respondents. Zeerust, Madikwe and Groot Marico had low response rates due to their location, either on farms or nature reserves, which made it difficult to receive responses from owners and managers because of availability issues. The other areas such as Lichtenburg, Delareyville and Coligny had good response rates with respect to number of business available, but lower compared to the whole sample population.

	N	%
Groot Marico	12	11.7
Zeerust	8	7.8
Mahikeng/Mmabatho	47	45.6
Lichtenburg/Delareyville/ Coligny	20	19.4
Madikwe	16	15.5
Total	103	100.0

Table 3: Town/City where Business is Located

The number of staff employed by the tourism businesses that were reported by the respondents of the survey is shown in Table 4. The majority, 93 (90.2%) of respondents have less than 30 employees. According to the definition of SMMEs in South Africa as reflected in the National Business Amendment Act no. 23 of 2003, the majority of the tourism businesses in Ngaka Modiri Molema District can be classified as small and micro enterprises.

	N	%
Less than 5	24	23.3
5-9 employees	37	35.9
10-19 employees	25	24.3
20-29 employees	7	6.8
30+ employees	10	9.7
Total	103	100.0

Table 4: Number of Employees

The majority, 57 (55.3%) of the respondents have between 2 and 5 computers in their businesses. Only 8 (7.7%) of the respondents have more than 5 computers. The results in Table 5 match those of Table 4 which reflects that the majority of businesses have less than five employees which influences the number of computers in the business.

The number of computers is also influenced by annual turnover of the type of business. In this category of enterprises, lower turnover has an influence on financial resources to finance the cost to develop ICT. Fewer employees imply fewer employees who use the computers. In most cases it is the manager or owner, who can utilises the computer.

	N	%
None	14	13.6

1	24	23.3
2-5	57	55.3
6-9	6	5.8
10+	2	1.9
Total	103	100.0

Table 5: Number of Computers per Business

Perceptions about ICT

In this section the general perception of respondents about ICT from relative advantage of ICT over traditional ways of communicating with customers, suppliers or partners are analysed. This often relates to the economic ways of addressing customer queries and provides information to customers about products and services. As depicted in Table 6, 98 (95.2%) of the respondents perceive ICT to be an effective way of communicating with customers, besides 4 (3.9%) who are not sure and 1 (1.0%) percent who disagrees.

	N	%
Disagree	1	1.0
Not sure	4	3.9
Agree	46	44.7
Strongly agree	52	50.5
Total	103	100.0

Table 6: Communicating with Customers

Table 7 shows that 98 (95.2%) of the respondents perceive that ICT improves organizational relationship with customers and suppliers as opposed to 5 respondents (4.9%) who were not sure.

	N	%
Not sure	5	4.9

Agree	55	53.4
Strongly agree	43	41.7
Total	103	100.0

Table 7: Improve Organizational Relationship

Correlation between the results depicted by Table 6 (effective way of communicating with customers) and those of Table 7 (improves organizational relationship with customers and suppliers) is significant (0.684). Businesses that perceive ICT to be an effective way of communicating with customers also perceive ICT adoption to be improving relationship with customers and suppliers (Table 8).

		Effective way communicating with customers	Relationship with customers and suppliers
ICT is an effective way of communicating with customers	Pearson Correlation	1	**.684****
	Sig. (2-tailed)		.000
	N	103	103
Improvement of the organisational relationship with customers and suppliers	Pearson Correlation	**.684****	1
	Sig. (2-tailed)	.000	
	N	103	103

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

Table 8: Correlations

Nine-nine (96.1%) of the respondents perceive ICT to be an economic way of answering customer queries against 4 (3.9%) percent of the respondents who were not sure. Furthermore, the majority of respondents, 91

(88.3%) perceive ICT to enhance the businesses' competitive advantage (Table 9) as compared to 12 (11.7%) respondents who were not sure or disagreed with this statement.

	N	%
Disagree	1	1.0
Not sure	11	10.7
Agree	51	49.5
Strongly agree	40	38.8
Total	103	100.0

Table 9: Competitive Advantage

Use and Adoption of ICT by Tourism Businesses

The impact of different factors on ICT adoption by tourism SMMEs are investigated in this section. The results include the impact of size of the organisation, level of knowledge among owners, improvement of business performance, location of business and ICT costs. Moreover, Chung (2006) suggested the adoption behaviour of SMMEs may be predicted through the type of Internet usage.

The majority, 90 (87.4%) of the respondents in this study, used the Internet for business purposes. Furthermore, 70 (68.0%) of the respondents have an operational website, compared to only 33 (32.0%) of the respondents that reported no website for their businesses.

According to Table 10, the majority, 62 (60.2%) of the respondents indicated that the size of their business has an impact on ICT adoption compared to 27 (26.2%) who disagree.

	N	%
Strongly disagree	8	7.8
Disagree	19	18.4
Not sure	14	13.6
Agree	47	45.6

Strongly agree	15	14.6
Total	103	100.0

Table 10: Size of Organisation

Table 11 shows that the majority, 88 (85.3%) of the respondents in this study felt that improvement of business performance in terms of sales revenue has an impact on ICT adoption compared to only 2 (5.8%) of the respondents who disagreed.

	N	%
Strongly disagree	2	1.9
Disagree	4	3.9
Not sure	9	8.7
Agree	46	44.7
Strongly agree	42	40.8
Total	103	100.0

Table 11: Business Performance

In addition, 71 (68.9%) of the respondents specify that the level of knowledge to use a computer among owners has an important impact on ICT adoption. The majority, 67 (65.1%) of the respondents also signify that location of enterprise has an impact on adoption of ICT. Finally the majority, 68 (66.0%) of the respondents point out that ICT costs have an impact on ICT adoption.

Conclusion and Recommendations

The level of adoption of ICT by tourism SMMEs in Ngaka Modiri Molema District shows that there is a high level usage of ICT by tourism SMMEs for business purposes. The study proposes that ICT usage also determines the adoption behaviour. The results obtained in the study depict a high level of ICT adoption because the majority of the tourism SMMEs in Ngaka Modiri

Molema District uses ICT for business purposes. Results from the data analysis indicate that a large percentage of respondents indicate that several factors have an impact on adoption of ICT such as size and location of enterprise, business performance in terms of sales revenue, ICT knowledge among owners and ICT costs have an influence on the benefits realised by tourism businesses. The factors that impact on adoption, also acts as a hindrance to adoption of ICT by tourism SMMEs in Ngaka Modiri Molema District.

According to the study, the perception about adoption of ICT by tourism SMMEs in Ngaka Modiri Molema District plays an important role in decision making to adopt ICT. The majority of tourism SMMEs in Ngaka Modiri Molema District perceives ICT adoption to add value to the business, hence a large percentage usage of Internet and websites for business purposes. The majority of these businesses are aware of the benefits of ICT, such as being an effective and an economic way of communicating with customers, competitive advantage to be gained from adoption of ICT and the improvement of business performance in terms of sales revenue.

Some recommendations for decision-makers, entrepreneurs and tourism practitioners in the tourism industry for SMMEs are suggested by this study. Ngaka Modiri Molema District local government should develop a district vision, strategic plan and policy guidelines for SMMEs ICT activities. All the tourism stakeholders should be involved in the development of a tourism strategy. Government can also help address barriers to adoption by helping SMMEs reduce ICT connection costs and increase coverage by expanding infrastructure. ICT adoption can be increased through training workshops that are flexible and suitable for manager-owners or employee's role or position, or hardware/software applications. Government can also increase the affordability of ICT through grants, credits, lease options and tax incentives.

Since the study only focused on ICT adoption of tourism SMMEs, it would have to be expanded to include the role of government and other organizations, such as international organizations, SMME support agencies and industry organizations, in adoption of ICT by tourism SMMEs.

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Generation Y Consumers' Response to Brand Building Activities on Social Media Networks[1]

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Abstract

This study aims to establish whether Generation Y consumers interact with brands through social media platforms, specifically social networking sites, or if these consumers predominantly use these sites for socialising and/or other purposes. The motive for this study was to establish how social networking sites are used as brand building tools and whether these efforts are received as intended by Generation Y consumers. The influence of marketers' efforts on social networking sites and the effect this has on Generation Y consumers were explored in this study. A focus group discussion session was held with participants of the same age composition as Generation Y (18 to 30 years old) to identify major issues to be incorporated in the survey instrument. Thereafter, a convenience sample comprising 132 respondents in the same age group was requested to complete a self-administered questionnaire.This study identifies four social networking sites that are predominantly used by Generation Y respondents and two distinct market segments, one favourably inclined towards commercial activities on social networking sites, and one that is not quite supportive of such commercial activity.

Keywords: Generation Y consumers, social media, brand building

Introduction

In marketing management literature, like most other specialisations in management discipline subjects, each era spawns new concepts and ideas for exploration. In the current era, the power of social media for marketing purposes is an idea that features prominently. Richard Binhammer from Dell Inc. describes this era as the 'connected era' [where] 'people come online to find and share information as well as connect with each other' (Armono 2009). There are numerous definitions of social media. Ryan and Jones (2009: 152) define social media as: '... the umbrella term for web-based software and services that allow users to come together online and exchange, discuss, communicate and participate in any form of social interaction'.

Amongst the more popular social networking media are: Facebook, YouTube, Flickr, Twitter, Blogs, Vlogs, LinkedIn and MySpace. In response to the growing threat from social networking portals, Google has launched Google+ which links its Google Docs, Gmail, Photos and Calendar portals.

These social media have the capability to connect people rapidly, not only for social engagement but also for other causes such as lobbying for environmental issues or political motives. The political turmoil raging in the Middle East has largely been driven by their population's ability to mobilise protesters through social network channels. Business has little control over the content of input into social media by their consumers and other interest groups. This indicates that social media has the power to create a political mind-set that can depose governments and it can also build a business or destroy its reputation in the marketplace. So it is essential for business to have a good understanding of the many facets about social media, especially consumer attitudes towards and perceptions of social media. Three factors are important considerations for businesses in managing their social network communication strategies according to Odden (2008). The three factors are:

- **The Magnitude of Change**

Odden (2008) indicates that: '… one billion people are now online, a figure that was expected to double by 2011. Every day 500 000 new users come online for the first time. Content is exploding. There was more content on YouTube in 2006 than on the Web in 2000'. As computing power moves to handheld devices such as cellular phones, social media will continue to grow

at an exponential rate, thus bringing about a rapid change in lifestyle, particularly for the new generation of consumers.

- **The Value of Personal**

Social media is moving away from 'traditional, rational, objective, institutional' perspective to a more 'subjective, emotive, personalised and human' perspective.

- **Connecting with Customers**

Social networking originally served the human need for belonging; however, it has now expanded to meet wider needs such as political lobbying, information exchange on specific topics and obtaining product information from users of that product. Modern-day cell phones give easy access to social media. According to a USA survey conducted in 2010, '30% of smartphone users accessed various social networks using their cell phones' (Social Networking 2012). Social media give individuals freedom of expression, as marketers and other affected stakeholders have no control over discussions or comments made by participants online.

Social media also gives businesses an opportunity to engage their customers in two-way communications. Word-of-mouth marketing is now much easier for consumers because comments posted on social media networks are accessible to potential consumers everywhere regardless of geographic locality. Communicating with customers in the social media environment requires professional skills, as it is not a mere chat line between people in a social environment. This new development has created a niche for businesses to offer social media marketing services to client firms. The research reported in this article is of importance for businesses that wish to communicate effectively with consumers through social media channels.

Building Brand Equity

The importance of branding has been known to marketers for many decades. With few exceptions, brand building is a normal marketing function

embraced by not only large enterprises but even small businesses (Webster & Keller 2004). Traditional channels for brand building include a diverse range of media such as print media, television, the Internet, cinema, billboards, pamphlets, brochures and audio media. However, in the past decade social media has become a new tool for building brand equity.

Generation Y Consumers in the 'Connected Era'

Generation Y, also known a**s** Millenials, the Echo Boom Generation and the Net Generation were born between the late 1970s and the 2000s (Tapscott 2009). Around the world, and especially in the more developed countries, this cohort of consumers access their information from much wider sources than their predecessors. According to Goetz and Barger (2008), this is the generation that grew up with Facebook, MySpace, YouTube, instant messaging, cell phones and the Internet. They spend on average 70 hours a week (this is presumably data from the USA) on electronic communication media such as cell phones, iPods and the Internet.

Numerous social networking media cater specifically for Generation Y consumers. Schawbel (2009) indicates that these sites provide content to this generation of consumers that caters for a wide range of interests, such as career development (BrazenCareerist.com), entertainment and dating (MyYearbook.com), college life (thequad.com), volunteering and fundraising (coolpeoplecare.org), student life (Unigo.com) achieving sustainable values (MakeMeSustainable.com), mentoring needs (iMantri.com), and career development (FDCareer.com). The wide range of social networking sites targeted specifically at Generation Y emphasises the fact that this cohort of consumers is actively seeking a digital networking presence. So it is important for business to understand the consumer behaviour drivers for this market.

A Marketing Network (2009) report (cited in Sago 2010) indicates that 18 to 24-year-old Generation Y consumers (in the USA) use Twitter for the following purposes: 85% follow friends, 54% follow celebrities, 29% follow family members and 29% follow companies. This study revealed that just under one third (29%) of those surveyed use this social media vehicle to engage with companies.

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Word-of-Mouth in the Online Social Networking Era

Universal McCann (Smith 2009) conducted research amongst 22729 active Internet users, aged 16 to 54, in 38 countries between November 2008 and March 2009. In a global market of 625 million active Internet users, the following statistics are estimated: 82.8% watch video clips online; 71.1% visit a friend's social network page; 62.5% create a profile on a social network; 50.2% upload photos; and, of relevance for this study, 27.6% (i.e. just over one out of four people surveyed) seek opinions on products and brands. It is reasonable to speculate that over the years, more consumers will rely on social media for product information. In the survey, consumers were asked who they would seek an opinion from for brand purchase decisions. The responses as reflected in priority order below shows that social networks play an important role in providing a broad spectrum of consumers with the required product information.

1. A family member
2. A close friend
3. A good contact on a social network
4. A neighbour
5. A store assistant
6. The author of a blog you read regularly

Amongst the countries surveyed in the Universal McCann study by Smith (2009), Internet penetration is lowest in India (7.1%); followed by South Africa (9.4%), while at the other extreme the highest penetration rates are in Norway (86%), Finland (83%) and the Netherlands (82.9%). So South Africa still has much scope for increased Internet penetration before social network sites become significant sources of product information.

In an earlier Universal McCann study, respondents indicated their opinion on the statements about blogging listed below (Smith 2008:25):

1. 56% agreed that 'blogging is a good way to express oneself'.
7. 36% said that they 'think more positively about companies that have blogs'.
8. 33% said that they 'have a favourite blog that they read regularly'.
9. 32% 'trust bloggers' opinions on products and services'.

10. 31% agreed that 'blogging is an important way to socialise with friends'.

This confirms the well-known fact in marketing that word-of-mouth is a very powerful marketing tool that has just been strengthened by the availability of social networks. The era of digital, Internet-based word-of-mouth is now firmly established and can be a silver lining for marketers if managed with care.

Having discussed the wide use of social networking for business and other purposes, the problem statement and research objectives for this study can now be formulated. The focus in this article is on Generation Y consumers' use of social media.

Problem Statement

Generation Y consumers were born during an era when computers were becoming widely available to First World consumers. Over time, less developed countries have also embraced computer technology. The growing middle class generation Y consumers in South Africa can be expected to have access to computers at one or more venues such as places of education, the workplace, Internet cafes and at home. Cell phones are widely used, even in Third World countries by Generation Y consumers to access information, particularly for consumer products that are of relevance to them.

Traditional media will still play a role in marketing for many years to come. The advent of television did not eliminate radio, magazines or newspapers. However, audience and readership patterns do shift over time with each new development, so social media as a communication tool will impact on how people inform themselves about consumer products.

Companies such as Klout and Audi reward their loyal customers with corporate gifts (Marketing Network 2011). Nowadays most companies request a 'like us on your Facebook page' button to be activated by network browsers who visit their websites. These trends suggest that brand building by using social network sites will be an on-going challenge for marketers and a silver lining to escape the recessionary dark clouds still pervading in many countries particularly in the Eurozone region.

There is lack of research on how consumers in general and Generation Y consumers in particular embrace social networking sites for commercial purpose. This study aims to contribute to this knowledge gap by investigating Generation Y's consumer behaviour attributes relating to social network sites by exploring the following five research objectives.

Research Objectives are to establish:

1. the activities Generation Y consumers participate in on social networking sites.

2. if Generation Y consumers are using a diversity or concentration of social networking sites.

3. whether businesses that make use of social networking sites targeted at Generation Y are achieving their desired outcomes.

4. whether Generation Y consumers have shown resistance to or acceptance of brand promotion and business activities on social networking sites.

5. the major brands that Generation Y consumers come across on social networking sites.

Research Methodology

Before the questionnaire could be generated and distributed to the allocated number of respondents, a focus group study was carried out as a primary means to design the questionnaire. Eight respondents constituted the focus group discussion, they were all students from the University of KwaZulu-Natal. Respondents had to fall within the age category of 18–26 years old, the age group that constitutes Generation Y consumers. In addition, it was necessary for respondents to have access to the Internet and also to be users of social networking sites. A structured questionnaire was distributed to 150 potential respondents who constituted a convenience sample for this study. Responses were measured using a five-point Likert scale. In a comparative research, Brad Sago's (2010) study comprised 293 university students in the age group 18–22 years old, who were also required to complete a self-administered questionnaire.

Reliability and Validity

All 150 questionnaires were returned however, 18 questionnaires were eliminated after statistical reliability testing reflected inconsistencies in the responses provided by the respondents. The result from the test yielded an alpha coefficient of 0.773 for related questions in the survey instrument for the remaining 132 completed questionnaires. Only face/content validity was used to test the validity of the questionnaire. Face validity is used to test whether the instrument measures the construct it is designed to measure (Sekaran & Bougie 2010:160).

Empirical Results

Demographics

More than half (54.5%) of the respondents were males, female respondents accounting for 45.5% of the sample. Nearly 94% of respondents were in the age range 18–22, with the remaining 6.1% of respondents in the age range 23–26.

In terms of education, 79.5% of the respondents had a Grade 12 level of education, followed by 17.4% who had a degree. Only 1.5% of the respondents claimed to have 'other' educational levels and 1.5% had diplomas.

Usage of Internet and Social Networking Sites

Respondents indicated more than one location for their access to the Internet. The survey revealed that 43.2% of respondents access the Internet from home, 43.2% from university, 39.4% from cell phones, 2.3% from work and 3% from other sources. It was revealed that almost 58% of respondents accessed social networking sites 16 or more times per week, while 21% accessed social networking sites only 1 to 5 times per week. The remaining respondents accessed social networking sites 6 to 10 times (13.5%) and 11 to 15 times (7.5%) per week. Respondents' activities on social networking sites indicated that 63.6% of respondents use social networking sites for entertainment purposes, while 81.1% of respondents use social networking sites for chatting. It was also found that 31.8% of respondents use social

networking sites for finding friends and that 48.5% of respondents use these sites for networking. Furthermore, 65.2% of respondents use social networking sites for maintaining friendships and lastly, 17.4% respondents use social networking sites for keeping current with their favourite brands and companies, while 23.5% of respondents claimed to have actually inter-acted with companies, suggesting that the remaining 76.5% of respondents do not interact with companies. This information indicates that businesses have to be able to engage with and interact with consumers on social networking sites if they are to win the confidence of their target market.

The second objective of the study was to establish whether Generation Y consumers are using a diversity or a concentration of social networking sites. Table 1 below illustrates that 90.9% of respondents use Mxit, 90.2% of respondents use Facebook and much fewer respondents (22%) use Twitter. MySpace (2.3%) and Flickr (1.5%).

Table 1. Social Networking Sites Used by Respondents (n=132)*

Social networking site	Frequency	% of respondents
Facebook	119	90.2
Twitter	29	22
YouTube	59	44.7
Mxit	120	90.9
Myspace	3	2.3
Flickr	2	1.5
Others	10	7.6

*Respondents could indicate more than one option

From the results depicted in Table 1, it suggests that Generation Y consumers are using a concentration of social networking sites in South Africa, with Mxit and Facebook featuring prominently, followed to a much lesser extent by YouTube and Twitter.

Table 2 below depicts the effect that brand advertising on social networking sites have on consumer behaviour. It was found that the majority

of the respondents (78%) agree that some brand advertisements on social networking sites are useful, compared to 4.5% of respondents who disagree with the statement. Table 2 also shows the effect of consumers visiting brand pages on social networking sites; and consequently whether this strengthens the brand image in the mind of the consumer or not. It was found that 74.3% of respondents agreed that the brand's image is strengthened, whereas 11.3% of respondents did not agree with the statement. From these results, it can be deduced that if businesses can encourage consumers to view their brand pages, this will, on balance, lead to the strengthening of the brand image in the consumers' minds.

With regard to advertisement-led purchasing Table 2 shows that after viewing a brand advertisement on a social networking site, 57.6% of respondents did not react by buying the brand. In contrast, 23.5% of respondents indicated that they bought a branded product after viewing its advertisement on a social networking site. A large number (61.4%) of the respondents agreed that visiting a brand's page on a social networking site reinforces brand loyalty. The implication thereof for businesses and their brands is evident. Businesses have to manage their brands with particular care to ensure that target consumers visit these brand pages to reinforce their brand loyalty. This is imperative, as reinforced brand loyalty ensures repeat purchases. It is also very significant for businesses to note that it costs five times more to acquire a new customer than it does to retain an existing one (Payne and Frow1999). Just over half of the respondents (56.1%) indicated that they do not consciously look for brand information on social networking sites, while only 19.7% of respondents claimed to specifically look for brand information on social networking sites.

Table 2. Consumer Reactions to Commercial Activity on Social Networking Sites (%) (n=132)

Variable	Strongly Agree	Agree	Unsure	Disagree	Strongly Disagree
Usefulness of brand advertisements	29 (22)	74 (56)	23 (17.4)	2 (1.5)	4 (3)

Strengthens brand image	36 (27.3)	62 (47)	19 (14.4)	13 (9.8)	2 (1.5)
Purchased brand products	8 (6.1)	23 (17.4)	25 (18.9)	45 (34.1)	31 (23.5)
Reinforces loyalty	17 (12.9)	64 (48.5)	32 (24.2)	12 (9.1)	7 (5.3)
Brand information	33 (25)	41 (31.1)	32 (24.3)	19 (14.4)	7 (5.3)
Use for commercial purposes	69 (52.3)	39 (29.5)	20 (15.2)	4 (3)	0
Ignore brand advertisements	19 (14.4)	25 (18.9)	28 (21.2)	54 (40.9)	6 (4.5)
Company information distortion	14 (10.6)	39 (29.5)	63 (47.7)	15 (11.5)	1 (0.8)
Trustworthy brand information	7 (5.3)	26 (19.7)	70 (53)	22 (16.7)	2 (5.3)
Invite others to company page	12 (9.1)	40 (30.3)	35 (26.5)	26 (19.7)	19 (14.4)

Table 2 also shows that of the 132 respondents, 81.8% agree with the statement that companies now use social networking sites for commercial purposes. One third (33.3%) of the respondents claim to ignore brand advertisements on social networking sites, whereas 45.4% of respondents said that they pay attention to brand advertisements.

Regarding companies distorting their information pages on social networking sites, data in Table 2 shows that 40.1% of respondents agree with this statement. On the other hand almost half the respondents (47.7%) are unsure of whether companies actually do distort their information pages on social networking sites or not. Businesses have to be more transparent and

honest about their brand information as this would remove any doubt from the consumers' minds about the authenticity of the information provided on such company pages.

The above-mentioned point can be further reiterated by looking at the following information in Table 2. The table depicts that 53% of respondents remain unsure about being able to trust brand information that is found on social networking sites. Consequently, as previously highlighted in this article, businesses have to be transparent about any brand information that is available on their brand on social networking pages. Feedback, both positive and negative, should be left posted as users will recognise attempts to mask negative feedback, and this can cause harm to the firm's reputation in the marketplace. Businesses can and should respond to negative feedback in order to defend themselves when necessary. Deleting or editing comments, obstructs a necessary dialogue and compromises the very nature of social media (Goetz & Barger 2008).

The last variable that Table 2 depicts is the willingness of consumers to invite people to join company pages on social networking sites. Survey data revealed that 39.4% of respondents indicated that they would invite others to join company pages, whereas 34.1% of respondents said that they would not do so; and 26.5% of respondents were uncertain as to whether they were willing to invite people to company pages on social networking sites. This information suggests a strong need by businesses to retain the confidence of those who indicate that they are willing to invite others to join company pages on social networking sites.

Emanating from these findings, four key factors that businesses should address, include: driving online advertisement-led purchasing, encouraging consumers to look for brand information on social networking sites, increasing the credibility of brand information on social networking sites and persuading consumers to invite others to their brand pages on social networking sites.

In the survey, it was further revealed that the constant advertising of brands on social networking sites creates an awareness of the brand for 32.6% of respondents. For 23.5% of the respondents, constant exposure to brand advertisements creates awareness and an interest in the brand while 17.4% of respondents agree that being exposed to constant brand advertising creates awareness, interest and a desire for the brand.

The majority of respondents (84.9%) indicated that they usually use search engines such as Google or Yahoo to look for information about brands or companies. This suggests that consumers are not looking for information about brands or companies on social networking sites; rather they choose to resort to traditional search engines. This finding suggests an area of interest that businesses should take note of and their future task is therefore to stimulate the search of brand or company information from within their pages on social networking sites. Attitudes towards commercial activities would be of interest to those who manage corporate content of their social networking sites.

Table 3 depicts whether Generation Y consumers show resistance or acceptance of brand promotion and business activities on social networking sites.

Table 3. Attitudes Towards Commercial Activities on Social Networking Sites (%) (n=132)

Variable	Strongly Agree	Agree	Unsure	Disagree	Strongly Disagree	
Commercial activity is annoying	21 (15.9)	40 (30.3)	33 (25)	32 (24.2)	6	(4.5)
Invasion of privacy	10 (7.6)	16 (12.1)	50 (37.9)	44 (33.3)	11	(8.3)

The above table indicates that 46.2% of respondents agree that they find any commercial activity on social networking sites annoying, while 25% of respondents remain unsure towards this statement. Table 3 also depicts that 41.6% of respondents disagree that commercial activities on social networking sites are an invasion of privacy. This information is another indicator that a large portion (41.6%) of the generation Y respondents in this study are not averse to commercial activity on social networking sites.
An objective of this study was also to ascertain the major brands that Generation Y consumers come across on social networking sites. It was

found that 30.3% of respondents recalled five brand advertisements from social networking sites, 16.7% of respondents recalled three; 9.8% recalled one, 9.8% recalled two and 14.4% recalled four. In addition, the remainder of respondents (18.9%) did not recall any brand advertisements from social networking sites. Brand names that were recalled originated from clothing, food, beverages, alcohol, cellphone network providers, satellite television providers, banks, computer brands, retail stores, sportswear, magazines, beauty products and other miscellaneous products and services. The most common brand that was recalled was Nike (n=47), followed by DSTV (n=23) and Guess and Adidas in joint third place (n=15). Overall brand recall from social networking sites was very low amongst the survey respondents.

Brand recall would be a function of the amount of time spent on social networking sites. Survey data reflects that 35.6% of respondents spend less than five hours a week using social networking sites, 25.8% of respondents spend six to 10 hours, 18.9% spend 11 to 20 hours, 6.8% spend 21 to 30 hours and 12.9% spend more than 30 hours per week.

Significantly for marketing purposes, 22.7% of respondents concur that constant advertising of brands on social networking sites creates awareness, interest, desire and leads to purchasing (action) the brand (AIDA effect) in Marketing. So advertising on social networking sites does seem to lead to actual purchases of the products. On the other end of the spectrum, 3.8% of respondents indicated that brands that are constantly advertised to them on social networking sites have no impact on them.

Factor Analysis

Factor analysis identifies the structure of a set of variables, and provides a process for data reduction (Hair *et al.* 1998). In this study factor analysis was conducted to establish the variables that affect consumer responses towards brands on social networking sites. For the purpose of this research study, the perceptions of consumers of the presence of brands on social networking sites and how this affects consumer behaviour were examined to understand if the factors can be grouped; and to reduce the variables to a smaller number. The Kaiser Meyer Olkin (KMO) measure was used to assess the effectiveness of factor analysis for the survey data, which produced a result

of 0.706, indicating a moderately high degree of correlation amongst the variables.

The Principal Components method of factor analysis was used to extract the factors. Only Eigenvalues greater than 1 are considered significant for interpretation purposes (Hair *et al.* 1998; Kinnear & Taylor 1991).

Table 4. Total Variance Explained

Component	Initial Eigenvalues		
	Total	**% of variance**	**Cumulative %**
1	2.897	26.340	26.340
2	1.521	13.823	40.163
3	1.207	10.969	51.132
4	1.036	9.421	**60.553**
5	0.993	9.025	69.577
6	0.813	7.387	76.965
7	0.657	5.970	82.934
8	0.579	5.267	88.201
9	0.545	4.956	93.157
10	0.482	4.378	97.535
11	0.271	2.465	100.000

Extraction method: Principal Component Analysis

Table 4 reflects 11 factors and their relevant percentage of variance explained. Four factors with Eigenvalues greater than 1 represent 60.553% of the variance explained. Factor 1 accounts for most of the variance with 26.340% of variance explained and thereafter the following 10 factors increase the total variance explained by a very small percentage. Table 5 which follows is based on factor rotation. For the purpose of comparison, Varimax and Quartimax rotation have been used and will be interpreted and discussed jointly. Naming factors was based primarily on the subjective opinion of the researcher as advocated in the literature (e.g. Aaker *et al.* 2001).

Table 5. Interpretation of Extracted Factors

Variable Attribute	Varimax	Quartimax
Factor 1: Brand value		
Strength of brand image increases	0.847	0.850
Reinforced brand loyalty	0.794	0.802
Usefulness of brand adverts	0.719	0.717
Willingness to invite people to join company (networking) pages	0.582	0.596
Factor 2: Resistance to commercial activity		
Commercial activity is annoying	0.621	0.609
I do not search for brand information	0.848	0.853
I ignore brand adverts	0.641	0.618
Factor 3: Privacy		
Commercial activities are an invasion of privacy	0.788	0.777
Factor 4: Information		
Companies' commercial purposes	0.532	0.531
Brand information can be trusted	-0.471	-0.462
Companies distort information	0.746	0.745

Factor 1: Brand Value

Factor 1 explains 26.34% of the variance, which accounts for most of the variance. Three out of the four variables under Factor 1 have values above 0.7, which indicates moderately high degrees of correlation and depicts that the commercial value of brands to the consumers is particularly significant as it affects their perception of the brand image and usefulness of brand advertisements. This then leads to an increased willingness to invite others to the relevant company's networking pages.

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Factor 2: Resistance to Commercial Activity
Factor 2 accounts for 13.823% of the variance. All three variables under Factor 2 have values above 0.6, which indicates a moderate degree of underlying correlations. It can be deduced that if respondents find any commercial activity by companies on social networking sites to be annoying, then they will also not look for brand information on these sites. In addition respondents will also ignore brand advertisements on social networking sites.

Factor 3: Privacy
Factor 3 explains 10.969% of the variance. Factor 3 has a single variable with a value above 0.7, which indicates a high score for this factor. This suggests that some consumers could perceive commercial activities on social networking sites to be an invasion of privacy. Furthermore, it can be deduced that if respondents perceive commercial activities to be an invasion of privacy, they are less inclined to interact with companies on social networking sites, and will also be negative towards companies using social networking sites for commercial purposes.

Factor 4: Information
Factor 4 accounts for 9.421% of the variance. It can be inferred that if respondents believe that companies distort the information on their brand pages on social networking sites, then they are less likely to trust such brand information.

Market Segments
Cluster analysis was conducted to establish if different market segments exist amongst the survey respondents. For the purpose of this research study 131 cases were reorganised into homogeneous subgroups. Table 6 which follows below indicates that the cases can be processed into two clusters. Cluster centre scores were weighted on a five-point rating scale, where 1=strongly agree and 5= strongly disagree.

Table 6. Final Cluster Centres (n=131)

1=Strongly Agree, 2=Agree, 3=Unsure, 4=Disagree, 5=Strongly Disagree	Cluster	
	1 (n=47)	2 (n=84)
Strengthened brand image	2.72	1.77
Increased brand loyalty	3.04	2.13
Brand adverts on social networking sites are useful	2.49	1.85
I invite people to company pages	3.79	2.57
I do not search for brand information	1.87	2.76
Companies use social networking sites for commercial purposes	1.81	1.61
I ignore brand adverts	1.94	3.63
Companies distort brand information	2.55	2.65
Brand information can be trusted	2.94	2.99
Commercial activity is annoying	1.87	3.18
Consumer privacy is invaded	2.81	3.46

Table 6 shows that in this study 84 (64%) out of 131 respondents are more accepting of statements approving commercial activities on social networking sites while disagreeing with negative statements about commercial social networking sites.

Cluster 1 respondents displayed a tendency to be more resistant towards commercial activities on social networking sites. For example, for the statements 'I do not search for brand information' and 'Commercial activity is annoying' cluster 1 respondents have cluster centre scores of 1.87 each, demonstrating their agreement with the statements and displaying their resistance to commercial activities on social networking sites.

Cluster 2 respondents, on the contrary, displayed tendencies of being more supportive of commercial activities on social networking sites. For example, for the statements 'I do not search for brand information' and 'Commercial activity is annoying', cluster 2 respondents have cluster centre

scores of 2.76 and 3.18 respectively. This demonstrates their disagreement with the statements and displays their acceptance of commercial activities on social networking sites. This finding can be related to research results tabulated in Marketing Network report (2009) which reflected that 29% of Generation Y consumers follow companies on Twitter. Furthermore, in the McCann Universal study conducted by Smith (2009), where it was revealed that consumers in general (sample aged 16 to 54 – not all Generation Y consumers) use 'A good contact on a Social Network' for product information, is also in support of the finding that a segment of consumer market, Generation Y and other market segments, are not averse to commercial activity on social networking sites.

It should also be noted that some statements elicited similar responses from both cluster 1 and cluster 2 respondents. A larger and scientific random sample might have differentiated these statements more sharply into either cluster.

The above analysis suggests that there are at least two distinct market segments amongst Generation Y social media users.

Conclusion and Recommendations

All objectives set for this study were achieved. Overall, this research has revealed that Generation Y respondents who participated in this study participate in a range of activities on social networking sites using a concentration of a few social networking sites. The research findings showed that the social networking sites that are used predominantly are Mxit and Facebook, followed by YouTube and Twitter. The findings of this study also revealed that many respondents were quite accepting of commercial activities on social networking sites and there is some evidence to suggest that businesses are achieving their desired outcomes.

It was also established that the majority of the respondents generally do not view commercial activities on social networking sites as annoying or as an invasion of privacy. Furthermore, one key aim of this study was to find the brands that Generation Y consumers come across on social networking sites. The most common brand that was recalled by respondents was Nike, followed by DSTV and then Guess and Adidas jointly.

Despite recessionary conditions lingering in many economies around the world, social networking media could provide marketers with a silver lining for sustainable growth amongst Generation Y consumers and possibly other demographic segments of their consumer markets.

Recommendations for Marketers

The importance of revealing the social networking sites that are predominantly used by Generation Y consumers is significant for marketers and businesses alike. The research findings highlight the social networking sites that businesses are recommended to focus on, if they are to reach their target markets and achieve their desired outcomes, whether these be building brand image, reinforcing brand loyalty, encouraging brand purchasing or even persuading Generation Y consumers to invite others to their firm's brand pages on social networking sites. Given that it was found that respondents were generally (but not completely) willing to accept commercial activities on social networking sites, three key factors were raised that business marketers need to address with regard to social networking sites: 1) driving online advertisement-led purchasing, 2) encouraging consumers to look for brand information on social networking sites and 3) increasing the credibility of brand information on social networking sites.

Furthermore, research findings suggest that if respondents find brand advertisements on social networking sites to be useful, this will strengthen their perception of the brand image as well as their brand loyalty. This then leads to an increased willingness to invite others to such brand or company pages. Therefore marketers must ensure that their brand advertisements that are targeted at Generation Y consumers are both relevant and appealing. In addition, findings from the research study suggests that if respondents find any commercial activity by companies on social networking sites to be annoying, then they will ignore brand advertisements on these sites. Business marketers are thus obliged to make sure that whatever commercial activities they participate in on social networking sites do not annoy their target markets. What annoys this consumer market should be established through market research.

Research findings also showed that some respondents perceive commercial activities to be an invasion of privacy, so they are less inclined to interact with companies on social networking sites, and will also be negative towards companies using social networking sites for commercial purposes. Businesses that target Generation Y consumers too aggressively are likely to meet with adverse consumer response.

Furthermore, the research revealed that some respondents believe that companies distort information about their brands on social networking sites, so they are less likely to trust such brand information. Therefore, businesses need to be transparent and honest with regard to any information that appears on their brand pages that are targeted at Generation Y consumers on social networking sites.

A key finding of this study confirmed that respondents could be separated into two distinct clusters. One cluster of respondents seem more accepting of commercial activities on social networking sites, while another cluster of respondents appear not to be so inclined. These results suggest that it would be most beneficial for marketers to find consumers that accept commercial activity on social networking sites, and specifically target their marketing efforts at these consumers, in order to achieve commercial success.

Recommendations for Future Studies

Treadaway and Smith (2010) suggest five broad themes that will define social media and social marketing for years to come. These themes can also be considered as possible areas of research for future research studies.

Theme 1: The need to share information.

Theme 2: Immediacy is here to stay.

Theme 3: Everyone is a source of information, and everyone is biased.

Theme 4: Noise level.

Theme 5: Melding of worlds.

In addition to factor and cluster analysis, discriminant analysis of data should also be undertaken in future studies to identify the strength of variables that separate different market segments in the commercial social network media category. This study can be simulated on a broader sample nationally and globally and should also include older groups of consumers.

Finally, as stated earlier, it is necessary for business to know what aspects of their commercial activity on social networking sites annoys Generation Y consumers, and consumers in other market segments. Likewise, it is also important to establish what aspects of commercial content is appreciated by Generation Y consumers and consumers in general. There is considerable scope for further research in social network marketing.

Limitations of the Study

The exploratory data collected for this research was based on verbal responses collected from a single focus group study. During this research, respondents were only given verbal and written reference to social networking sites, and were not presented with any visual cues and/or physical interaction with either brands or social networking sites during the collection of data. Consequently, one cannot be certain about what respondents had in mind when responses were provided. The number of respondents used in this study was only 132 and not necessarily representative of the entire population. The geographic distribution of the study was also confined, as responses were obtained from a convenience sample of Generation Y consumers in Durban only. The use of a non-probability sampling technique used for this study does not enable one to generalise the results to a wider market segment of Generation Y consumers. Despite these limitations, there was some data generated in this study that was in the same direction as other research studies; e.g. Smith (2009) – McCann Universal study.

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Towards a Responsive Pedagogy:
Using ICT as a Tool to Engage
Access Students' Academic Identities in
Mathematics

Yougan Aungamuthu

Abstract
Access students in a Foundation Programme at the University of KwaZulu-Natal were exposed to a range of Information and Communication Technology (ICT) interventions in their Foundation Mathematics module. ICT interventions consisted of PowerPoint presentations; Venn Diagram software; an Excel spreadsheet programmed to scaffold the learning of the Gauss Reduction algorithm; and the use of email to send solutions, extra learning materials and messages of encouragement to students. Working within the interpretive paradigm, thirteen semi-structured interviews were carried out with participants from the 2008 cohort of Foundation Programme students. A purposive sampling strategy was used to select participants into the study after calling for volunteers. The data generated from the interviews was analysed using thematic content analysis. This article draws on Bandura's concept of self-efficacy to discuss how ICT engaged participants in learning mathematics. I will argue that ICT improved participants' self-efficacy, thereby helping them to see new learning trajectories for themselves. In effect, ICT boosted participants' self-efficacy, giving students new actual and designated identities (Sfard & Prusak 2005). This article concludes with recommendations for curriculum designers within higher education.

Keywords: Access, ICT, identity, self-efficacy, academic behaviour, pedagogy, mathematics

Introduction

A student's first year at university is of critical importance to all stakeholders within a country. The shortage of skills in areas such as health sciences, engineering and education can only impede the goals of a developing country like South Africa (Mkhize & Nduna 2010). It thus becomes imperative to find ways of maximising student's learning experiences within our lecture rooms so as to ensure that students achieve their academic goals. Given South Africa's apartheid past, this becomes even more important when catering for the learning needs of Science Access students at the University of KwaZulu-Natal (UKZN). Science Access students are from historically disadvantaged learning communities, the majority of whom have been under prepared for tertiary study by the schooling system and are thus academically vulnerable to the demands of tertiary study (Maree, Fletcher & Sommerville 2011).

This article is based on a larger study by Aungamuthu (2009) of Science Access students' perceptions of learning mathematics with the aid of Information and Communication Technology (ICT). I draw on data from that study to argue that ICT engaged students' academic identities in mathematics. In using the term ICT, I draw on Czerniewicz, Ravjee, and Mlitwa (2006: 13) conceptualisation of ICT as '... a term that can be defined as the amalgam of computing and telecommunications technologies [which] includes equipment, such as computers, the Internet, CDROMS and other software as well as digital cameras that can be used as part of the teaching and learning process'. The above conceptualisation of ICT embodies the range of ICT interventions used within this study and is described in the methodology section of this article.

Why is this article important? Amidst calls on higher education institutions in South Africa to provide students with epistemological access to knowledge (McKenna 2004; Morrow 2007) and the dismal throughput rates of South African universities (Scott, Yeld & Hendry 2007); this article contributes to the knowledge base on first year teaching within South African higher education. This article demonstrates the viability of ICT as a learning tool for first year students within an Access programme thereby highlighting the potential use of ICT as part of a responsive pedagogy.

Literature Review

Access programmes were initiated to address the historical education imbalances in the South African schooling system. The aim of access programmes is to develop students, from previously disadvantaged schools, academically so that they will be able to cope with the academic rigors of university. For a description of the Science Access programme at UKZN see Downs (2010) and for a description of Access programmes in South Africa see Bass (2007), Reynolds (2008) and Rollnick (2010).

Researchers in education have acknowledged that the majority of students entering higher education in South Africa lack necessary mathematical skills (Maree *et al.* 2011; Mkhize & Nduna 2010). It was within this context that I found it necessary to explore the potential of ICT as a learning tool in mathematics. Thus this literature review examined the learning affordances associated with ICT, which are as follows:

- For many students, mathematics is a difficult subject to enjoy; ICT can be used to overcome this obstacle by creating learning environments that stimulate interest in and enjoyment of mathematical concepts (Acelajado 2011; Ng 2011). ICT can be used to create active learning environments which enhance the learning experience for students (Apawu 2011; Marshall, Buteau, Jarvis & Lavicza 2012).

- Changes the traditional role of students, from passive learners to active and autonomous learners who are in control of their knowledge construction, while teachers take on the role of a facilitator who responds to students' exploration of a concept (Kay 2012; Safdar, Yousuf, Parveen & Behlol 2011). In their new role as facilitators, as opposed to their traditional role of an expert who merely transmits knowledge, teachers can help students construct knowledge thereby personalising the learning experience for students (Lokar 2011). This has led some researchers to posit that ICT can mediate a teacher's transition from traditional to more learner centred progressive pedagogies (Jethro, Grace & Thomas 2012; Ng 2011).

- Promotes conceptual understanding by allowing for abstract ideas to be explored in a concrete way through the use of the animation, manipulation and visualisation features offered by various ICTs (Demirbilek & Tamer 2010; Kilicman, Hassan & Husain 2010; Liang & Sedig 2010; Marshall *et al.* 2012). However, the depth of conceptual understanding depends not only on the ICT tool itself but on how the ICT tool is used in concert with other learning activities to engage students in reflection on their learning (Berger 2011).

- Motivates student to develop better study habits and to take responsibility for their learning by making learning convenient (Aungamuthu 2011; Kay 2012; Kilicman *et al.* 2010). On the part of students, this can promote greater investment in their studies and so foster more dialogue with teachers about concepts. Such investment in their studies can widen the field of opportunities for students by creating study and career paths in mathematics related disciplines (House 2011; Marshall *et al.* 2012; Wenner, Burn & Baer 2011).

Conceptual Framework

In this section I conceptualise the terms self-efficacy, academic identity, actual and designated identity; I later, in the findings and discussion section, draw on these concepts to explain my findings.

Self-efficacy

Bandura (1994: 71) defines self-efficacy '...as people's belief about their capabilities to produce designated levels of performance that exercise influence over events that affect their lives'. Self-efficacy refers to a person's belief in their ability to successfully complete a task; essentially it is a perception about one's abilities and what one believes can or cannot be accomplished with those abilities. Within the context of this study, self-efficacy as a concept is of particular relevance as Access students are from historically disadvantaged education backgrounds; an education background in which the education system has failed the majority of secondary school

learners, especially in gateway subjects like mathematics. In view of their educational background, it is reasonable to assume that the majority of Access students would be entering university with low levels of self-efficacy in mathematics. This study examines whether or not ICT can influence students' self-efficacy beliefs.

Why is self-efficacy important? Bandura (1994) asserts that self-efficacy impacts a range of psychological processes, processes which underpin our thoughts and actions in relation to: the choices we make and the processing of information in various situations; goal setting and the action steps required to achieve the goals set; the management of stress; and the control of our motivation levels. For example, studies have found a correlation between self-efficacy and students' academic performance (Purzer 2011). Students with high levels of self-efficacy tend to be more persistent with a task thereby increasing their chances of successfully completing a task (Fantz, Siller & DeMiranda 2011; Tsai, Chuang, Liang & Tsai 2011).

What influences self-efficacy? A person's experience of success can bolster their self-efficacy whilst failure can negatively influence self-efficacy (Fantz *et al.* 2011). However, easy challenges are necessary but not sufficient in building a robust sense of self-efficacy; a person needs to experience learning from failure and the overcoming of difficult challenges so as to develop persistence in solving problems (Bandura 1994). By learning to persist with solving a problem, a person starts to believe in their abilities which builds develops their sense of self-efficacy.

Another influence on self-efficacy comes from role models; the more a person can identify with a role model the greater the chances of the role model being able to have an influence on the person's self-efficacy beliefs (Bandura 1994). Role models can be peers, teachers, parents, family members or a person who one feels connected to and can relate to. Role models can influence a person's self-efficacy beliefs in three ways (Bandura 1994): firstly, by teaching or exhibiting effective skills and strategies that can be used to successfully complete a task; secondly, by being able to verbally mobilise a person to action so that a person may believe that they are capable of accomplishing a task ; and thirdly, by helping a person to interpret their failures and to see that setbacks are a stepping stone to success thereby managing emotions and stress levels, in effect teaching the person to persist with a task.

Self-efficacy cannot guarantee academic proficiency in a discipline because students first need to acquire the knowledge and skills associated with proficiency in that discipline (Corkett, Hatt & Benevides 2011). Such proficiency requires students to take on the academic practices of a discipline; this makes demands on a student's academic identity since learning influences identity development (Lave & Wenger 1991).

Academic Identity

In this article, academic identity refers to academic practices that lecturers expect students to take on and develop. Academic practices such as time management, study techniques, checking solutions, making conjectures, asking questions, seeking help, doing corrections, willing to engage with new ways of thinking and taking responsibility for one's learning to name but a few. Such practices assume a particular understanding of learning, a particular idea of being a student – a particular way of being within academia (McKenna, 2004). It is this notion of being within academia, of taking on the practices valued by academia, which the term academic identity encompasses.

How do I operationalise students' academic identity? Sfard and Prusak (2005) use a narrative approach to conceptualise identity in terms of actual identity and designated identity; actual and designated identity is couched in the stories people position themselves within. The stories individuals scripts for themselves arise from their life experiences through their interaction with people and various social artefacts (Bull 2009; Chinn 2009; Fayez 2010). Peoples' life experiences generate stories which can form positive associations and a platform to engage in positive learning paths. However, life experiences can also have negative associations which make participation in learning difficult; a person engages in habits that are associated with a negative learning path which in turn leads to failure. By exposure to positive learning experiences, negative associations can be re-scripted to allow a person to engage in positive learning paths.

How is actual and designated identity applied in this study? Actual identity reflects a student's current association with a particular aspect of learning mathematics and is revealed in present tense statements like 'I do not understand addition of fractions', 'I am afraid of using the computer

software' and 'I understand the Gauss reduction algorithm' (Sfard & Prusak 2005). Designated identity is revealed in future tense statements like 'I am going to fail the test on fractions', 'The computer software will not help me understand maths' and 'I am going to do some harder problems on the Gauss reduction algorithm'(Sfard & Prusak 2005). Designated identity arises from associations within actual identity and determines the learning path a student may follow; positive associations storied within actual identity can promote positive learning behaviours whereas negative associations storied within actual identity can generate feelings of hopelessness which promote negative learning behaviours.

Methodology

In this article I answer the following research question: Does learning mathematics with the aid of ICT engage students' academic identities?

Working within the interpretive paradigm, a case study research design was used. A case study design was considered appropriate due to the exploratory nature of the larger study.

In their Foundation Mathematics module, students were exposed to the following ICT interventions:

- PowerPoint slideshows that made use of the animation feature within the programme to introduce and explain concepts in Set Theory like sets; intersecting sets; subsets; disjoint sets; union; intersection; compliment of a set; and cardinal number. The slides were not 'text heavy' and relied on graphics to convey a concept. After a concept was introduced on a slide, questions were posed to the students requiring them to give examples of the concept from their life experiences. The examples generated from the students were used to discuss and elaborate on the concept introduced and so give students multiple representations of a concept.

- Venn Diagram software was used to teach students how to apply their understanding of the set operators (union, intersection and complement) to problems requiring the graphical representation of

expressions like $A \cap B'$ and $(B \cup C)' \cap A$, where A, B and C represent sets. The software was used during a lesson in class and then students were given an opportunity, in a follow up lesson and a tutorial, to experiment with the software in groups of four for fifteen minutes. The software facilitated scaffolding of the problem by allowing students to see each stage of their solution to a problem. The software also allowed students to see the full and scaffolded solution to a problem. The students were emailed a personal copy of the software to use in the university computer rooms and on personal computers.

- Gauss Tutor, an Excel spreadsheet programmed with the Gauss Reduction Algorithm, was used to aid students' understanding of the Gauss Reduction Algorithm. The spreadsheet required students to input values so as to progress through each stage of the algorithm. Students received feedback and hints from the software as they worked through the algorithm in groups of four for fifteen minutes. The software was introduced to students after the Gauss Reduction algorithm was taught to students in class during four of their forty five minute maths lessons. The software was used to consolidate their learning of the algorithm and, like the PowerPoint slides and Venn diagram software, a copy was emailed to them for their personal use.

- Email was used to send students the solutions to assignments and exercises after they had submitted their work for marking. Email was also used to congratulate students on their test performance and to offer them words of encouragement when they were not doing well in their studies. Extra examples that were regarded by the lecturer as a follow up to classroom discussion examples were emailed to students to further support them in their learning.

Based on the above ICT interventions, data was collected by conducting semi-structured interviews with thirteen participants from the 2008 cohort of Foundation students on the Pietermaritzburg campus of the University of KwaZulu-Natal (UKZN). A purposive sampling strategy was

used to select participants for the study. Based on a survey of the research literature, gender, previous ICT experience and frequency of ICT use were used as criteria to select participants into the study. The table below summarises the sample used in this study based on the above three criteria.

Table 1:   Sampling matrix with number of participants in each category and participants pseudonyms in brackets

		Male			Female		
		Frequency of use			Frequency of use		
		A[1]	B[2]	C[3]	A[1]	B[2]	C[3]
Previous ICT experience	Not at all	1 (K)	1 (Tok)				1 (G)
	A little	1 (T)	1 (M)	2 (J and Mb)	1(Mo)		
	Very well		1 (SDK)	2 (L and T)	2 (S and N)		

From the above table, nine of the thirteen participants were male and four were female. Five of the thirteen participants classified themselves as having extensive previous ICT experience whereas the majority of the sample had a little or no previous ICT experience. Five participants used ICT at most twice a week, three participants used ICT at most four times a week and five participants used ICT everyday. Participants chose pseudonyms for themselves in an attempt by the researcher to share power with them. The interviews were recorded, with the permission of the participants, and later transcribed. Member checks were used to validate the accuracy of the transcription.

Thematic content analysis of the interview transcripts was conducted by reading across transcripts, reducing sentences to phrases or a word that captured the essence of what was being communicated by a participant and by grouping similar words and phrases into themes. The themes were

[1] Participant uses ICT at most twice a week

[2] Participant uses ICT at most four times a week

[3] Participant uses ICT everyday

validated in three ways. First, throughout the research process a peer was used as a sounding board for interpretation of the data. Secondly, a panel consisting of participants in the study was used to establish cultural validity; the researcher presented his themes to the panel as a way of checking that a participant's experience of ICT had been accurately captured by the themes. This process helped the researcher to refine his understanding of the research problem. Thirdly, themes were compared to literature findings.

Findings and Discussion

In this section I present the themes that emanated from my analysis of the data. The themes below reflect the impact ICT had on participants' academic identities in their study of mathematics. Through the influence of ICT on their self-efficacy, participants' actual and designated identities underwent a transformation. These themes capture that transformation thereby illustrating that ICT engaged participants' academic identities.

Theme 1: Decreased Mathematics Anxiety

This theme describes the effect ICT had on participants' mathematics anxiety. Participants expressed their fear and trepidation of studying mathematics at university. The high level of mathematics anxiety felt by participants is encapsulated in the two comments below:

> *SDK*: ...like errrr first semester I mean we all come here being traumatised, we were failing maths [at school]...I came to university] with a very big mathematic[s] anxiety.

> *Mb*: ... because we know we are afraid to do anything [by ourselves]...

As *SDK* explains, students come to university petrified of mathematics; in effect hating mathematics from day one of lectures. This 'intrinsic' dislike for mathematics caused participants to have high levels of

anxiety with regard to mathematics; this is similar to other studies which report on student anxiety and an associated low sense of self-efficacy in studying mathematics (Bull 2009; Chapman 2010; Chinn 2009). These high levels of mathematics anxiety caused participants to construct negative actual identities in mathematics. In other words, participants saw themselves as academically weak in mathematics. These imposed negative actual identities caused participants, as *Mb* points out, to be afraid of trying out mathematically related activities by themselves. In effect, participants' fear of mathematics caused them to feel that their mathematical endeavours were destined to end in failure if attempted without support. The belief that their unassisted mathematical activities would be unsuccessful reflects participants' negative designated identities. Thus, participants' negative actual identities in mathematics reinforced their negative designated identities in mathematics, heightening their mathematics anxiety and constraining their vision of being successful in mathematics.

However, through participants' exposure to, and engagement with, ICT learning tools their self-efficacy began to improve. They felt confident enough to risk challenging an answer:

> *J*: It [using the software] was good because it actually helped us and gave us more surety of our answers because [pause] when you got an answer with you and you want to tell your lecturer that something is wrong with the memorandum case you don't have, you're not sure enough to actually tell them.

Participant *J* explained that using the software to confirm his answer gave him the confidence to challenge an answer given in the memorandum to a mathematics tutorial exercise. Ordinarily he would be afraid to risk such engagement out of fear of being wrong. Thus the software helped him overcome his self-doubts thereby improving his self-efficacy.

With this heightened sense of self-efficacy, participants started to feel that they were capable of learning mathematics:

> *K*: …I didn't feel so bad [about being wrong about a problem because by then I got power.

Yougan: You got power?

K: Yes, I got knowledge.

Participant *K* explained how he and his peers would settle a dispute about a mathematics problem by making use of the software to explain their respective arguments. This helped participant *K* to test and improve his reasoning in mathematics, developing his confidence and belief that he was capable of learning mathematics. This finding is similar to studies that found that ICT promoted students' confidence in mathematics; see for example Bakar, Ayub, Luan, and Tarmizi (2010) and Freeman (2012).

Participants felt empowered, able to envision more successful learning trajectories for themselves:

M: There's that feeling that you know now you can tackle any sum.

Participant *M* explained that using the Venn diagram software helped him to see that he could solve the difficult problems in Set Theory. That realisation gave him a sense of personal power over the problems that were previously causing him confusion and anxiety. Participants were able to overcome content areas in mathematics that they initially perceived as difficult. As a result of being able to overcome their difficulties, participants moved beyond their anxieties surrounding mathematics:

T: ...the Gauss reduction but at the same time it [Gauss reduction] was not coming right. But with the software that helped me. I called it my friend...So I was able to solve the problem. And as time goes on and you get to do this thing it didn't become more difficult to do this thing...

Participants started to believe that mathematics was a subject within their sphere of understanding. In effect, ICT helped reduce participants'

anxiety in mathematics allowing them to see that they could learn mathematics. Participants were able to use ICT to meet their learning needs and so script new actual and designated identities for themselves. Participants' original negative actual identities were replaced with positive actual identities; positive actual identities that told them that they no longer needed to be afraid of mathematics. Similarly, participants' designated identities were realigned to their new actual identities; their designated identities told them that they could learn mathematics.

With their increased self-efficacy; their new actual and designated identities participants developed their academic identities thereby allowing them to engage with learning mathematics. This engagement with learning mathematics influenced participants' academic behaviour in mathematics that is discussed in the next theme.

Theme 2: Academic Behaviour of Students

I use this theme to describe the academic behaviours participants engaged in as a consequence of ICT's influence on their self-efficacy and their academic identities. As argued above, ICT inspired participants to move beyond their anxieties about mathematics. Such a shift in mind-set allowed participants to write new actual and designated identities for themselves, creating opportunities for them to take on the academic behaviours expected of them. This theme highlights participants' engagement and understanding of concepts in mathematics and the academic behaviours they took on in the process.

Participants explained that ICT made it convenient for them to check their work for mistakes in the evenings and weekends as it was not always possible to get help on a problem from peers or lecturers at those times. For some participants, instead of assuming that their answers were correct, ICT provided a space for them to check their work and develop their understanding of mathematical concepts:

> *Tok*: And like after I've done a problem I then … I like took a problem which I was doing and put it in the software and to see like if it were properly done or were there mistakes I did...

In a similar vein, for other participants, instead of becoming frustrated and demotivated at not being able to find the error in their solution to an exercise, ICT supported their learning in this regard:

> *N*: ...coz if I didn't get the answer correct I wanted to see where I've gone wrong.

> *G*: ...so I would check [my solutions] and stuff, if the step is wrong I would know that somewhere in my, in my calculation I went wrong. So I would start afresh…

Participants were able to use the ICT software to identify and correct their mathematical misconceptions. In the process of checking their work and finding their mistakes, ICT engaged participants' understanding and exploration of mathematical concepts. Through such engagement, participants improved their understanding of mathematical concepts and so their self-efficacy. This allowed them to script new actual identities and designated identities. This finding resonates with studies which have shown that ICT promoted conceptual development and learning among learners, see for example Saha, Ayub, and Tarmizi (2010), Zengin, Furkhan and Kutluca (2012) and House (2011) .

With their re-scripted actual and designated identities, participants invested in learning practices valued by academia. Participants experimented with their own ideas and understandings of mathematical concepts, thus moving away from passive learning:

> *S*: I felt safe coz I feel that that it was my own method coz there was a greater chance that I will get wrong and most the time I will get it wrong and it [software] right. The more I used it [software] that's where I saw it [software] was really accurate.

> *L*: It [software] makes the problem simpler because you are using your own ideas.

In this way, ICT acted as a sounding board for their mathematical understanding allowing participants to conjecture and hypothesise; helping

participants construct meaning of concepts. ICT supported participants meaning making by creating a space for them to self-direct and take charge of their learning. This echoes the findings of studies which report that learners enjoy the autonomy ICT affords them; see for example Acelajado (2011), Kay (2012) and Liang and Sedig (2010) . Consequently, participants used ICT resources in new ways.

Participants invested more of their time in academic endeavours, effectively changing the way they used ICT resources such as the university computer LANs:

> *M*: Ja they, those they made it a lot easier for me to, cos errrr usually when we are at the LAN we go for the internet and then you, errrr I studied, I really studied using the Power Points and …

> *SDK*: You don't think, oh I got to study, you know, I'm going to the LAN, I'm going to play with the computer, maybe the computer is going to include some work that we did in class and is very helpful...

As *M* and *SDK* explain above, their visits to the university computer LANs became revision sessions in which they studied mathematics. Previously they would use the LAN to surf popular internet websites and play computer games; now they used the LAN to support their learning of mathematics thereby engaging in new study habits. Participants made use of the LAN to find ICT related mathematics resources; the LAN was no longer a leisure tool, it was now also a learning tool for them. As a result of ICT's influence on participants' academic identities, participants' actual identities were orientated to more academic pursuits in the LAN. ICT had transformed their learning behaviour by changing participants' actual and designated identities, in effect changing their academic behaviour.

Conclusion

This study explored science access students' perceptions of a range of ICT interventions within a Foundation maths module. Venn diagram software, an

Excel spreadsheet, PowerPoint presentations and email were used to teach mathematical concepts to students. This study found that the ICT interventions engaged participants' academic identities by decreasing their maths anxiety and improving their academic behaviour. Participants experienced improvement in their mathematical confidence, were able to self-direct and self-regulate their learning and engaged in new study habits.

However, given the exploratory nature of this study, the findings reported must be viewed with caution. While the small sample size and gender bias within the sample prevents generalisation, at the same time this creates areas of exploration for further research. Empirical research is required to test questions surrounding the use of ICT within higher education contexts. For example, is there a generic pedagogy for all ICT tools or does each ICT tool require a specific pedagogy? What factors contribute to students' use of ICT tools and what pedagogy can facilitate that? How can lecturers integrate ICT into their pedagogy and for what purpose? These are some of the questions that need to be answered if ICT is to be effectively harnessed so as to help lecturers respond to students' diverse learning needs.
Based on this exploratory study, it is recommended that curriculum designers begin to experiment with ICT tools by including some form of ICT within curricula. This can be done in 'baby steps' with reflection on how the ICT tool affected the teaching and learning process for both students and lecturer. Such engagement may allow academics to dialogue their ICT experience and so further develop a pedagogy that is responsive to students.

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The Role of Mentorship in the Retention of Graduate Interns

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Abstract

The objective of the research was to determine whether mentorship, as part of a graduate internship programme, contributed to the retention of graduate interns in a South African Information Communication and Technology (ICT) company. A Mentorship role survey and Retention survey were administered among a purposive selected sample of graduate interns (N=79) and mentors (N=39). Results showed that mentorship was statistically significantly related to the graduate intern's intention to quit the graduate internship programme. Results further showed a practically significant relationship between the opportunity to apply mentorship skills and the mentor's intention to employ the graduate intern upon completion of the programme.

Keywords: Mentorship, Graduate Interns, Employability, Intention to Quit, Graduate Internship Programme, Work Integrated Learning

Introduction

Talent retention is an important topic of debate in the Information, Communication and Technology (ICT) sector in South Africa, given the context of a skills shortage, the relative scarcity of specialist employees and the mismatch between the supply from higher education institutions and the demands of the ICT workplace (Frost 2002; Du Plessis, Stanz & Barkhuizen

2010; Griesel & Parker 2008; ISETT SETA 2005; Kruss 2005; Lloyd & Fenton 2008; Paterson 2007). In the latter case the retention of graduates in the workplace is a challenge due to the migration of skills, scarcity of specialist skills and the undersupply of skilled labour (Frost 2002; Holtzhauzen, & Du Toit 2009; Johnson 2002). As Generation Y-ers or Millennials begin to enter the workforce, organizations are faced with new challenges as they try to find innovative solutions to retain this group of employees (Du Plessis *et al.* 2010).

Within the current shortage of information technology skills in South Africa, it is imperative that companies that successfully recruit suitable and skilled IT graduates also ensure that they are retained, given the great demand for their skills (Pop & Barkhuizen 2010). Therefore organisations invest in graduate internship programmes to attract and retain talented graduates.

Graduate internship programmes are focused training where interns are provided with an opportunity to learn from the various areas of expertise of an employer (Buhlungu & Metcalfe cited in Kanye & Crous 2007). Graduate internships are thus a form of work integrated learning (Coll, Eames, Paku, Lay, Hodges, Bhat, Ram, Shiu, Ayling, Fleming, Ferkins, Wiersma & Martin 2011; Franks & Blomqvist cited in Coll *et al.* 2009; Holtzhausen & du Toit, 2009) that can assist graduates to thrive in the real-world context of the workplace by providing opportunities to maximize the assets (knowledge) they acquire through the university experience. This in turn will optimise their successful transition into organisations and enhance their employability (Bates 2008; Coll & Kallnins 2009; Costley 2007; Groenewald 2009; Heerde & Murphy 2009; Kruss 2005; Mcllveen & Pensiero 2008; Nica & Popescu 2010; Sattler 2011).

Workplace learning thus has a significant role in the development of graduate skills and competencies and to produce graduates that are more 'work ready' (Coll & Zegwaard 2006; Costa 2009). Researchers argue that the structure of workplace learning programmes provides graduates with organisational and cultural experiences that facilitate mastery in a variety of work related areas (Ingram, Bruning & Mikawoz 2009). Therefore in most cases each intern is assigned to a member of staff who acts as a mentor for that intern for the purpose of providing a comprehensive training experience.

Mentors play a critical role in smoothing the transition of new graduates in the workplace and to make the transition from novice to expert (Beecroft, Santher, Lacy, Kunzman & Dorey 2006; Behar-Horenstein, Roberts & Dix 2010; Berezuik 2010). In addition mentors also facilitate the learning process and guide the professional development and growth of the intern (Janse van Rensburg & Roodt 2005; Wilson, Holmes, de Gravelles, Sylvain, Batiste, Johnson, McGuire, Pang & Warner 2012).

Research has shown that protégés have greater career satisfaction, receive higher compensation and are more committed to their careers and organisations than employees without a mentor (see Henson 2006; Ingram *et al.* 2009). Berezuik (2010) similarly concurs and maintains that new graduates can become competent and efficient more easily if they are guided by mentors.

Previous research has shown that the mentorship process is an important contributor to the employability and retention of graduate interns, learners and artisans in organisations (see Mummenthey & Du Preez 2010; Van Rooyen, Du Toit, Botha & Rothmann 2010). Having a proper mentoring system and programme is therefore vital for the employability and retention of graduate interns (Eigsti 2009; Henson 2006; Lo & Ramayah 2011).

It is within this context that this study investigated the experiences of both interns and mentors in a graduate intern programme, concomitant with the propensity of graduates to remain in the company after the completion of the programme. Numerous studies have focused on the role of the mentor, with very few focusing on the role of the intern (O'Neill, Asgari, & Dong 2011). This research highlights the significance of both parties in the mentorship relationship and the retention of the graduate interns.

Against this background the main objective of this research is therefore to determine whether a mentorship as part of a graduate internship programme enhances the employability of graduate interns from both the perspectives of mentors and graduate interns. The next section of the article will highlight some of the limited literature available on mentorship and retention of graduate interns. Thereafter, a discussion of the research approach and method will be provided, followed by the results of the research. Finally the article concludes with a discussion of the research results, as well as recommendations for further research.

Mentorship and Retention of Graduate Interns

Mentoring is a process where a more experienced member of the organisation [mentor] takes responsibility for and actively participates in the systematic development of the skills and leadership abilities of a less experienced member of the organisation [mentee] (Abbott *et al.* 2010; Behar-Horenstein *et al.* 2010; Chatzimouratidis, Theotokas, Ioannis & Lagoudis, 2012; Gershenson 2012; Johns, McNamara & Moses 2012; Jones 2012; Parker 2011; Regents 2009; Walkington, Vanderheide & Hughes 2008). Latham, Hogan and Ringl (2008) define a mentor as: 'A supportive, facilitative partner who works with a mentee or protégé in an evolving and learning relationship that is focused on meeting mentee learning goals to foster professional growth'. They continue to define a mentee as 'a person of inexperience' and add that relationships between mentors and mentees are best when mentees can reflect on their personal and professional development.

According to Pinkerton (2009) mentoring has two components: a career function which includes making challenging assignments and providing protection, exposure, and visibility as well as a psychosocial function which promotes a sense of competence, clarity of identity, and effectiveness in role acquisition. In essence the role of the mentor is 'to guide the professional development of the mentee and knowledge, experience and organizational perspectives are shared candidly within a context of mutual respect and trust' (Janse van Rensburg & Roodt, 2005; Johns, McNamara & Moses, 2012). One of the goals of a mentoring programme is to assist graduate interns to become fully competent in the work place (Berezuik 2010) and is a critical component of development and specifically professional development (Cohen, Sherman, Kiet, Kapp, Osann, Chen, O'Sullivan & Chan 2012; Gershenson 2012; Johns *et al.* 2012).

Mentorship can also have benefits for the mentor and the organisation in addition to mentee benefits (Clamp 2011; Cureton, Green & Meakin, 2010; Hemson, 2006). The **mentor benefits** include: improved job satisfaction, career advancement, personal self-development, fresh ideas and feedback concerning projects in progress and assistance in effectively managing projects. The **organisational benefits** include: competent and dependable employees who continue to grow and meet new challenges and

obligations, increased productivity, increased commitment, lower rates of staff turnover, team based/ participative management, and increased effective communication and cooperation among staff and administrative units.

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The mentorship programme's success in most cases depends on a number of crucial factors such as management commitment, clear criteria for mentors/mentees, training for mentors/mentees/managers of mentees, clear programme guidelines, close monitor and evaluation of the process and continuous feedback to management/participants/ staff (Janse van Rensburg & Roodt 2005; Kanye & Crous 2007). Heathfield (2009) maintains that the quality of the supervision an employee receives is critical to employee retention, especially also as far as generation Y employees are concerned (Du Plessis *et al.* 2010). The results of the latter study indicated that the availability supervisor and organisational support was a significant predictor of Generation Y's decision to remain within the organisation.

Clearly employees leave managers and supervisors more often than they leave companies or jobs. Frequent employee complaints include a lack of clarity about expectations and potential earnings, lack of feedback about performance, failure to hold scheduled meetings and failure to provide a framework within which the employee perceives he/she can succeed (Heathfield 2009). When employees feel that they are unvalued, it contributes to turnover. A mentor, who guides supports and counsels youth as they navigate their way through the world of work, will thus yield positive results (Stanz & Mosoeunyane 2008).

In the light of the preceding the following research hypotheses were formalized for the research:

H_1:   The availability of a mentorship programme is a significant predictor of the graduate intern's intention to stay in the organisation

H_2:   The availability of a mentorship programme is a significant predictor of the mentor's decision to employ the graduate intern

Method
Research Approach
A quantitative research approach was followed using surveys to collect the data. The research also adopted the nature of ex post facto research in order to test for possible behaviours as a result of a mentorship programme in this case. This type of research design can aid in identifying those mentorship dimensions of the graduate internship programme that contributes to the graduate's turnover intentions and the mentor's intention to employ graduate interns (Field 2009). In this research, the mentorship programme and its dimensions were the independent variables and intention to quit and intention to employ the dependent variables.

Sample
This research focused on an ICT company that has implemented a graduate internship programme for IT graduates. A purposive sample was taken from graduate interns (N=79) and Mentors (N=39), who participated in the internship programme. This represented a response rate of 61% for the graduate interns and 75% for the mentors respectively. In this research mentors were primarily male (72%), 30 years and older (90%), had more than 10 years of work experience (87%) and some sort of a tertiary education (84%). Graduate intern respondents were primarily male (52%), aged between 20-24 years (50%) and hold bachelor degrees (64%).

Measuring Instruments
The variables measured in this research were mentorship, intention to quit and intention to employ. A brief description of how these variables were measured is presented below.

Mentorship - An adapted version of the Mentorship Role Questionnaire (Janse van Rensburg & Roodt 2005) was used to measure the frequency of interaction, quality of mentorship and the roles of the mentor from the perspective of the graduate intern. The questionnaire measured the frequency of interaction, quality of mentorship and the roles of a mentor. The MRQ measure has a 5-point intensity scale: *to no extent (1)* and *to a large extent (5)*, and *never (1)* to *always (5).* Mentors were asked to indicate the extent to which the graduate internship programme enabled him/ her to act as a mentor on a five point scale ranging from *1 = to no extent* to *5 = to a large extent*.

Intention to quit – Graduate interns were asked to indicate the extent to which they considered quitting the graduate internship programme with 1 item on a five-point scale from 1 to 5: *1 = to no extent* and *5 = to a large extent.*

Intention to employ – Mentors were asked to indicate the extent to which they consider employing the graduate intern on completion of the programme with 1 item on a scale from 1 to 5: *1 = to no extent* and *5 = to a large extent* Open ended questions were included to substantiate the quantitative data.

Data Analysis
The statistical analysis was carried out with the SPSS Program (SPSS 2012). The reliability and validity of the Mentorship Role Questionnaire were determined by means of exploratory factor analysis and Cronbach alpha coefficient. Descriptive statistics (i.e., means, standard deviations) were used to analyse the data. Linear Regression Analyses and Pearson-product moment correlations were used to analyse the significant relationships between mentorship and intention to quit (graduate intern)/ intention to employ (mentor). A cut-off point of $p < 0,30$ was used for statistical significance (Field 2009).

Results

The results and findings are reported in two phases. Phase 1 presents the results of the research in a descriptive format. Phase 2 focuses on the testing of the hypotheses.

Phase 1: Descriptive Results

Graduate interns were first asked to rate their experience of the mentorship role. The mean scores of the dimensions of the mentor role questionnaire are reported in Table 1 below.

From Table 1 it is evident that the graduate interns perceived the mentorship experience in the organisation positively. The results clearly indicate a need for mentorship as an integral part of the graduate internship programme. On average, other results also indicated that the intern benefited to a large extent from interactions with the mentor, received professional guidance from the mentor, received challenging assignments to improve his/her competence, mentors displayed content expertise and mentors provided constructive and useful feedback on interns' performance.

Other descriptive results showed that graduate interns (57%) indicated that they never considered quitting the internship programme. Most of the mentors (84,9%) who responded indicated that the internship programme enabled them to apply their mentor skills. Mentors (94.9%) also indicated that they considered employing the graduate intern on completion of the graduate programme.

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programme enabled them to apply their mentor skills. Mentors (94.9%) also indicated that they considered employing the graduate intern on completion of the graduate programme.

Table 1: Descriptive Statistics: Mentor Role Questionnaire

Item	Description	Mean	SD	Item	Description	Mean	SD
MRQ1	Need for mentor	4.35	1.03	MRQ11	Mentor encourage intern to prepare for position at organisation	3.63	1.28
MRQ2	Intern interaction with mentor	3.95	1.17	MRQ12	Mentor encourages intern to behave alternatively	3.13	1.40
MRQ3	Intern benefit from interactions with mentor	4.05	1.26	MRQ13	Sharing of personal experiences	3.41	1.31
MRQ4	Professional guidance and direction by mentor	3.94	1.22	MRQ14	Mentor serves as role model	3.67	1.34
MRQ5	Challenging assignments to improve intern competence	3.89	1.25	MRQ15	Mentor display content expertise	3.88	1.07
MRQ6	Frequency of feedback from mentor	3.44	1.29	MRQ16	Mentor's attitudes influences intern's attitudes	3.81	1.15
MRQ7	Respect of mentor for intern	3.58	1.25	MRQ17	Mentor share career history	3.53	1.33
MRQ8	Promotion of intern's career	3.62	1.31	MRQ18	Mentor provide constructive and useful feedback on intern's performance	3.85	1.20
MRQ9	Mentor encourage communication about fears and anxiety	3.68	1.26	MRQ19	Appropriate recognition of intern's contributions	3.80	1.20
MRQ10	Mentor convey feelings of empathy for graduate intern	3.56	1.26	MRQ20	Motivation to improve intern's work	3.77	1.28

Phase 2: Testing of Hypotheses

Prior to the testing of the hypotheses, the Mentorship Role Questionnaire (MRQ) was subjected to a factor and reliability analysis. Item scores were inter-correlated and these matrices were subjected to the Kaiser-Meyer-Olkin and Bartlett's tests for suitability for factor analyses. A MSA of 0.928 was obtained which according to the guideline of higher than 0.6 (Hair, Black, Babin & Anderson 2010) is adequate for factor analysis. Exploratory factor analysis resulted in a one-factor structure for the MRQ. The factor, labelled mentorship showed excellent reliability with a Cronbach Alpha of 0.972 (Field 2009).

Hypothesis 1

H_1: *The availability of a mentorship programme is a significant predictor of the graduate intern's intention to stay in the organisation*

A linear regression analyses was performed on the overall scale of Motivation and Intention to Quit. The results are reported in Table 2 below.

Table 2: Regression Analyses between Mentorship and Intention to Quit

Model	Unstandardised Coefficients		Standardised Coefficients	t	p	R	R^2	ΔR^2
	B	SE	Beta			$.276^a$	.076	.063
(Constant)	2.450	.372	2.450	6.578	.000			
Mentorship	-.011	.005	-.011	-2.403	.019			

Table 2 indicates that mentorship is a significant predictor of Intention to Quit. The effect was small. Next a Linear regression analyses were performed to determine which dimensions of the mentorship process predicts the intention of graduate interns to quit the organisation. The results are reported in Table 3 below.

The results for Table 3 shows that the frequency of interaction with a mentor ($r_{(df = 79; p < 0.001)}$ = -0,363), benefit from interaction with a mentor ($r_{(df = 79; p < 0.001)}$ = -0,363), professional guidance and direction from the mentor ($r_{(df = 79; p < 0.001)}$ = -0,389), mentor providing challenging assignments to improve

intern's competence ($r_{(df = 79; p < 0.001)} = -0,341$), mentor conveying feelings of respect for the intern ($r_{(df = 79; p < 0.001)} = -0,335$), mentor serving as a role model ($r_{(df = 79; p < 0.001)} = -0,383$), mentor providing constructive and useful feedback ($r_{(df = 79; p < 0.001)} = -0,331$), mentor acknowledge intern's contribution appropriately ($r_{(df = 79; p < 0.001)} = -0,339$) are all significant predictors of the intern's intention to quit the organisation.

Further results showed that mentor providing career guidance ($r_{(df 79; p < 0.001)} = -0,261$, emotional support ($r_{(df = 79; p < 0.001)} = -0,234$) are significant predictors of the graduate intern's intention to quit the organisation and the internship programme. The effects were small.

The relationship were all negative which indicates that the more attention mentors pay attention to the significant aspects of mentorship listed above, the less likely the graduate intern will consider quitting the graduate internship programme and vice versa. Hypothesis 1 is therefore accepted.

The results in Table 3 are further supported by the responses of the graduate interns to the open ended questions.

From the responses of the open ended questions it was evident that the majority of the interns experienced the mentoring programme as positive as the programme offered them exposure and contributed to gaining more self-confidence and this in itself contributed to their own motivation. As mentioned by a graduate intern: *'My mentor/s had confidence in me and instilled a lot of knowledge and etiquette of professional conduct. My mentor/s gave me practical hands-on experience and how I should handle problems'.* Another graduate intern stated: *'I personally feel privileged to have had a mentor who was concerned and interested in our development. I received more than I bargained for'* and '*It's very important that you have a mentor who is always willing to help and guide you when you need it. I believe mentorship in internship programmes motivates interns and makes them more productive'.*

A few interns experienced their mentors as unwilling to share knowledge as they were threatened by the interns and in these instances even though mentors had a willingness to support the programme they did not demonstrate the required interpersonal skills to guide the intern, which resulted in a negative experience for the intern. As mentioned by a graduate intern: *I think there should be a greater priority placed on finding suitable*

Table 3: Regression Analyses: Mentorship Dimensions and Intention to Quit

Item	Description	R	Item	Description	R
MRQ1	Need for mentor	-.146	MRQ11	Mentor encourage intern to prepare for position at organisation	-.331*
MRQ2	Intern interaction with mentor	-.363*	MRQ12	Mentor encourages intern to behave alternatively	-.149
MRQ3	Intern benefit from interactions with mentor	-.389*	MRQ13	Sharing of personal experiences	-.121
MRQ4	Professional guidance and direction by mentor	-.341*	MRQ14	Mentor serves as role model	-.339*
MRQ5	Challenging assignments to improve intern competence	-.335*	MRQ15	Mentor display content expertise	-.213
MRQ6	Frequency of feedback from mentor	-.181	MRQ16	Mentor's attitudes influences intern's attitudes	-.174
MRQ7	Respect of mentor for intern	-.383*	MRQ17	Mentor share career history	-.111
MRQ8	Promotion of intern's career	-.261*	MRQ18	Mentor provide constructive and useful feedback on intern's performance	-.300*
MRQ9	Mentor encourage communication about fears and anxiety	-.234*	MRQ19	Appropriate recognition of intern's contributions	-.305*
MRQ10	Mentor convey feelings of empathy for graduate intern	-.157	MRQ20	Motivation to improve intern's work	-.201

*Significant

mentors as it plays a huge role in moulding an intern. It can clearly be seen that lackadaisical mentors (due to their personal growth within the company

or just by nature) lead to lackadaisical interns which is not a good quality for growth'. Another intern added: *'The mentor I was placed under was not the right person to mentor young professionals coming into the business. I gained more from other senior members than I did from my mentor. I feel no background check was done when selecting mentor i.e. no consideration was given who would add the most value in development of the intern'.*

Hypothesis 2

H_2: *The availability of a mentorship programme is a significant predictor of the mentor's decision to employ the graduate intern*

Pearson correlations with Kendal's Tau were used to test the above hypotheses due to the small sample size. The results are reported in Table 4 below.

Table 4: Correlation coefficient between Mentor's Intention to Employ versus Opportunity to apply Mentoring Skills

		Mentoring	**Intention to employ**
Mentoring	Correlation Coefficient	1.000	.455[**]
	Sig. (2-tailed)	.	.001

* Statistically significant: $p < 0,01$
\+ Practically significant correlation (medium effect): $r > 0,30$
\++ Practically significant correlation (large effect): $r > 0,50$

Table 4 shows a practically significant relationship of a medium effect between mentor's intention to employ graduate interns and the extent to which mentors were given the opportunity to apply their mentoring skills. Hypothesis 2 is therefore accepted.

The above results are also confirmed by some of the open ended responses of the mentors. Mentors made important observations about the need for the mentoring training programme in how it assisted them in being more effective in the mentoring process. As mentioned by a Mentor: *'Working with the interns on almost a daily basis has afforded me the opportunity to apply the skill which I have gained by means of the*

Mentorship Programme'. This is supported by another mentor who added: *'From prior internships I believe the mentorship training is important so effective mentorship can be provided'*. Some mentors mentioned time constraints that negatively impacted on the balancing between their mentoring role and fulfilling their normal management duties. A mentor for example indicated: *'Though it is time consuming and we have pressures to perform our own specific duties, it has to a fair extent allowed me to spend some quality time with my interns'*.

Discussion

The objective of this research was to determine whether mentorship, as part of a graduate internship programme, contributed to the retention of graduate interns in a South African ICT company. On average, results indicated that the intern benefited to a large extent from interactions with the mentor, received professional guidance from the mentor, received challenging assignments to improve his/ her competence, mentors displayed content expertise and mentors provided constructive and useful feedback on the interns' performance. The results are in line with Henson (2006) suggestion that mentee benefits include: career advice and advancement, personalised recognition and encouragement, improved self-confidence, learning to cope with the formal and informal structure of the company, honest criticism and informal feedback. Results also showed that the graduate internship programme allowed the majority of mentors to apply their mentorship skills and that they will consider employing the graduate interns on completion of the internship programme. The results confirm the mentor and organizational benefits in the mentorship process as indicated by Hemson (2006).

The remainder of the results are discussed per hypothesis formulated:

H₁: *The availability of a mentorship programme is a significant predictor of the graduate intern's intention to stay in the organisation*

     The results showed that mentorship is a significant predictor of the graduates' intention to quit. The relationship between mentorship and the intern' intention to quit was negative, which means that the more positive the

graduate interns experience mentorship, the less frequently he/she will consider quitting the graduate internship programme. The results are in line with research that found that companies with a mentoring program have reported a significant improvement in employee retention, organizational learning, leadership training and career development (Beck-Howard 2009; Henson 2006; Parker 2011; Geber & Roughneen 2011; Ingram *et al.* 2009). From the above findings, it is evident that there is a need for mentorship as an integral part of the graduate internship programme.

Furthermore, our findings also confirm that the role of the mentor is indeed 'to guide the professional development of the mentee and knowledge, experience and organizational perspectives are shared candidly within a context of mutual respect and trust (see Janse van Rensburg & Roodt 2005). Casey, Fink, Krugman and Probst (cited in Eigst 2009) further indicated that a climate encouraging socialization via mentoring precedes the successful transition of graduate nurses to competent co-workers. The quality of supervision and mentorship an employee receives is thus critical to employee retention. Our findings thus also confirm the need for matching the right mentor and graduate intern to ensure the success of the mentoring process (Berezuik 2010).

H₂: *The availability of a mentorship programme is a significant predictor of the mentor's decision to employ the graduate intern*

The results showed a positive significant relationship between mentorship and the mentor's intention to employ the graduate intern. This means that the greater the extent to which a mentor is allowed to practice his/her mentorship skills in the graduate internship programme, the more likely he/ she will consider employing the graduate intern. The results confirm the mentor and organizational benefits in the mentorship process as indicated by Henson (2006) and Clamp (2011), Cureton *et al.* 2010). One should however also take cognisance of the time constraints that mentors are facing in the effective execution of the mentoring process. In this context, a more formalised mentoring process will be less time consuming and supplement the informal process (Dinsdale cited in Janse van Rensburg & Roodt 2005).

This research had some limitations. The first limitation is related to

the sample size. This research used a purposive convenience sample which means the findings cannot be generalised to other organisations. The research however identified and confirmed the importance of mentorship that may be of relevance to other organisations for the employability and retention of graduate interns. The electronic nature of the research questionnaire posed a limitation to those participants in the population group that did not have access to the organisation's network system. This may be a possible explanation for the low response rate of mentors as many of them are working on sites with no computer access.

Mentoring is pivotal to the success of the graduate internship programme and mentoring training should be considered as a pre-requisite for any employee that is considered to fulfil the role of mentor. The benefit of mentorship skills through mentor training will have positive effects for all employees managed by a mentor and not only the interns. Mentoring must take the form of a structured development programme and not merely a management-by-incident approach. It is important that mentors are involved in setting the daily tasks and objectives of the intern, monitor the progress of the intern on a regular basis and provide them with feedback on their progress.

Conclusion

The absence of any research in the South African environment with regards to graduate interns' and mentors' perception on the role and relationship of mentorship in the implementation of a graduate internship programme, makes this research stand out as unique and exploratory in the domain. From this research, it is evident that there is a need for mentorship as an integral part of the graduate internship programme. Findings indicated that a graduate intern's intention to quit the graduate internship programme was significantly related to the frequency and benefit of interactions with a mentor, professional direction and career guidance, constructive and useful feedback, appropriate recognition of contributions, respect and emotional support. A mentor who guides, supports and counsels youth as they navigate their way through the world of work, will thus yield positive results, especially from the intern's point of view.

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The Impact of NSC Mathematics on the Performance of First Year Commerce Students

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Abstract
The change to the National Senior Certificate (NSC) in 2008 brought with it uncertainty as to what should be the admission requirements into a faculty of Commerce where one of the main filters is the grade obtained for mathematics. The purpose of the study is thus to determine the impact of NSC mathematics on the first year performance of Commerce students at a tertiary institution.

The research methodology involved extracting the mathematics and English or English 2 results from the NSC results for all first year commerce entrants in 2009 and comparing these results to their performance in selected first semester modules. Mathematics and English were chosen as minimum requirements in these two subjects are required in the entrance requirements of the Faculty of Management Studies at the University of KwaZulu-Natal. Furthermore, one extra point in the Mathematics score is the only distinction between the entry requirements for B Com General and B Com Accounting students. Most faculties of commence in South Africa focus on mathematics and English in their entrance requirements.

Performance in each University subject was most strongly correlated with school mathematics performance. Furthermore, the average student with 4 points for Mathematics had 30.77 matric points, but the average student with 5 points for Mathematics has 32.3 matric points. While one of those points is the additional Mathematics point, the other 0.53 points are because s/he is a stronger candidate. This has some implications for admissions in that setting the Mathematics cut-off at 5 points ensures a stronger student with a better chance of passing at university.

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Introduction

In 2008, learners at secondary schools wrote the National Senior Certificate (NSC) for the first time. All learners writing the NSC at the end of Grade 12 have to offer either Mathematics or Mathematical Literacy. In the past, Grade 12 learners could pass their subjects at three different levels (higher, standard or lower grade) and matriculation exemption was set as a minimum requirement for admission to university. The new curriculum offers 29 subjects at only one level and Grade 10, 11 and 12 learners must take four compulsory subjects, namely two South African languages, Mathematics or Mathematical Literacy and Life Orientation (Nel & Kistner 2009: 954). Furthermore, they must also take an additional three other subjects from the approved list of 29 subjects. To obtain a university exemption, a candidate must obtain at least 50-59% (a score of 4) in four school subjects from the designated list of recognized subjects for admission to university (DoE 2005).

The above changes provided some challenges to tertiary institutions in that the NSC introduced new syllabuses for Mathematics, introduced a new subject known as Mathematical Literacy and scrapped grade levels (i.e. higher and standard). It was also uncertain whether the standard for examination question papers would be of a higher or lower level than the previous years (Nel & Kistner 2009:955). Universities were therefore faced with introducing new entrance requirements to cater for the first cohort of students who would apply to university on the basis of their results in the NSC.

At the University of KwaZulu-Natal (UKZN), considerable thought was put into addressing what should be the new entrance requirements to the Faculty in view of the impending changes. Prior to the introduction of the NSC, the entrance requirements to the B Com Accounting degree and the B Com general degree were identical. Because of the higher failure rates in the B Com Accounting stream, the introduction of the NSC created an opportunity to distinguish between the two streams. The B Com Accounting stream follows the curriculum for students intending to qualify with a Certificate in Theory of Accounting (CTA) pass at the end of four years of

study. The CTA pass is the entrance requirement to write the Part 1 board examination of the South African Institute of Chartered Accountants (SAICA). The B Com general is a 'catch-all' description for all the other B Com curriculums.

While six NSC subjects count towards the score, of which four must be from the designated list, only Mathematics and English are compulsory. It must also be noted that not all the subjects appearing on the designated list are of equal difficulty. While Life Orientation (LO) is also required, its score does not form part of the overall score.

Problem Statement and Research Question

The NSC was a new examination. The Faculty required feedback as to whether it had set its entrance requirements at the correct level to ensure that learners admitted into the Faculty had a reasonable chance of success, and particularly, whether the Mathematics requirement had been was set at the correct level. The purpose of the study is thus to determine the impact of the NSC, by focusing on the Mathematics and English marks, on the first year performance of commerce students at a tertiary institution.

The research question was formulated as follows: What is the impact of Mathematics and English in the NSC on students' performance in the first semester of their studies?

This research adds further insight into the importance of mathematics and English as a predictor of students' success at university.

The following section of this article discusses the relevant research in this area. The research methodology and the results of the research follow after that. The article then discusses the conclusions, limitations of the study and areas for further research.

Literature Review

The literature review focuses on studies on students' performance in the field of accounting and management studies.

Internationally, the study by Wong and Chia (1996) investigated whether English and mathematics has a positive impact on a student's

performance in a first year accounting course. Their results revealed that a higher proficiency in mathematics was associated with a higher level of performance for students who were also competent in English. However, mathematics competency, if accompanied by poor language skills, negatively affected students' performance in accounting (1996:184).

A study by Drennan and Rohde (2002), who investigated the performance of students in advanced management accounting, found that while English as the first or subsequent language has no differential impact on performance at introductory levels, at advanced levels and in other subjects which required the application of concepts to new situations, students whose first language was English outperformed the students whose first language was not English.

Duff (2004) explored in Scotland the relationship between first-year undergraduate accounting and business economics' students approaches to learning, their age, gender, prior academic achievement and their subsequent academic performance and progression. His analysis identified prior academic performance (i.e. performance in school examinations) as the strongest predictor of first-year academic performance and progression.

Guney (2009) in Hull, United Kingdom, used endogenous factors (age, gender, country of origin, study effort, attendance, numeracy, work experience, academic experience, part-time work, learning disability, personal problems and future career) and exogenous factors (students' perceptions of teachers and teaching environment) to search for possible determinations of performance of non-accounting degree students in undergraduate compulsory accounting modules. Guney's results confirm those of Gist, Goedde and Ward (1996) that students with better numeracy backgrounds perform better in accounting. Interestingly, students with top GCSE grades performed better than those with top A-level grades. Other endogenous factors which show some correlation with performance were age, attendance, work experience, future career and degree course. The study also found that learning disability, part-time work and personal problems (which were combined into one score) may cause students to lose concentration and therefore under perform. With regards to exogenous factors, lecturers and assessment, and teaching material have a positive and significant effect on accounting performance.

Studies in South Africa have examined the impact of school accounting on performance in accounting in University (Rowlands 1988; Van Rensburg, Penn & Haiden 1998). These studies found little correlation between school accounting performance and university accounting performance. However, the latter study found that overall school performance in the matriculation examination a strong predictor of success in first level accounting modules. A comprehensive study by Millar (2006) who tracked the progress of two groups of students from 1st year (1999 and 2000) to 4th year found that at the first and second-year levels, there was a positive relationship between the final marks of the first year students and both the matric points and their matric mathematic results, with matric points a stronger predictor of success in the first and second year accounting module than the matric mathematic results. At third and fourth year, although there was only a modest positive relationship between performance in the two modules and the matric mathematics results, overall matric mathematics became a more important predictor of performance than matric points. Du Plessis, Müller and Prinsloo's 2005 study attempted to determine the profile of the successful first-year accounting student but their study did not take matriculation performance into account. A more recent study by Baard, Steenkamp, Frick and Kidd (2010) examined the factors influencing success in a first-year Accounting module at Stellenbosch University. This study found that the most important predictor of success was whether or not students had studied Accounting at school, the average Grade 12 mark, and attendance. Because the University accounting module covered the content of the school accounting, the strong relationship between school accounting and university accounting was expected. A study by the University of the Witwatersrand (Ballim 2010) indicates that the NSC examination results are a fair predictor of the likelihood of success of students in their first year of study.

The above studies indicate that a combination of mathematical and language proficiency together with overall ability indicated by the matric points are strong predictors of students' ability to perform at university.

Background

The previous and current requirements for entry into mainstream and four-year undergraduate degrees in the Faculty (as in Faculty Handbook) are presented in Table 1 below:

Table 1: Requirements for acceptance to degrees in the Faculty of Management Studies prior to and in 2009

Degree	Previous requirement	NSC requirement for 2009
B Com	36 points Maths D (HG) or B (SG)	31 points Maths 4, English & LO 4
B Com (Accounting)	36 points Maths D (HG) or B (SG)	32 points Maths 5, English & LO 4
B BusSci (General)	38 points Maths B (HG)	33 points Maths 6, English & LO 4
B BusSci (Actuarial Science)	38 points Maths A (HG)	34 points Maths 7, English & LO 4
B Admin	30 points Maths E (HG) or D (SG)	28 points Maths 3, English & LO 4
B Bus Admin	30 points Maths E (HG) or D (SG)	28 points Maths 3, English & LO 4
B Com4	32-35 points Maths E (HG) or D (SG)	28 points Maths 4, English & LO 4

Table 1 also shows the entrance requirements for other degrees within the Faculty. A survey of entry requirements for similar degrees at other universities indicates that the requirements of the Faculty of Management Studies are more or less in the middle when compared with

those of these institutions, some of whom indicate that they plan to raise their existing requirements (Spaull 2010). Students who do not meet the entrance requirements for the B Com degree enrol for the B Admin or B Bus Admin degree with the sole purpose of transferring to the B Com degree. This study thus includes all students registered for any of the five core modules for the B Com degree, regardless of whether or not a student was indeed registered for that degree.

The Faculty met its enrolment target as set out in the enrolment plan for 2009. There was thus no impact on our enrolments by the NSC in 2009 although a number of students applied to enter the Faculty with Mathematical Literacy and were not accepted.

Research Methodology

All first time entrants into the Faculty formed the population regardless of the degree for which they were registered. The study extracted the NSC score for all students, including their Mathematics and English marks, using EXCEL. The study then used the statistical package, STATA, to match the NSC marks (overall points, Mathematics, English and English 2) of each individual student to the marks the student received in the five core subjects or modules taken in the first semester. (This detailed data is not shown in the paper.)

The correlation coefficients between five core degree subjects (Accounting - ACC101, Economics - ECON101, Information Systems and Technology - ISTN101, Management - MGNT101 and Mathematics - MATH134) and three relevant school subjects (Math, Eng1, Eng2) were then calculated using the actual mark that the student received for the university subject (64% for Econ101 for example) and the points (or level) they received for Maths or English (5 for Maths (60-69%) for example). In addition a cross-tabulation was performed to identify the marks obtained by students in each category of NSC Mathematics.

Results And Discussion

The profile of the new intake of first year students in 2009 who were admitted with the NSC is provided in Table 2 below:

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Table 2: Profile of 2009 first year entry mainstream cohort

Overall point score according to the NSC	Number of students	Gender	
		Male	**Female**
45 and above	31	13	18
43 - 44	44	-	31
41 - 42	76	22	54
39 - 40	110	42	68
37 - 38	142	60	82
35 - 36	170	68	102
33 – 34	185	85	100
Less than 33	382	180	202
Total	**1 140**	**483**	**657**

Table 2 shows that approximately half of the students (567 or 49,7%) have 34 points on entry into the faculty and more than half of the students are female (657 or 57.6%). As gender was not investigated in this study, no further analysis of the results is made in respect of gender. A summary of the pass rates in each module and the corresponding number of students are shown in Table 3.

Table 3: Performance of students in the five core modules

	ACC 101	ECON 101	ISTN 101	MNGT 101	MATHS 134
39% and below	91	272	64	3	137
40 – 49%	74	258	168	20	141
50 – 59%	430	359	553	263	266
60 – 69%	227	181	183	334	170
70 – 79%	86	101	59	125	95
80 – 89%	8	34	5	10	59
90 – 100%	-	7	-	-	39
Total number of students	**916**[1]	**1 212**	**1 032**[2]	**755**[3]	**907**[4]

Notes:
[1] Only the B Com degree requires ACC 101

[2] Students can choose between ISTN 100 and 101

[3] MNGT 101 is not offered on the Pietermaritzburg campus, thus the number of students represents Westville only.

[4] This discrepancy could be due to the fact that some students achieved points (for English or Mathematics) below 4, i.e. they achieved 1, 2, or 3. These students are not shown in the tables. It should also be noted however that the total number of these students makes up only a small proportion of the total (ranging from 1- 8%). If these were to be included, it would make the tables unnecessarily detailed or extensively footnoted.

The results in Table 3 suggest that some students are not coping, especially with modules involving quantitative analysis. For ECON 101, 530 students failed (i.e. 43,7%). For MATHS 134, 278 students failed (i.e. 30,7%). This sentiment was expressed at the Faculty Examination Board meeting after the first semester examinations where lecturers pointed out that students were not coping with the problem solving aspect within some modules and the introduction of a numeracy test for potential students was suggested. In addition even where students performed well, their writing skills were extremely poor.

Table 4 shows the correlation coefficients between five core degree subjects (ACC101, ECON101, ISTN101, MGNT101 and MATH134) and three relevant school subjects (Mathematics (Math), English first language (Eng1) and English second language (Eng2)).

Table 4: Correlation[1] between performance on four 1st year modules and NSC point scores for related school subjects
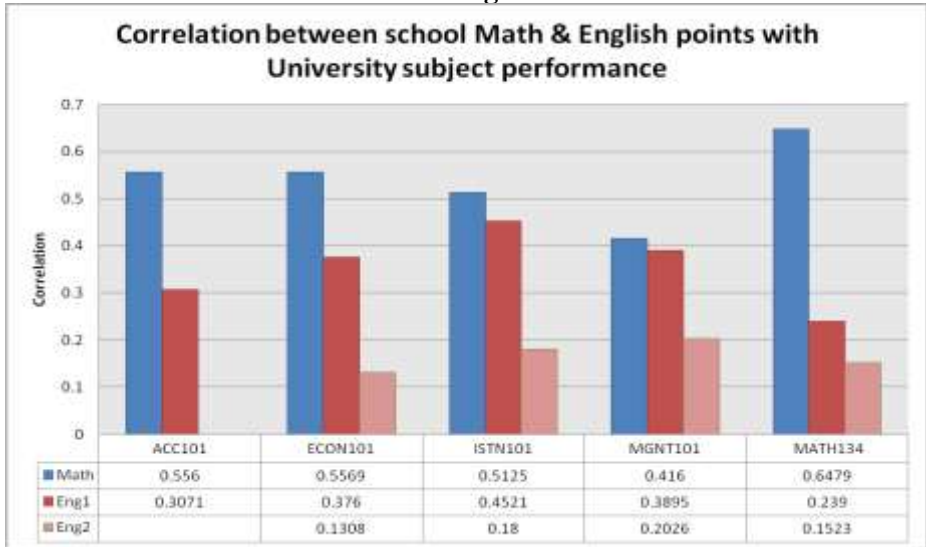
	ACC101	0.5560
Correlation between Math and:	ECON101	0.5569
	ISTN101	0.5125
	MGNT101	0.4160
	MATH134	0.6479

	ACC101	0.3071
Correlation between Eng1 and:	ECON101	0.3760
	ISTN101	0.4521
	MGNT101	0.3895
	MATH134	0.2390
	ACC101	Not statistically significant
Correlation between Eng2 and:	ECON101	0.1308 [3]
	ISTN101	0.1800 [2]
	MGNT101	0.2026 [2]
	MATH134	0.1523 [3]
	ACC101	0.5811
	ECON101	0.6250
	ISTN101	0.6013
Correlation between NSC points and:	MGNT101	0.5591
	MATH134	0.5543

[1] Technically this is Spearman's rho that is calculated since one variable (NSC points) was ordinal while the other (first year module performance) was interval. However, this measure of correlation can be interpreted in the same way as a normal correlation coefficient.
[2] 5% significance
[3] 10% significance

Figure 1 shows that performance in each University subject is most strongly correlated with school mathematics performance. All of the correlation coefficients are positive indicating that if students performed well in school subjects they were more likely to perform well in University subjects, which is to be expected. Similarly, school Mathematics and MATH134 have the strongest correlation (0.6479). Again, this is to be

expected. It is interesting to note the relatively weak positive correlation between the University subjects and Eng2. Thus, although there is a positive relationship between Eng2 performance and University performance, this relationship is weak, especially in comparison to the relationship between Eng1 and University performance and Math and University performance (see figure 1).

Figure1:

	ACC101	ECON101	ISTN101	MGNT101	MATH134
■ Math	0.556	0.5569	0.5125	0.416	0.6479
■ Eng1	0.3071	0.376	0.4521	0.3895	0.239
■ Eng2		0.1308	0.18	0.2026	0.1523

In order to further probe the implications of the NSC Mathematics mark, a cross-tabulation of the performance in each of the five core modules by each NSC Mathematics level is shown in Table 5.

Table 5: Cross-tabulation: NSC Mathematics by performance in the core modules

NSC Maths	ECON 101	ACCT 101	ISTN 101	MNGT 101	MATHS 134
1	30	.	63.5	.	.
2	36.83333	50	59.2	63	.
3	41.2973	48.54545	54.04545	59.85714	29

4	45.64255	56.29268	54.33155	60.74757	43.37681
5	51.17466	56.50112	58.33745	60.80365	58.57216
6	56.44521	63.74829	59.11994	63.24199	64.155534
7	63.29833	65.99	61.04151	66.33913	69.34231
8	71.16204	68.97945	65.04571	71.13333	81.47143
Total	56.39277	62.39459	59.45454	63.56663	64.08729

Table 5 shows that students with an NSC Mathematics level 4 on average failed both ECON 101 and MATHS 134. Thus entry requirements should be pitched at Mathematics level 5 rather than Mathematics level 4.

Table 6 shows the mean matric points for each Math NSC category. Those students who do better in Mathematics do better in other subjects. This has some implications for admissions. The average student with 4 points for Mathematics has 30.77 matric points, but the average student with 5 points for Mathematics has 32.3 matric points (one of those points is the additional Mathematics point, but the other 0.53 points are just because s/he is a stronger candidate (i.e. s/he got 0.53 points higher on average for the other subjects which comprised the matric score than the student with four points for NSC Mathematics).

Table 6: Mean matric points for each Math NSC category

Maths NSC	Matric points
1	25.8
2	27.86813
3	28.7713
4	30.77284
5	32.32245
6	34.40893
7	37.88707
8	41.94163
Total	**34.21431**

These results must also be contrasted against research that has established that there are large differences between the previous Mathematics Higher Grade and NSC Mathematics (Simkins 2010:3). Simkins comments that while the general policy 'was to make an old standard grade pass at the 33% level equivalent to 30% in the corresponding National Senior Certificate subject and to make an old higher grade pass at the 40% level equivalent to 50% in the new NSC subject', what actually occurred was quite different. Correspondences established between marks in Mathematics Higher Grade 2007 and Mathematics in 2008 'place a 40% pass in mathematics higher grade in 2007 as equivalent to 54% in mathematics in 2008' (2010:18). This would further support that the admissions requirements into a B Com degree should be raised to the next bracket (i.e. at least at a level 5) for Mathematics.

Conclusion, Limitations And Further Research

The study was undertaken with the objective of confirming whether the entrance requirements in respect of Mathematics had been correctly set in view of the unknown quality of the NSC and the changes in the NSC as compared to the former matriculation examination. The study has shown that a student needs to enter the university in a commerce faculty with at least a pass at the Mathematics level 5 to succeed in the five core first semester modules (see table 5). This suggests that the entrance requirement needs to be increased to Mathematics level 5 for all Commerce students. If the Mathematics level remains at level 4, then the University will need to provide support for those students who do not enter with Mathematics level 5. This is further confirmed by Simkins (2010).

A limitation of this study is that it only considers one cohort of students in the area of commercial studies. Further research could examine new cohorts of students and also consider gender and race in the analysis.

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The Role of Management Accounting in Creating and Sustaining a Competitive Advantage in the Banking Industry

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Abstract

The main purpose of this article is to provide insights into the role of management accounting in creating and sustaining a competitive advantage especially in the banking industry. The literature reviewed and the results from an empirical study that involved a sample of forty respondents from Equity Bank found that modern management accounting provides skills and techniques that play a vital role in the planning, developing, implementing and evaluating of strategic competitive policies that result in a competitive advantage. This study was carried out at Equity Bank - Kenya, a leading commercial bank in Kenya whose rapid growth and competitiveness can be attributed to the application of innovative management accounting practices. The study found that management accounting practices provide both internal and external competitive strategies that enable business organisations to create and sustain a competitive advantage.

Keywords: Management accounting, competitive advantage, competitive strategies, banking industry.

Introduction

Management accounting techniques have not been fully accepted as a means to develop a competitive advantage since management accounting practices

have long been associated with providing management solutions for internal management purposes especially in the manufacturing industry. However, according to Kiesler and Sproull (1982:548), management accounting practices have moved from reporting historical information to taking part in the strategic planning process of an organisation. They argue that management accounting skills are actively applied in the competitive business environment where market intelligence is sought and evaluated, strategic decisions are made and competitive strategies are put into place. These factors enable an organisation to gain an advantage in the ever-demanding competitive business environment where innovative management accounting practices need to be employed (Ittner & Larcker 1997:243). Conversely Durand (2003:821) argued that management accounting remains largely unexploited as a powerful approach to accounting for a competitive advantage. He notes that, as an essential part of international business thinking, a competitive advantage takes a strategy from a broad vision to an internally consistent configuration of activities within an organisation. The management accountants should therefore be at the forefront in the search and development of innovative competitive strategies that may enable an organisation to remain profitable and competitive.

Thompson, Strickland and Gamble (2009), note that management accounting develops ideas for both manufacturing and service organisations. In addition, Horngren, Sundem, Stratton, Schatzberg and Burgstahler (2009:4) contend that management accounting provides solutions for the survival of a business in the prevailing dynamic business environment where competition, customer's preferences and innovative information technology make the profitability of businesses a major challenge. As today's business environment becomes increasingly competitive, business organisations are becoming more aggressive and dynamic in identifying competitive strategies that will ensure a profitable existence. Certain management accounting practices provide strategies that can influence customers' loyalty. Thompson *et al.* (2009) are of the view that the adoption of management accounting techniques may create a competitive edge in an organisation.

Although the importance of management accounting in the success of organisations has been researched by other scholars the role of management accounting in the creation of a competitive advantage

especially in service industries and the banking industry in particular has been under-researched according to the authors.

The layout of the article is as follows: In the following section the research method and survey instruments are presented. The concept of management accounting and the changing role of management accounting practices are presented and are followed by a short discussion on management in banks, the data analysis and the interpretation of the results. This is followed by a conclusion and an indication of future work.

Research Questions

The main research question of this article is:

What is the role of management accounting in creating and sustaining a competitive advantage in the banking industry?

The sub questions are:

1. What is the importance of management accounting practices in creating a competitive advantage?
2. What is the importance of management accounting practices in developing competitive strategies?
3. What is the contribution of management accounting practices in shaping a competitive advantage?

Literature Review

This article is based on a MCom dissertation (Ndwiga 2011). The literature review provides the necessary background of the concept of management accounting, the changing role of management accounting practices and an overview of management in banks.

The Concept Management Accounting

The Chartered Institute of Management Accountants (CIMA 2009) defines management accounting as the practical science of value creation within

organisations in both the private and the public sectors. It combines accounting, finance and management with the leading edge techniques needed to drive successful businesses. In addition, Frank (1990:155) outlines management accounting as a practice that incorporates strategic, performance and risk management skills in management.

These skills provide an organisation with strategies that focus on the dynamic business environment and are driven by management accountants. Shah (2009) asserts that management accountants apply their professional knowledge and skills in the preparation and presentation of financial and other decision-oriented information. This aspect assists management in the formulation of policies and in the planning and controlling of operations in their organisations. Management accountants may therefore be seen as value creators that in turn assist an organisation to gain a competitive advantage.

The Changing Role of Management Accounting Practices

According to Drury (2004:12), the role of management accounting has moved from the traditional confines of planning, control, organisation, communication and motivation and now focuses more on the external business environment: competition, opportunities, threats and changing circumstances. In addition, he notes that management accounting is expected to play a bigger role in the formulation, implementation and control of business strategies. Therefore, innovations in management accounting practices have enabled management accounting to remain appropriate in the creation of competitiveness in organisations.

Shah (2009:10) argued that in the past management accountants were referred to as controllers since they were in charge of all financial accounting and cost accounting functions. He notes that the controller's function entailed the accumulation of data and reporting it to all levels of management as well as directing and helping managers in problem solving and in identifying opportunities that could add value to the organisation. However, Shah (2009) indicates that modern management accountants play a dual role in the organisation. Firstly, they are responsible for the integrity of top management and the reliability of the reports they submit. Secondly, they assume a helper's role in which they are responsible for helping

departmental managers in strategic planning and controlling operations.

Contemporary management accounting practices have incorporated the skills of traditional and innovative costing methods. According to McLaney and Atrill (2002:365); and Bastl, Grubic, Templar, Harrison and Fan (2010:68) the innovative methods include, standard, lifecycle, activity based (ABC), target and Kaizen costing.

The literature suggests that traditional costing methods can be combined with modern and innovative costing techniques in adapting competitive costing techniques that can result in the production of competitive products or services for an organisation. Consequently, the innovative costing techniques may be applied in the creation of a competitive advantage.

According to Drury (2004) and Shah (2009) innovative management accounting has incorporated competitive strategies which Coulter (2010) identifies as key aspects in creating a competitive advantage in an organisation. Coulter (2010) notes that, these competitive strategies include cost leadership strategy, product and service differentiation, focused marketing and growth, human resource development and strategic alliances strategies. In addition du Plessis (2004) identified the important role of management accounting practices in customer profitability, customer satisfaction, competitor analysis and accounting, information technology and benchmarking. Hence, the involvement of management accounting in the competitive business environment where businesses require the creating and sustaining of a competitive advantage, may be necessary.

An Overview of Management in Banks
It could be argued that the nature of the banking industry is service oriented and depends on human resources. This aspect may have driven management of banks to be steadfast in achieving a high level of quality, on-time delivery, customer satisfaction and loyalty as well as employee satisfaction and loyalty in the changing business environment.

The operations of commercial banks and competing financial institutions are constantly changing. According to Koch and MacDonald (2006:33), savings, loan and credit unions, brokerage organisations,

insurance companies and investment banks offer products and services that were traditionally associated with commercial banks. Commercial banks in turn offer a variety of insurance, real estate and investment banking services that they were denied. According to Saunders and Cornett (2008), differences between these institutions are eroded by competitive forces, deregulation (relaxation of rules governing the banking industry) and the changing financial and business technologies. Hence, to remain competitive, an organisation should identify the products with which it has a market advantage and provide customer services that distinguish it from its competitors.

Koch and MacDonald (2006:2) have outlined important bank management issues that may enhance competitiveness. These include adapting to the changing banking environment, analysing bank performance and projecting profitability and risks, managing interest rate risks, managing the cost of funds, bank capital and liquidity management, managing credit given to customers and managing the investment portfolio. These management issues are areas of concern for the management accounting practices. Therefore, innovative management accounting practices may be a source of a competitive advantage for an organisation.

Research Method and Survey Instruments

The research was conducted through a questionnaire accompanied by an introductory letter clarifying the purpose and objectives of the entire project. The sample consisted of eighteen senior managers and twenty-eight branch managers from Equity Bank in Nairobi County in Kenya. The letter of permission below to carry out research was obtained from the bank.

The sample of the top executives was selected based on their job description. The intention was to ensure that typical or representative subjects that could provide the required information were chosen as suggested by Krishnaswamy, Sivakumar and Mathirajan (2009).

Purposive sampling was applied in identifying the target population. The method was applied because it is believed to be reliable in providing the typical information required for the study (Kombo & Tromp 2006:82).

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Your Ref: ....
Our Ref: EB2010/PR/JUNE/F/2512

Date: 18th June 2010.

RE: PERMISSION FOR RESEARCH.

Your request to carry out a research dated 29th May 2010 has been granted.
You are however requested to adhere to the ethical issues governing data collection and more so to be patient with our staff.

We hope that you will find the research interesting and worthwhile for you studies.

Wishing you success.

MBUGUA JOSEPH.
PUBLIC RELATIONS OFFICER.

The respondents were ensured of the confidentiality of their responses with the confidentiality note:

The fine details of competitive strategies and actions as well as strengths, weaknesses, opportunities and threats are confidential. Due to this aspect, the questions in the questionnaire do not suggest the collection of any confidential information. They are formulated in such a way as to establish if theory and practice correspond. Furthermore the data collected will exclusively be used for academic purposes in this study only. With this aspect in mind, the name of the respondent or information that may lead to a particular respondent will not be implied. Furthermore, the results will be used for academic research purposes only (Ndwiga 2011).

The questionnaire was developed and refined as follows: nearly all items on the management accounting practices were adapted from previously published works. A preliminary draft of the questionnaire was discussed with the supervisor of the study and some research students to assess the content validity prior to pilot testing; a pilot test was conducted in five branches, whose inputs were used to improve the clarity, comprehensiveness and relevance of the survey instrument.

In order to collect data that precisely meets the objectives of the study, both open-ended and closed-ended questions were included in the questionnaire (Kombo and Tromp 2006:89). Close ended questions had a four point Likert scale – from 1- very important, 2 - somewhat important, 3 - not important and 4 - not sure; the extent to which management accounting practices were applied in the various competitive strategies adopted by the bank. The Likert scale was adapted for the questions based on the shaping of the competitive advantage: from 1- very useful, 2 - somewhat useful, 3 - not useful and 4 - not sure.

The questionnaire was divided into four sections, namely:

- Rating the level of competition between banks in Kenya.

- The importance of management accounting practices in creating a competitive advantage.

- The importance of management accounting practices in developing competitive strategies. Strategies with regard to

the following were tested: Product development, service delivery, transaction processing, marketing, human resource and information Technology.

- The contributions of management accounting practices in shaping a competitive advantage. Practices with regard to the following areas were tested: Evaluating the changing business environment, growth and expansion, risk management, analysing competitors, evaluating customers' needs, assessing customers' abilities to repay their loans.

The survey was carried out by sending questionnaires to the targeted persons. After three follow-ups by telephone to non-respondents to increase survey response rate, 40 questionnaires were sent back.

Data Analysis and Interpretation

The raw data collected was sorted and edited as the first step towards its analysis. The questionnaires were organised and classified according to the patterns given by the respondents and their homogeneity. The responses from the questionnaires were organised in line with the research questions and descriptive narratives were used to reflect the situation as it occurred at Equity Bank. Both descriptive and inferential statistics were used in the analysis of the data. Descriptive statistics included frequencies from which percentages were derived. The analysed data was summarised and findings were reported as a description of the total population of the study. Data is presented in the form of percentages and tables for easier interpretation followed by a short description and reference to the literature.

Rating of Competition in the Banking Industry

Table 1 shows the rating of competition in the banking industry in Kenya. This was necessary in order to justify the importance of creating a competitive advantage for Equity Bank.

Table 1: Rate of competition in the banking industry

Category	Percentage (%)
High	75%
Moderate	20%
Low	0%
Not sure	5%
Total	**100%**

Seventy five percent of the respondents indicated that competition in the banking industry was high. Therefore, the quest to develop and sustain a competitive advantage within the banking industry in Kenya can be attributed to the high level of competition that prevails in the industry.

Importance of Management Accounting Practices in Creating a Competitive Advantage

Table 2 shows that 85% of the respondents indicated that management accounting practices were very important in creating a competitive advantage.

Table 2: Importance of management accounting practices in developing a competitive advantage

Categories	Frequency	Percentage (%)
Very important	34	85%
Somehow important	4	10%
Not important	0	0%
Not sure	2	5%
Total	**40**	**100%**

The results shown in this table, support Schulz's (2001:661) argument that management accounting practices add value to a business and directly supports an organisation's strategic goals. In addition Hilton (2008) argues that management accountants take a leadership role in their teams and they provide valuable information that guides the organisation towards

achieving its strategic goals. Therefore, it can be concluded that management accounting provides important skills that may be necessary for creating a competitive advantage for an organisation.

Importance of Management Accounting Practices in Developing Competitive Strategies

This aspect covered competitive strategies that relate to product development, service delivery, transaction processing, marketing, human resource and information technology (IT). Table 3 shows the responses on the competitive strategies that were covered. The discussion below is directed by the highest percentage that favours the particular strategy.

Table 3: Importance of management accounting practices in developing competitive strategies

Category	Very important	Somewhat important	Not important	Not sure
Product Development	72%	20%	2%	6%
Service Delivery	78%	16%	0%	6%
Transaction Processing	70%	18%	2%	10%
Marketing	77%	16%	1%	6%
Human Resource	74%	18%	0%	8%
Information Technology	80%	15%	0%	5%

Product Development

The study showed that 72% of the respondents acknowledged that management accounting practices were applied in the strategies relating to product development. This implies that management accounting practices are important in developing innovative and competitive products and services. This confirms the statement by Koch and MacDonald's (2006:40) that innovations in service delivery have made banks to change the way they offer products and services with the intention to improve their competitive position. Therefore, management accounting practices provide the necessary

skills for crafting strategies that enhance the development of competitive products and services that may lead to the creation of a competitive advantage.

Service Delivery
In relation to service delivery, 74% of the respondents showed management accounting practices were used in developing strategies for service delivery. This supports the literature by Iyengar (2007:305) who notes that satisfied customers are valuable assets for a bank in the creation of a competitive advantage. Hence, management accounting practices could provide important skills that may enhance service delivery which leads to the creation of a competitive advantage.

Transaction Processing
The results of the study showed that 70% of the respondents stated that management accounting practices were applied in the strategies that defined transaction processing in the bank. This indicates that proper transaction processing may create competitiveness for an organisation. According to the Indian Institute of Banking and Finance (IIBF 2008:118) banks have to offer better services and cooperation coupled with courteous service to customers in order to gain a competitive advantage. Management accounting practices may therefore provide important transaction processing strategies that enhance competitiveness.

Marketing
In relation to marketing, 77% of the respondents noted that management accounting practices were applied in developing marketing strategies. This result indicates that management accounting practices are important in developing marketing strategies for an organisation. According to Ashmos, Duchon and McDaniel (1998:25), a good marketing strategy creates a good competitive edge for an organisation especially as it expands into new areas. It may be concluded that management accounting practices play an important role in the development of marketing strategies that lead to the creation and sustaining of a competitive advantage.

Human Resources

In relation to human resources, 74% of the respondents supported the idea that management accounting practices were important in developing strategies that support human resources in an organisation. Organisations that are determined to improve productivity and lower costs are using human resources as the first step towards attaining this goal (Snell & Bohlander 2007:9). Therefore, management accounting practices may be very important for the development of competitive strategies that enhance productivity of the human resources leading to the creation of a competitive advantage.

Information Technology (IT)

In relation to IT, 80% of the respondents indicated that management accounting practices were useful in the development of strategies that relate to IT. Podder and Gadhawe (2007:108) argue that the potential benefits that accrue to IT include cost-savings, speed, convenience, control, flexibility, increased productivity, better reporting, greater accuracy, consistency, as well as empowering and expanding the capacity of employees, managers and the whole staff in general to keep their organisations competitive. Muraleedharan (2009:337) also notes that using new technology helps banks to look at new ways to make each banking experience more convenient, efficient and effective. The results reveal that management accounting practices may be applied in establishing IT strategies that enhance the creation of a competitive advantage.

Contributions of Management Accounting Practices in Shaping a Competitive Advantage

Table 4 gives the analysis of the contributions of management accounting practices in evaluating the changing business environment, growth and expansion, risk management, analysing competitors, evaluating customer's needs and assessing customer's abilities.

**Table 4: Contributions of management accounting
practices in shaping a competitive advantage**

Category	Very important	Somewhat important	Not important	Not sure
Evaluating the Changing Business Environment	75%	20%	0%	5%
Growth and Expansion	70%	20%	0%	10%
Risk Management	75%	20%	0%	5%
Analysing Competitors	80%	15%	0%	5%
Evaluating Customers' Needs	80%	20%	0%	0%
Assessing customers' Abilities	60%	20%	5%	15%

The response in favour of management accounting practices contributions in shaping a competitive advantage are discussed below.

Evaluating the Changing Business Environment
The results showed that 75% of the respondents noted that management accounting practices were applied in evaluating the changing business environment. According to BPP (2005) in order for an organisation to secure an environmental fit, an analysis of its environment is paramount. Hence, the involvement of management accounting practices in the environmental analysis by Equity Bank ensures that the bank develops correct strategies that minimise the negative effects of Political Environmental Social and Technological (PEST) and develop environmental strategies that facilitate the creation of a competitive advantage.

Growth and Expansion
In relation to growth and expansion, 70% of the respondents noted that management accounting practices were very important in developing strategies that enhance the growth and expansion of Equity Bank. This response supports the literature by Ashmos *et al.* (1998:25) who notes that

management accountants have a responsibility to establish creative marketing systems that enhance growth and competitive advantage. The results indicated that management accounting practices are important in developing strategies that enhance growth and competitiveness.

Risk Management

The results of the study indicated that 75% of the respondents stated that management accounting practices were applied by Equity Bank in developing strategies that ensured good risk management. The results support the observation by Koch and MacDonald (2006:276) who note that a financial institution needs to put in place prudent liquidity, foreign exchange, interest rate, credit, market and operating risk management in order for it to remain competitive and profitable. This leads to the conclusion that management accounting practices play an important role in providing strategies that reduce risks and such strategies may lead to the creation of a competitive advantage.

Analysing Competitors

The results were that, 80% of the respondents indicated that management accounting practices were used in analysing competitors. Du Plessis (2004:42) argues that competitor analysis enables an organisation to identify its competitor's goals, achievements, strengths and probable reaction to an organisation's strategies. Therefore, management accounting practices may create a competitive advantage by developing strategies that are informed by understanding the competitive position of competitors.

Evaluating Customer' Needs

The response concerning the evaluation of customers' needs was that 80% of the respondents felt that management accounting practices were applied in evaluating customer's needs at Equity Bank. According to van der Stede (2000:609) evaluating customer needs enables an organisation to obtain relevant information about the customers it serves. In addition, Iyengar

(2007:305) suggests that satisfied customers can be attributed to the growth and competitiveness of an organisation. The involvement of management accounting practices in evaluating customers' needs by the bank leads to the conclusion that management accounting practices play an important role in the creation of a competitive advantage.

Assessing Customers' Abilities

The results indicated that 60% of the respondents supported the idea that management accounting practices were useful in assessing customer's abilities in terms of repayments of loans. This observation implies that management accounting skills may enable an organisation to gather valuable knowledge on the customer's ability to honour their financial obligations. Such knowledge would assist the organisation in developing strategies that enhance better customer service in such a way that it creates a competitive advantage.

The results discussed in this section show that the application of management accounting practices in the competitive business environment where competitive strategies are required in order to sustain competitiveness is indeed a necessity.

Revisiting the Research Questions

It was found that management accounting plays a very important role in creating and sustaining a competitive advantage in the banking industry. This was established through the literature survey as well as the results of the questionnaire. The answer to the first sub research question is the following:

- Management accounting practices provide both internal and external competitive strategies that enable business organisations to create and sustain a competitive advantage.

- Management accounting practices are very useful in making key organisational decisions which lead to the creation of a competitive advantage.

- Management accounting practices provide very important strategies for performance and competitiveness in an organisation especially in the banking industry.

The second sub research question was answered as follows:
Management accounting practices that enhance the creation of a competitive advantage:

- Provide the necessary skills for crafting strategies that enhance the development of competitive products and services;

- Provide important skills that may enhance service delivery;

- Provide important transaction processing strategies that enhance competitiveness;

- Play an important role in the development of marketing strategies;

- May be very important for the development of competitive strategies that enhance productivity of the human resources; and

- May be applied in establishing IT strategies.

The answer to sub research question 3 is:

- The involvement of management accounting practices in the environmental analysis ensures that the bank develops the correct strategies that minimise the negative effects of (PEST) and develop environmental strategies that facilitate the creation of a competitive advantage.

- Management accounting practices are important in developing strategies that enhance growth and competitiveness.

- Management accounting practices play an important role in providing strategies that reduce risks.

- Management accounting practices may create a competitive advantage by developing strategies that are informed by understanding the competitive position of competitors.

- The involvement of management accounting practices in evaluating customers' needs by the bank leads to the conclusion that management accounting practices play an important role in the creation of a competitive advantage.

- Management accounting skills may enable an organisation to gather valuable knowledge on the customer's ability to honour their financial obligations leading to the development of strategies that enhance better customer service in such a way that it creates a competitive advantage.

Conclusions

Management accountants may be seen as value-creators which in turn assist an organisation to gain a competitive advantage. Firstly, they are responsible for the integrity of top management and the reliability of the reports they submit. Secondly, they assume a helper's role in which they are responsible for helping departmental managers in strategic planning and controlling operations. To remain competitive organisations should identify the products with which it has a market advantage and provide customer services that distinguish it from its competitors.

The involvement of management accounting practices in developing competitive strategies shows the departure of management accounting from the traditional confines of internal reporting to focus more on the competitive business environment. The literature suggests that traditional costing methods can be combined with modern and innovative costing techniques in adapting competitive costing techniques that can result in the production of competitive products or services for an organisation.

Consequently, the innovative costing techniques may be applied in the creation of a competitive advantage.

Management accounting practices also provide the necessary skills for crafting strategies that enhance the development of competitive products and that may enhance service delivery which leads to the creation of a competitive advantage.

The aim of this article was to contribute to a better understanding of the importance of management accounting in creating a competitive advantage in an organisation especially in the banking industry. The sample was chosen from the banking industry in a developing country which may not be enough to be able to generalise the findings to the banking industry within the developed countries. Future work may entail that the study be taken further using data of a larger sample of banks and other service organisations; as well as more regions to confirm the findings.

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Customer Complaint Behaviour and Companies' Recovery Initiatives: The Case of the Hello Peter Website

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Abstract

With technological advancements, consumers now have many different avenues as platforms to communicate or voice their opinions about organisations and service levels. Increased competition and a more vigilant consumer mean that organisations need to keep track of their customers' perceptions of service and product delivery and where necessary, to respond to customer complaints so as to retain, rather than lose customers.

Hello Peter is the world's largest customer service website which was founded by Peter Cheales in 2000 (Arbuckle 2008: paragraph 2). The website allows for consumers to post their complaints and compliments based on their experiences with a particular firm. The organisation is then requested to provide the consumer with a recovery initiative to remedy the failure.

The objectives of the study aimed to assess and categorise the different types of customer complaints on the Hello Peter website, identify the various companies' recovery strategies to these complaints, and where possible to evaluate the effectiveness of these recovery strategies. Qualitative research techniques were used to gather in-depth data regarding the consumers' reasons for complaining as well as the organisations recovery strategies. The sample size consisted of 1 000 complaints. Inductive Thematic Analysis was used during data analysis to code and create themes for the data collected.

The most common online complaints on the Hello Peter website were regarding delays in company responses, companies promising action and failing to then act, and unhelpful company responses. Common recovery

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strategies used by organisations were offering to be in contact with the complainant and acknowledging the customers' complaint. Offering the customer an apology was also a frequently used recovery initiative. From the consumers who responded to the recovery initiative it was found that a relatively low percentage of complainants were impressed with the recovery outcome and process. The findings also indicated that consumers had the most positive responses when an apology was provided as well as a reference number for the consumer to track their complaint. Online recovery strategy recommendations were made.

Keywords: Online complaint behaviour, customer complaints, recovery strategies, Hello Peter website, customer satisfaction with recovery strategies, Inductive Thematic Analysis

Introduction

Consumers are faced with various choices when making a purchase. Given that consumers are generally spoilt for choice, businesses in any industry need to ensure that they offer a high level of customer service in order to secure customer loyalty as well as a strong brand image. Customer service has a direct impact on customer loyalty as consumers' perceptions are difficult to change (Sabharwal, Soch & Kaur 2010: 126).

With technological advancements, consumers now have many different avenues as a platform to communicate or voice their opinions about organisations and service levels. The Hello Peter website, founded by Peter Cheales in the year 2000, is the world's largest customer service website (Arbuckle 2008: paragraph 2). The site allows consumers to report poor customer service, poor product quality, or provide information on good service that they have received. Companies then have the opportunity to remedy the complaint which will be followed by the consumers' response to the service recovery method chosen.

The purpose of the research project was to provide businesses with an idea of what types of failures consumers' complain about on the Hello Peter website and to provide insight into the different service recovery methods and those that are most effective in solving the customers' complaints.

Literature Survey

This section focuses on current literature relating to customer complaint behaviour and service recovery, as well as the role of technology in customer complaint behaviour. This section also provides a brief discussion of the Hello Peter website and its complaint process.

Customer Complaint Behaviour

Complaint behaviour is one possible response to customer dissatisfaction (Crie 2003: 60). Customer complaint behaviour as an action taken by an individual which involves communicating something negative regarding a product or service to either the firm manufacturing or marketing that product or service, or to some third party organisational entity (Ruoh-Nan & Lotz 2009: 107).

Dissatisfaction can lead to a variety of responses (Lovelock & Writz, 2007: 391):

No action: This refers to the circumstance in which the consumer remains loyal despite the problem experienced and the resulting dissatisfaction. This may be due to there being no available alternative (Butelli 2007: paragraph 6).

Private actions: These comprise mainly word-of-mouth communication to friends and family. Dissatisfied customers will tell between eight and ten people about bad service they have experienced, and one in every five angry customers will tell 20 people (Hocutt, Bowers & Donavan 2006: 199). The harm caused by dissatisfied customer's talking to friends is minimal however, compared to the harm generated via new technologies such as the Internet and social media. These technologies make it possible for individuals to voice their disappointment with regards to poor service quickly, in large volumes, around the world and in some cases anonymously (Hocutt *et al*. 2006: 199). The customers who choose negative word-of-mouth usually pursue different objectives to those pursuing public actions, such as simply expressing anger and frustration (Butelli 2007: paragraph 6). An exit strategy refers to the condition in which consumers decide not to repurchase or not to utilize the service again. In order for the consumer to

decide to exit or boycott, s/he must have other available alternatives (Butelli 2007: paragraph 6). According to Kurtz and Clow (1998: 54), only 1 out of 26 dissatisfied customers complain to the firm, the remaining 25 show their displeasure by engaging in firm switching behaviour.

Public actions*:* These include complaint responses made in order to pressure an organisation into rectifying the complaint or offering to refund the buyer (Velázquez, Contri, Saura & Blasco 2006: 495). These public actions may be in the form of voice responses where the complaining behaviour is directed to the parties perceived to be responsible for a dissatisfying experience. Compared to other responses, voice complaints are a direct, confrontational approach to relieving dissatisfaction. By voicing their discontent to a responsible party, consumers may vent their frustration and perhaps more important, get redress for their dissatisfaction (Chan & Wan 2008: 79). Third party responses involve seeking help from outside parties with sanctioning power, such as the media, consumer advocacy groups and legal agencies that are outside the consumer's social circle. By expending relatively significant time and effort on third-party responses, consumers often try to obtain specific remedies for their dissatisfying experience (Chan & Wan 2008: 80).

Usually consumers need to be dissatisfied in order to complain however other factors may be necessary to move the customer from dissatisfaction to complaint. Such factors may be attribution of the cause of dissatisfaction or psycho-sociological characteristics of the individual consumer (Crie 2003: 67). Attribution describes the process of allocating blame. To lead to customer complaint behaviour, the consumer has to identify clearly the party responsible for his/her dissatisfaction during a given consumption incident. Generally, consumers who observe the cause of their dissatisfaction as being stable (the same crisis may happen again) or controllable (consumer feels the organisation could have prevented the cause of dissatisfaction), are more inclined to either leave the organisation or product, or engage in negative word-of-mouth (Crie 2003: 68).

Frustration is a characteristic that can influence the relationship between dissatisfaction and complaint behaviour. The more substantial the frustration the greater the risk of aggressiveness and customer complaint behaviour is (Crie 2003: 68). Frustration arises not only when the objective

assigned to a given behaviour is blocked or interrupted before its fulfilment, but also when the result achieved has a lower level than that sought, or when its realisation requires more resources than the consumer can, wants or expects to spend to reach the desired objective (Crie 2003: 68). Frustration can arise in situations of purchase intention (unavailability of the product or of the brand) or in post purchase situations. Other individual characteristics may also influence complaint behaviour, e.g. loyalty to the brand, product or supplier; the level of quality assessment, the educational level and tastes; the ability to detect quality differences, and perceptions of the cost/profit ratio of the possible actions (Crie 2003: 69).

Recovery Strategies

A recovery initiative refers to the actions an organisation takes in response to a service/product failure (Hocutt *et al*. 2006: 199). Recovery strategies are strategies practiced by an organisation and its employees to return the customer to a state of satisfaction (Nikbin, Ismail, Marimuthu and Jalalkamali 2010: 47). An aim of service recovery is to appease dissatisfied customers through suitable actions in order to reduce potential damage to customer relationships instigated by service failures (Nikbin *et al*. 2010: 47).

While poor complaint management procedures can alienate customers forever, effective recovery strategies offer organisations the opportunity to regain customers through secondary satisfaction or post-complaining satisfaction. One can define customer complaint behaviour as an action taken by an individual who involves communicating something negative regarding a product or service to either the firm manufacturing or marketing that product or service, or to some third party organisational entity (Ruoh-Nan & Lotz 2009: 107). Boshoff and Leong (1998: 24) found that firms accepting responsibility (attribution) for the service failure is the most important factor to customers.

Recovery initiatives illustrate the actions that companies take to counter defects or failures. The most frequent and often used actions are apology, assistance, and/or compensation (Levesque & McDougall 2000: 21). The following section discusses the typical recovery strategies used by organisations to redress failures.

1. Apology: An apology is recommended as a pre-requisite for service recovery. While an apology is better than no apology, an apology alone is relatively ineffective when a customer experiences a failure. Typically, a customer expects some gain for their loss. An apology offers little gain but may be effective when minor problems are encountered (Levesque & McDougall 2000: 21). Through apologies, organisations indicate to complainants that the organisation stands on the same side as the customer and this allows them to work together to solve the problem (Hui & Au 2001: 163). Past findings indicate that providing a respectable explanation can minimise customers' dissatisfaction with poor service experiences. By apologising to complainants, organisations accept responsibility for the problem and express their genuine regret to complainants (Au, Hui & Kwok 2001). The presence or absence of an apology is strongly correlated to customer's perceptions of interactional justice (Wirtz and Matilla 2003: 151).

2. Assistance: Assistance involves taking action to rectify the problem. Assistance is possibly the most effective single recovery strategy, because it can bring the customer back to the original purpose of buying the product/service. It is argued that the service firm has little leeway; it must fix the problem quickly. The gain is fulfilling the basic promise, which may equal the loss from the failure (Levesque & McDougall 2000: 22).

3. Compensation: Compensation involves monetary payment for the inconvenience the customer has experienced and may be required if the failure cannot be fixed. Increasing compensation should lead to greater satisfaction with the recovery strategy (Levesque & McDougall 2000: 7). However, according to Smith, Bolton and Wagner (1999: 369) equity theory suggests that over rewarded customers' may be less satisfied, as they feel distress and guilt about the inequity of the exchange. Thus while consumers want a gain in this loss situation, and increasing the gain through compensation and assistance should improve satisfaction, there may be an upper limit to the gain (Levesque & McDougall 2000: 22). By organisations

offering some kind of compensation, the company is able to decrease the extent of perceived injustice by having an effect on the physical outcome of the complaint. More importantly, compensation is also believed to express a symbolic statement of respect to the complainant and express heartfelt regret of the company. These symbolic meanings are likely to affect perceived fairness of the complaint process (Hui & Au 2001: 163).

Customer Satisfaction with Recovery Strategies

Schoefer (2008: 211) proposes that satisfaction with recovery strategies will be influenced by a customer's perception of i) the way in which s/he was treated during the recovery practice (interactional justice), ii) the means in which conclusions are made and encounters determined (procedural justice), and iii) the perceived result of the complaint (distributive justice).

1. Distributive justice refers to the assignment of tangible resources by the organisation to remedy and reimburse a service failure (Nikbin, *et al*. 2010: 49). Customers may expect various levels of compensation depending on how severely the service failure affects them (Hocutt, *et al*. 2006: 200). In a service recovery effort, tangible compensation will lead to higher perceptions of distributive justice (redress fairness), which in turn will result in higher customer satisfaction and lower negative word-of-mouth intentions (Hocutt, *et al*. 2006: 200). Consumers expect outcomes, or compensation, that corresponds with the level of their dissatisfaction. This compensation can take the form of actual monetary compensation, an apology, future free services, reduced charges, repairs and/or substitutes (Wilson, Zeithaml, Bitner & Gremler 2008: 379).

2. Procedural Justice is the perceived fairness of the process through which results are attained. The perceived fairness of procedural justice is influenced by voice and neutrality. Voice refers to the opportunity that is provided to the consumer to present information about their experience regarding the service failure. Neutrality

occurs when a particular organisation follows a set of processes to redress the situation (Sabharwal, *et al*. 2010: 128). Thus in addition to fair compensation, customers expect fairness in terms of policies, rules and timeliness of the complaint process. Customers want accessibility to the complaint process, and they want things handled quickly, preferably by the first person they interact with (Wilson, *et al*. 2008: 379). A timely response on the part of the front-line employees who are permitted to manage a service failure situation would function as an indication of the suppliers consideration of the consumer's needs (Hocutt *et al*. 2006: 201).

3. Interactional justice is the degree to which customers feel that they have been treated justly while personally interacting with employees of a company during the recovery process. This justice comprises the communication process and treatment of individuals with courtesy, respect and explanation. The capability and enthusiasm of the contact employees to respond and handle service failures can affect the service encounter being remembered as satisfactory of dissatisfactory (Sabharwal *et al*. 2010: 129). Features of this form of justice include interpersonal sensitivity, treating people with dignity and respect, or providing explanations for the events (McColl-Kennedy & Sparks 2011: 253). Interactional justice is the strongest predictor of trust in a supplier as well as overall satisfaction (McColl-Kennedy & Sparks 2011: 253).

Guidelines to Effective Recovery Strategies

The effectiveness of recovery strategies depends on what is done and how it is done (Levesque & McDougall 2000: 21). The following guidelines are an indication as to how organisations can develop a recovery process to ensure customer satisfaction and ultimately customer retention.

- Encourage and track complaints: A critical component of a service recovery strategy is to encourage and track complaints. In many cases it is difficult for the firm to be aware that a service failure has

occurred unless the customer informs the company. A relatively low percentage of customers (5-10%) will complain to an organisation. Firms however can develop strategies to provoke consumers to complain such as developing the mind-set that complaints are good, making complaining easy and being an active listener (Wilson *et al*. 2008: 382). Customers should know where to go and/or who to talk to if they have a complaint. Technological advances have made it possible to provide customers with multiple avenues to complain such as customer call centres, email addresses as well as website feedback forms. Huppertz (2007: 433) states that consumers observe complaining as easier when firms device detailed policies intended to decrease the time and effort necessary to complain. Authorising employees, decreasing the hassle involved in returning goods, as well as providing contact customer service agents make complaining easier. Freephone call centres, emails and pagers are used to facilitate, encourage as well as track complaints.

- Act quickly: Complaining customers want quick responses. Therefore if the company welcomes, even encourages complaints, the firm must be prepared to act on them quickly. Immediate responses require not only systems and procedures that allow quick action but also empowered employees (Wilson, *et al*. 2008: 385). Gordon, McDougall, Terrence and Levesque (1999: 12) found that when a service failure concerning waiting occurred, service recovery strategies (including both assistance and compensation) that were typical of industry practices did not lead to positive future intents towards the service provider. Response speed is one of the main factors of successful service recovery. According to Mattila and Mount (2003: 142), technologically inclined customers seem to have a no tolerance for delayed responses to their electronic complaints. Subsequently these upset customers are able to promptly share their bad experiences with a big number of other consumers through Internet complaint sites; negative word-of-mouth can have a snowball effect on an organisation. Participants who showed a lower level of technology interest were more lenient through a 48 hour period. Cho, Im, Hiltz and Fjermestad (2002: 323) also found that

prompt responses to consumers' complaints are related to repeat purchase intention.

- Take care of problems on the front line: Customers want the persons who hear their complaints to solve their problems whether a complaint is expressed in person, over the telephone or via the internet (Wilson *et al*. 2008: 285). Schoefer (2008: 211) states that it is not the service recovery initiative in itself that produces emotion but rather the manner in which the individual assesses it. Particular emotions and their force are linked to an assessment of the circumstance provoking the emotional response. For example, the polite treatment (i.e. high level of interactional justice) of a customer during service recovery strategies is likely to cause higher levels of positive emotions such as happiness. A rude treatment (i.e. low level of interactional justice) of the consumer, conversely, is likely to increase the possibility of negative emotions such as anger being stimulated (Schoefer 2008: 212).

- Empower employees: Employees must be trained and empowered to solve problems as they occur (Wilson *et al*. 2008: 385). This statement is reinforced by Schoefer (2008: 212) who states that employees should be trained to play their roles in accordance to customer expectations. Schoefer (2008: 212) also states that contact employees should be conscious of the emotional environment of customer complaint management and should be trained to observe it. Employees need training to cultivate emotional capabilities and decision-making expertise. Decision making training can minimise negative emotional responses on customers' perceptions.

- Provide adequate explanations: When customers experience service failures, these individuals try to understand why the failure occurred. Research suggests that when a firm's ability to offer an acceptable outcome is not successful, further dissatisfaction can be reduced if an adequate explanation is provided to the customer (Wilson *et al*. 2008: 387).

- Treat customers fairly: Customers expect to be treated fairly in terms of the outcome they receive, the process by which the service recovery takes place, and the interpersonal treatment they receive (Wilson *et al*. 2008: 387).

Role of Technology in Customer Complaint Behaviour

Consumer complaining is moving from a private to a public sensation. Consumers who once might have voiced their dissatisfaction with a firm to a few family members or friends are now complaining to the first mass media available, to the public World Wide Web (Ward & Ostrom 2006: 220). The evolution of the Internet and its communication potential has given rise to various websites that function as forums for consumers to share their positive or negative experiences when dealing with various organisations (Harrison-Walker 2001: 397). The Internet offers consumers an anonymous and simple available channel for negative word-of-mouth through expressing their viewpoints and/or making complaints available to others. Negative word-of-mouth in the form of consumer criticisms has the potential to taint a brand and sway a potential consumer to search elsewhere for the product (Sparks & Browning 2011: 799).

Not all service failures are expected to lead to online and public actions. Customers usually engage in online public complaining when a service failure is shadowed by failed recoveries (Gregoire, Tripp & Leoux 2009: 19).

Previously, retailers and service providers were unable to redress customer complaints unless the consumer first sought remedy; however this no longer applies (Harrison-Walker 2001: 398). Retailers and service providers who observe complaint forums on the Internet are also in a position to take corrective action (Harrison-Walker 2001: 398). Creating a public forum on the Internet, which can be accessible to a global audience, is a very useful tool for word-of-mouth advertising. The unfortunate side of consumer complaint sites is that consumers seeking information about various organisations will often locate the complaint sites first (Harrison-Walker 2001: 398).

Considering the possible damage that these websites can have on the bottom line of an organisation, many firms such as Volvo and Chase Manhatten are attempting to shield themselves by creating anti-domains, such as chasestinks.com, chaseblows.com etc. (Harrison-Walker 2001: 398). This provides newer firms with an opportunity to block complaint sites before their name is known (Harrison-Walker 2001: 398). Firms that adopt such a defensive stance are attempting to block the consumer's capacity to share their negative incident with others. The damage of dissatisfaction has been acknowledged (Harrison-Walker 2001: 398). At the very least it results in negative word-of-mouth with regard to the inability of the service provider to meet consumer needs, reduced repeat purchases by the dissatisfied consumer and also fewer purchases by new consumers who has been exposed to the negative word-of-mouth (Harrison-Walker 2001: 398).

The key reason for attending to consumer complaints, instead of trying to block them is merely for the reason that it is cheaper in the long run to retain existing customers' satisfied than to spend the marketing monies needed to find new ones. Also, research shows that it costs five times as much to draw a new customer as it does to maintain a current consumer (Harrison-Walker 2001: 399). Whilst in the past an unhappy consumer might tell another 12 to 20 persons about the experience, it appears the reach of complaints expressed on the Internet is virtually endless (Sparks & Browning 2011: 800). As a result, retailers and service providers who are unaware of these consumer complaint forums may unknowingly be losing business because of negative comments made by unsatisfied customers (Harrison-Walker 2001: 398).

According to Butelli (2007: paragraph 15), organisations that do not receive complaints are depriving themselves of the most priceless form of information. It can be seen as 'free' feedback which can provide vital information that is otherwise not available.

The Hello Peter Website

Hello Peter enables consumers to post comments about their experience with a particular company whether it is positive or negative (Arbuckle 2008: 1). The purpose of the website is to improve the service levels of suppliers by

providing a platform for consumers to post company specific constructive criticism as well as compliments (Arbuckle 2008: 2). To date Hello Peter has listed 1 470 companies which are registered with them, and 679 which do not respond to customers complaints. In addition there are 1 321 companies which have been mentioned for the first time in the past 6 weeks and which are still pending and have not become subscribers yet (Hello Peter 2010).

Published customer complaint or complement reports remain on the website for a period for 12 months (Hello Peter 2010). Consumers do not pay to submit a report and can browse other people's reports and search for reports on a particular industry or company (Hello Peter 2010). A company that wishes to subscribe to this service pays an annual subscription fee of R427.50. Additionally, companies are charged an annual response fee according to the number of responses received per annum (Hello Peter 2010). The companies' annual fee includes email notification when a customer report is posted mentioning the particular organisation. In addition to email notification suppliers can choose to have SMS notifications sent to them as well. Each report is accompanied by the customers' name, email and telephone number. The supplier also has the ability to respond to the customers' complaint as well as have access to the customer's rating of the response (Hello Peter 2010).

Research Methodology
Sample Design and Data Collection
The sample population can be described as all individuals who are aware of the Hello Peter website and who utilise the website as a complaint platform. It is therefore difficult to ascertain the population size. A sample size was selected using non-probability sampling due to the type and quality of information needed for the research. Non-probability sampling is described as less complicated and more economical in comparison to probability sampling (Welman, Kruger & Mitchell 2005: 68).

In order to collect data the website was monitored over a two week period (11- 24 July 2011) on four days a week (Monday, Wednesday, Friday and Sunday). Every alternative day was chosen allowing for new complaints

to be posted as well as for suppliers and customers to respond in order to achieve the research objectives. The period of two weeks allowed for conclusive data on the different types of complaints that were on the website as well as, the various recovery strategies that were being utilised.

Based on prior observation of the website it had been noted that there are approximately 500-700 complaints daily. Therefore in order to ascertain a representative sample, the average daily complaints were divided by the days in which research was conducted thus resulting in 125 complaints per day, and ultimately leading to a sample size of 1 000 randomly chosen complaints.

Data Analysis
Inductive Thematic analysis shares several of the actions and principles of content analysis (Marks & Yardley 2004: 57). Thematic analysis is an exploration for themes that develop as being important to the description of the phenomenon (Fereday & Cochrane 2006: 82). An inductive approach means the themes identified are strongly related to the data themselves (Braun & Clarke 2006: 83). A theme refers to a specific pattern found in the data in which one is interested. A further distinction in terms of what represents a theme lies in whether it is drawn from existing theoretical ideas (deductive reasoning) or from the raw information itself(inductive reasoning) (Marks & Yardley 2004: 57). The method involves the identification of themes through vigilant reading and re-reading of the data. It is a form of pattern acknowledgment within the data, where developing themes become the groupings for analysis (Fereday & Cochrane 2006: 82).

Further evaluation was conducted by comparing the recovery strategies to the customers' responses, to identify which recovery strategies are most effective.

Results
Table 5.1 presents product or service failures that have been experienced by consumers in various industries.

Table 1 Types of Complaint Themes

	Theme	Frequency	Percentage
1	Delay in response	459	45.9
2	Promise to do something and didn't	439	43.9
3	Unhelpful	408	40.8
4	Ignored	354	35.4
5	Defective product	227	22.7
6	Bad attitude	209	20.9
7	Rude or impolite	97	9.7

Table 5.1 indicates that the largest category of complaints (45.9%) are due to a delay in response. This theme incorporated statements such as 'to date nothing has happened'. Research suggests that technologically-inclined customers have no tolerance for delayed responses to their electronic complaints, subsequently these upset customers are able to promptly share their bad experiences with other consumers through Internet complaint sites (Mattila & Mount 2003: 142). According to the findings, 43.9% of the complaints were about suppliers who have promised to do something and did not. Statements such as 'Promise to contact you and never do' were used by the complaining customers. This reinforces the literature that states if the promises made by the organisation have not been met, consumers are likely to become dissatisfied (Gordon *et al*. 1999: 8). Unhelpful employees were the 3rd most common complaint theme (40.7%).These consumers used phrases such as 'I called the call centre; no one knew how to help me'. This dissatisfaction is reinforced by Gruber, Reppel, Abosag and Szmigin (2008:132) who state that if the frontline employees are unable to deal with a customer's expectations effectively, the customer is likely to become dissatisfied.

Table 5.2 indicates the various recovery strategies used by suppliers.

Table 2 Recovery Strategy

	Theme	Frequency	Percentage
1	Contact	675	67.5

2	Acknowledgement	479	47.9
3	Apology	470	47
4	Investigate	421	42.1
5	Reference number	228	22.8
6	Compensation	49	4.9

The most frequent supplier response theme (67.5%) was that of suppliers offering to be in contact with the complainant. Studies show that customers being able to voice their complaint produced a significant impact on both perceived fairness of the complaint-handling process and perceived fairness of the complaint result (Hui & Au 2001: 171). A relatively high percentage (47.9%) of suppliers provide acknowledgement to the consumers of their complaint which is reinforced by comments such as 'corrective measures will be put in place'. According to Magnini, Ford, Markowski and Honeycutt (2007:214) trust can be reinforced when partners take action in ways that acknowledge an individuals' specific need and assert their sense of worth. Firms gain trust from the complainants by acknowledging their complaints and providing explanation as to what the firm intends on doing with regard to the complaint. This trust that is gained, can ultimately ensure customer retention.

Offering apologies to complainants was used in 47% of the cases. Supplier comments such as 'please accept my apologies' were found. The literature states that an apology alone is relatively ineffective when a customer experiences a failure (Levesque & McDougall, 2000: 21). Furthermore, Gordon, *et al*. (1999: 12) states that 'doing something' further than apology was significant but not good enough. These statements are an indication that organisations should use an apology as the minimal recovery initiative and not the only strategy. The apology should be combined with other strategies appropriate to the severity of the failure, such as compensation or assistance.

Table 5.3 indicates the various recovery strategies that service providers have utilised and the consumers' response to these efforts.

Table 3 Recovery Strategies and Customer Responses

	Positive responses	Negative responses	Total responses	Total recovery offers
Apology				470
Frequency	155	15	170	
Percentage	32.9	3.2		
Reference Number				227
Frequency	97	4	101	
Percentage	42.6	1.7		
Investigate				421
Frequency	118	14	132	
Percentage	28	3.3		
Contact				675
Frequency	84	23	107	
Percentage	12.5	3.4		
Acknowledgment				479
Frequency	134	28	162	
Percentage	20	4.1		
Compensation				49
Frequency	19	38.8		
Percentage				

According to the findings, providing a customer with a reference number in order to track their complaint results in the highest positive response outcome (42.6%). However, there is no relevant literature to reinforce this finding.

Nearly thirty-three percent of consumers however, had a positive perception when an apology was provided to them by the supplier. According to Levesque and McDougall (2000: 21) an apology alone is relatively ineffective but better than none at all. This again suggests that suppliers

should provide an apology as a minimal recovery initiative and not the only strategy.

Table 5.4 indicates how many consumers problems were solved after the offer of the following recovery strategies.

Table 4 Recovery Strategies Effectiveness on Solving the Problem

	Problem Solved	
Total	114	
	Frequency	Percentage
Apology	90	78.9
Reference Number	52	45.6
Investigate	65	57
Contact	53	46.5
Acknowledge	78	68.4
Compensation	9	7.9

Table 5.4 indicates that the majority of complaints (78.9%) were solved after an apology was offered by the supplier. This is followed by the organisation acknowledging the customers complaint (68.4%). This finding supports Magnini, *et al.*'s (2007: 214) statement that trust can be reinforced when partners take action in ways that acknowledge an individuals' specific need and sense of worth.

Table 5.5 indicates how many consumers are still awaiting further response from the supplier and their problem has not been solved.

Table 5 Recovery Efficiency

	Awaiting Further Response	
Total	17	
	Frequency	Percentage

Apology	11	64.7
Reference Number	3	17.6
Investigate	6	35.3
Contact	8	47.1
Acknowledge	11	64.7
Compensation	0	0

Even though an apology was provided to the customer, 64.7% of these consumers were still awaiting further response from the supplier. According to Mattila and Mount (2003: 142), response speed is one of the main factors of successful service recovery. The authors also state that technologically inclined customers are not tolerant of delays in responses to complaints.

Recommendations

The results of the study indicate that most consumers complain due to their being a delay in response. Delays are no longer tolerated (Mattila and Mount, 2003: 142). Therefore the recommendation is for organisations to reassess their current complaint handling process, and implement controls to alleviate the possibility that customers may experience a delay in response.

According to Hocutt *et al*. (2006:199) the Internet lets people voice their frustrations regarding poor service quickly, in great volume, around the world, and anonymously. Therefore it is recommended that companies develop their own websites to deal with customer complaints, in this way allowing the organisation more control of what information is shared with vast numbers of potential customers. This is reinforced by the actions of Volvo who have created their own anti-domain (Harrison-Walker 2001: 398).

Limitations

Complaints on the Hello Peter website with customer updates are not done immediately after the recovery initiative has been executed, therefore the findings may lack representation with regard to that objective as not all

complaints had customer responses to the recovery initiative. It did however enable one to get an idea of the customers' opinions of the recovery initiatives. As with all qualitative data analysis, a fair amount of subjectivity occurs. The authors however, attempted to reduce this subjectivity by comparing responses between themselves as well as to the literature on complaint behaviour and recovery strategies.

Conclusion

The Hello Peter website has revolutionised the way customers complain about their experiences, as well as affected the way organisations attempt to remedy these failures. The purpose of the study was to determine what customers were complaining about, what recovery initiatives companies used and where possible, the effectiveness of the recovery strategies. Customers most frequently complained about experiencing a delay in response, organisations promise to do something but do not. The most common recovery initiatives were organisations offering to be in contact with the complainant as well as acknowledgement of the complaint.

The study has provided information and suggestions in order for companies to improve their current online complaint handling strategies as well as develop insight into the most effective service recovery initiatives from the customers' perspective.

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Barriers to Internet Adoption:
A Descriptive Study of Small and
Micro Enterprises in the
Business-Services Sector

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Abstract

SMEs are important in any economy, because they are the key drivers of innovation, employment and economic growth. Harnessing the Internet for business purposes improves SMEs' operational efficiencies and competitiveness in a global economy. While there are many studies, which provide insights about factors influencing Internet adoption among SMEs, there is little data about Internet adoption in African countries. Therefore this study highlights a relatively unexplored research context, namely SMEs in the business-services sector in an emerging economy. The objectives of the study were to describe Internet usage by SMEs and explore the factors that inhibited Internet adoption. A quantitative approach using self-administered questionnaires was used to conduct the study. The results showed that while SMEs are aware of the advantages provided by the Internet; the short-term benefits were not apparent enough to SME owners for them to plan to make any significant investment in adopting Internet technologies. Although most SMEs acknowledged that the Internet is relevant to their businesses, they identified the main barriers to Internet adoption as concerns about the costs and complexity, issues around security and lack of support, when it comes to using the Internet. The recommendations of the study are that, the government should give businesses more incentives to adopt and utilise the Internet and, SME owners/managers need to realise that as businesses

increasingly engage in e-commerce, their SMEs will have more opportunities to compete in the global marketplace.

Keywords: Small businesses, SMEs, Internet adoption, e-commerce, developing countries, business-services sector

Introduction

Globally, small and micro enterprises (SMEs) play an important role in helping to diversify a country's economic base by providing it with opportunities to respond to varying market conditions (Beaver 2007). The adoption of Internet technologies by SMEs is vital for their on-going survival in an increasingly competitive marketplace (Porter 2001). The reason for this is the Internet offers direct links with trading partners (customers, suppliers, distributors and creditors) by facilitating information transfer, irrespective of physical boundaries.

Studies conducted in the United-States (Xu, Zhu & Gibbs 2004), Turkey (Kula & Tatoglu 2003), China (Riquelme 2002), Netherlands (Walczuch, van Braven & Lundgren 2000) and Tasmania (Jones, Hecker & Holland 2002) illustrate that the main benefits of Internet access and adoption strategies to improve small business competitiveness, are an increase in the business's customer reach and improved market research. However Singh, Garg and Deshmukh (2010) identified that some of the factors constraining the competitiveness of SMEs are inadequate access to technologies, ineffective selling techniques, and limited market research.

Problem Statement

Cavaye and van Akkeren (1999) developed a model, based on the prevailing literature of that time, which described the factors influencing Internet adoption for e-commerce. The results of their study showed that the inhibitors of Internet adoption were: lack of internal IT expertise, lack of knowledge about the Internet, and the expenses associated with setting up Internet access. Ten years later, Tan, Chong, Lin and Eze (2010) showed that the main barriers to Internet adoption included the lack of networking infrastructure, and the high costs of ICT hardware and software.

In South Africa, small businesses are slow to use Internet technologies for commerce purposes (Moodley 2003; Cloete 2002). This suggests that there are barriers to Internet adoption. Non–adoption of the Internet may impact negatively on the small business' competitiveness in the marketplace. In an ever-widening global economy, the result of Internet non-adoption can be potentially fatal to a small business. However while there are many studies that provide insights about factors inhibiting Internet adoption, there is little data about Internet adoption among SMEs in African countries (Molla & Licker 2004; Boateng, Molla & Heeks 2009).

Aim and Objectives

The aim of this article is to contribute to the theoretical understanding of Internet adoption among South African SMEs, by exploring Internet usage and examining the factors that inhibit Internet adoption for commerce purposes. The research is delimited to SMEs in the business-services sector in South Africa because this sector is most likely to be using the Internet for business purposes but is under-researched (Tan *et al.* 2010; Boateng *et al.* 2009). Thus this article's research objectives are:

1. To describe Internet usage among SMEs in the business-services sector; and
2. To determine the factors that inhibit Internet adoption among SMEs in the business-services sector

Information generated from this research should provide empirical insights into Internet usage and adoption among SMEs, with a view to making recommendations to government and policy makers to facilitate Internet adoption. In addition, it provides information about the business needs of SMEs and their current uses of the Internet, which is useful for Internet service providers, information technology (IT) consultants and business development consultants. Finally, the study provides information for SME owners about why the Internet is important for their businesses and how to exploit the technology to remain competitive.

This article has four parts. First it reviews the extant literature regarding SMEs and Internet adoption. Next the research methodology and

data analysis techniques are presented. Then the findings are discussed. Finally, implications and directions for further research are offered.

Literature Review
Small and Micro Enterprises Defined
The description of small and micro enterprises (SMEs) differs in the literature and no standard definition exists (Al-hawari, Al-Yamani & Izwawa 2008; Cloete 2002; Martin & Matlay 2001). In South Africa, the National Small Business Act of 1996 defines a small business 'as a separate and distinct business entity, including cooperative enterprises and non-governmental organisations, managed by one owner or more which, including its branches or subsidiaries, if any, is predominantly carried on in any sector, or sub-sector of the economy' (SA Government 1996:2). Furthermore, the Act stipulates that business size should be classified according to industrial sector, followed by specified criteria for the number of full-time employees, annual turnover and total gross asset value.

The Business-Services Sector
The Standard Industry Classification (SIC) system is an internationally accepted set of codes for the standard classification of all economic activities. These codes were designed to classify businesses according to different types of economic activities. According to the SIC system, the business-services sector, comprises of the activities outlined in Table 1 below (CIPRO 2008).

Dos Santos and Bacchialoni (2009) reported that total information and communication technology (ICT) spend for the South African financial and other business-services sector is forecasted to reach approximately R55 billion by 2013. Of this, R26 billion will be spent on telecommunications (e.g. telephone, fax, Internet) indicating that this sector is an intensive user of ICT. This means that the sector heavily invests in ICT in South Africa. The implication for the current study is that the business-services sector is an ideal sector in which to investigate Internet adoption because it is likely to be using the Internet for business purposes.

Table 1: Activities in the business-services sector

Accounting/ Tax/ Auditing services	Legal services
Advertising	Labour brokers
Architectural and/or Engineering services	Packaging activities
Business and/or Management consultancy	Photography and/or Sign-writing
Building and/or industrial plant cleaning services	Renting of machinery and equipment
Computer related services	Research and development activities
Debt collection and/or credit rating services	

Adapted from "Standard Industry Classifications for the Business-services Sector", (CIPRO, 2008)

The Importance of SMEs in the South African Business-Services Sector

In the preliminary results of the September 2009 Quarterly Financial Services Survey report, South African small and micro enterprises (SMEs) across all industries, recorded a total income of approximately R294 million. Furthermore, the same report recorded that SMEs in the real estate and business-services industry recorded an income representing 15% of the total income of all SMEs in South Africa and approximately 31% of this, was income recorded for the business-services sector (StatsSA 2009). Hence it is evident that SMEs in the business-services sector make a substantial contribution to the South African economy in terms of gross domestic product and employment.

Internet Adoption within an SME Context

The Internet is a vast computer network that links smaller computer networks worldwide. The Internet includes commercial, educational, governmental, and other networks, all of which use the same set of communications protocols to connect to one another. Thus, this global information system serves as a mechanism for information dissemination, and a medium for collaboration and interaction, between individuals and their computers without regard for geographic location. The Internet is becoming recognised

increasingly for the vast array of information services it offers (Leiner, Cerf, Clark, Kahn, Kleinrock, Lynch, Postel, Roberts & Wolff 2009).

Boateng *et al.* (2009:3) defined e-commerce as the 'sharing of business information, maintaining of business relationships, and conducting of business transactions, by means of telecommunications networks'. According to this definition e-commerce is not restricted to the actual buying or selling of products and services using technology, but also includes the pre-sale and post-sale activities across the supply chain (Bocij, Chaffey, Greasley & Hickie 2003). In order to survive in an era of electronically mediated information exchanges, and successfully practice e-commerce, businesses need to adopt the Internet (primarily, e-mail and web technologies) (Al-hawari *et al*. 2008).

Since the Internet offers direct links with customers, suppliers, distributors and creditors by facilitating information transfer irrespective of physical boundaries, it offers small businesses the opportunity to increase their customer base without having to physically contact customers or advertise in other parts of the world (Kula & Tatoglu 2003; Drucker 1999). Porter (2001) commends this increase in customer reach as it is directly linked to improved competitiveness. He highlights that the Internet and e-commerce are enabling conditions that allow businesses to operate efficiently. This operational efficiency is the cornerstone of competitive sustainability. He also posits that businesses have no choice but to adopt Internet and e-commerce technologies if they want to stay competitive.

However, SMEs, not using the Internet, are reluctant to change their current business models (Beckinsale & Levy 2004). This may be, because SMEs face greater risks in adopting the Internet than larger businesses due to inadequate resources and limited knowledge. Severe constraints on financial and human resources can also cause SMEs to lag behind large businesses when it comes to using the Internet (MacGregor & Vrazalic 2005; Chau & Kuan 2001).

Currently, the geographical distribution of connections to the Internet heavily favours the highly industrialised countries and there is unequal access to network-based services between the developing and developed world thus emphasising, the digital divide (Aladwani 2008; Lal & Oyelaran-Oyeyinka 2005; Moodley 2003; Travica 2002). In addition, in developing countries, the geographical distribution of the Internet is often

limited to urban centres, the costs of technology adoption are higher than average annual income and Internet adoption remains in the initial stages. The trend in developing countries is Internet adoption through cell-phone usage because cell-phones are relatively cheap compared to personal computers (Howard & Mazaheri 2009; Moodley 2003).

Many developing nations have low computer penetration rates and lack the telecommunications infrastructure necessary to take full advantage of the Internet. They also lack the availability of an economically priced telephone service and regular electricity supply. Internet access in these countries is expensive and unreliable. Furthermore, access to Internet-based markets (through e-commerce) depends on the availability of skilled labour and this is often lacking in developing nations (Lal & Oyelaran-Oyeyinka 2005; Moodley 2003). Moodley (2003) questions whether the Internet will marginalise third world businesses or whether it will facilitate their access to world markets.

Several studies show that SMEs are not convinced of the financial benefits that could result from using the Internet. SMEs reported that the start-up investment costs for Internet adoption were too high, and that the return on investment was questionable. Furthermore, the SMEs owners did not believe that Internet adoption could result in lower operational costs (Tan *et al*. 2010; MacGregor & Vrazalic 2005; Walczuch, van Braven & Lundgren 2000; Cavaye & van Akkeren 1999).

There is insufficient education and knowledge about the Internet and its uses, among SME owners and staff. Many studies show that SMEs lack the time and opportunity to learn how to use the Internet. Consequently, they find it too complex to use and/or unsuitable for business operations. While some SMEs are knowledgeable about the Internet, there is often a lack of expertise and competence when it comes to actually using the Internet (Johnson 2010; Tan *et al*. 2010; MacGregor & Vrazalic 2005; Dholakia & Kshetri 2004; Ferrer, Schroder & Ortman 2003; Stansfield & Grant 2003; Hornby, Goulding & Poon 2002; Riquelme 2002; Cavaye & van Akkeren 1999).

However, trying to find qualified staff to fill the gap left by lack of expertise is difficult. SMEs have limited financial resources to recruit and retain appropriately skilled IT staff. Moreover, career development and advancement for IT staff is limited in SMEs and they tend to choose working

for larger businesses (Tan *et al*. 2010; MacGregor & Vrazalic 2005; Stansfield & Grant 2003; Hornby *et al.* 2002; Chau & Kuan 2001; Cavaye and van Akkeren 1999).

This lack of financial resources has further implications, in that SMEs cannot afford the infrastructure (e.g. computers, modems, networks, software and Internet service provider subscriptions) required to adopt the Internet. Thus, the high costs of technology and associated infrastructure means that the Internet is not widely used in SMEs as evidenced in studies conducted by Tan *et al*. (2010) and Alam (2009). Furthermore, the rapid changes in technological developments are yet another prohibitive factor affecting Internet adoption among SMEs (Dholakia & Kshetri 2004; Stansfield & Grant 2003; Hornby *et al*. 2002; Riquelme 2002; Walczuch *et al*. 2000; Cavaye & van Akkeren 1999; Poon & Swatman 1999; Tan & Teo 1998).

Linked to technological developments is geographical location. The literature shows that SMEs located in rural and remote areas are less likely to adopt the Internet because of the lack of telecommunication networks and Internet connectivity infrastructure. While there may be low cost methods of access in urban areas (cities and metropolitan areas), the same cannot be said for rural and remote areas. Moreover, the further away a business is from the resources it needs; the longer it takes and the more it costs the business, to get those resources (Donner 2006; de Klerk & Kroon 2005; MacGregor & Vrazalic 2005; Burgess 2002).

Many studies highlighted that fears and concerns about the security of information on the Internet were barriers to Internet adoption. SMEs were concerned about unauthorised access to sensitive or proprietary information, and limited verification of authorship of messages received (Tan *et al*. 2010; Lee & McGuiggan 2009; MacGregor & Vrazalic 2005; Dholakia & Kshetri 2004; Stansfield & Grant 2003; Walczuch *et al*. 2000; Cavaye & van Akkeren 1999; Tan & Teo 1998).

In their studies, Johnson (2010), Tan *et al*. (2010), Dholakia and Kshetri (2004), Hornby *et al*. (2002) and Poon and Swatman (1999) draw attention to the lack of management support and encouragement for Internet adoption as an important barrier. If the decision to adopt the Internet is not driven by the SME owner or manager it is unlikely that the SME will adopt the Internet. This lack of management support may be linked to management

and staff reticence to use new technologies and a preference for conventional methods such as telephone and fax as an information and telecommunication medium. There is often a resistance to change (Johnson 2010; MacGregor & Vrazalic 2005; Cavaye & van Akkeren 1999).

Also linked to lack of management support is the belief by SME owners that Internet adoption will result in decreased productivity among staff. Some SME owners believe that their staff will use the Internet frivolously and for unintended purposes. It is often these managers' perception that staff will waste too much time surfing the net, as opposed to performing their designated job functions (Tan *et al*. 2010; Walczuch *et al*. 2000; Tan & Teo 1998).

Some studies show that low use of the Internet by customers and suppliers was a barrier to adoption for SMEs. Due to the lack of critical mass of stakeholder usage (customers and suppliers) SMEs reported that the Internet was not relevant to their businesses (Tan *et al*. 2010; MacGregor & Vrazalic 2005; Stansfield & Grant 2003).

Howard and Mazaheri (2009) report that English language literacy is considered by some researchers as a potential predictor of Internet adoption, because surfing the Internet, may require proficiency in English. However, empirical evidence has not been conclusive in this regard (Alam 2009; Al-hawari *et al*. 2008).

Research Methods
Study Population
In this study, a small business was defined as having a minimum of 6 to a maximum of 50 employees (excluding the owner); and a micro enterprise as having a minimum of 1 to a maximum of 5 employees (excluding the owner) (SA Government 1996).

The supply chain department at the Durban City Engineers office had a record of approximately 34,000 businesses in the Durban region. These were registered, in terms of the Companies Act, as formal businesses. Of these, approximately 21, 000 were SMEs. A search for SMEs in Chatsworth, based on street code 4092 (SAPO 2010), produced a list of 317 SMEs. From the 317 SMEs a search for businesses whose core activities were categorised

as business-services (SIC) was conducted. This amounted to a 112 SMEs in the business services-sector.

The Sample
In this research study, purposive, judgement sampling was conducted. The applicable criteria were:

- Only owners or managers of SMEs which were
- Operating in the business-services sector AND
- Physically located in Chatsworth AND
- Had 1 or more, but less than 50 employees

The reason for choosing owners and managers is because it is well documented that the perceptions of the owner/manager are a key factor that influences Internet adoption among SMEs (Alam 2009; Dholakia & Kshetri 2004; Kula & Tatoglu 2003; Stansfield & Grant 2003; Cragg, Mehrtens & Mills 2001; Walczuch *et al*. 2000; Cavaye & van Akkeren 1999; Poon & Swatman 1999; Iacovou, Benbasat & Dexter 1995). The sample size was calculated to be 80 participants (from an estimated population of 112) with a confidence interval of 95% and a 5% margin of error.

Ethics
Ethical approval was obtained from the University of KwaZulu-Natal Management Studies' Research Ethics Committee. The participants were informed of the details of the study and their rights as participants. They were asked to sign informed consent documents.

The Questionnaire
The questionnaire that was used had been developed and used in a similar study conducted in Scotland (Stansfield & Grant 2003) and was adapted for use in the current study. The aim of the research instrument was to reveal the factors influencing Internet adoption and its usage in SMEs.

The first part of the questionnaire consisted of 5 questions pertaining to the demographic representation of the SME in terms of its size, age, service offerings and types of ICTs currently being used. The second part comprised of 19 questions about the factors influencing the use of the Internet and was designed to measure the owner/manager's perceptions using a five-point Likert scale where 1 = strongly, 2 = disagree, 3 = no opinion, 4 = agree and 5 = strongly agree. The third part of the questionnaire was made up of 21 questions about applications of the Internet being used, within the SME.

The respondents were asked to indicate their present practices and future plans regarding Internet usage. The measurement scale was 1 = yes, 2 = no and 3 = plan to.

Pilot Study

The questionnaire was piloted among 5 SMEs located in Durban's south basin (specifically the Jacobs area with street code 4031, SAPO 2010). The respondents were asked to provide feedback about the layout of the questionnaire, how long it took them to complete the questionnaire, and their understanding of the questions and response categories. The results were reviewed and the questionnaire adjusted accordingly. Subsequently, structured self-administered questionnaires were printed and used to collect primary data from business owners or managers who managed SMEs in the business-services sector, located in Chatsworth.

Data Collection

The researcher physically visited the participant's place of business. This was done to ensure increased response rates and completeness of the questionnaire. The cost of travelling to the place of business was reduced, since the SMEs were located in an area that was easily accessible to the researcher. The location of the SMEs made it easier for the researcher to follow up with those who did not complete the questionnaire on at least two occasions, to ensure a reasonable response rate.

Leedy and Ormond (2005) maintain that data collected with questionnaires often reflect the reading and writing skills of the respondents, and that they (the respondents) sometimes tell the researcher what they think the researcher wants to hear. With regard to the former, efforts were made by the researcher to address any queries had by the respondents, before and after a respondent answered the questionnaire. Regarding the latter issue, the researcher left the respondent alone and in-private to fill out the questionnaire, so as to minimise any influence over the responses. In total, 61 of the 80 SMEs agreed to participate in the study; thus the response rate was 76.25%.

Data Analysis

The data collected was coded and analysed using the statistical software package SPSS (SPSS 2006a). The analysis focused on the frequency analysis, measures of central tendency, and correlations of the profile of the respondents. The data collected was predominantly ordinal, and Leedy and Ormond (2005) state that calculating the means and standard deviations for ordinal data are inappropriate. Therefore, a decision to test for the medians and modes of variables was taken and the sum of the responses was used to rank the data.

Non-parametric tests are more suited for ordinal data (Leedy & Ormond, 2005). However, Field (2009) cautions against simply conducting non-parametric tests on ordinal data and recommends that a Kolmogorov-Smirnov (K-S) test be conducted to determine whether data fall within a normal distribution. Hence, a K-S test was conducted to check whether the scores were normally distributed and the results were significant. This implied that the data did not follow a normal distribution. Therefore, a decision to conduct non-parametric tests was taken.

Internal Consistency Reliability: Cronbach's alpha

Reliability of the research instrument refers to the extent to which the measurement scales are free from random error and yield consistent results. If the association between different scales (data) is high, this implies that

they are consistent at giving the same results at different times and, therefore, the measurement scales are considered reliable (Leedy & Ormond 2005; Gliem & Gliem 2003).

Cronbach's Alpha (α) co-efficient was used to determine the internal reliability and consistency of the constructs in Table 2. Cronbach's alpha coefficient ranges between 0 and 1. The closer Cronbach's alpha coefficient is to 1 the greater the internal consistency and reliability of the items in the measurement scales of the research instrument (Gliem & Gliem 2003). A value greater than 0.7 was considered reliable, which according to Field (2009) is the norm. Table 2 shows the constructs which were identified and their corresponding Cronbach's alpha.

Table 2: Cronbach's Alpha (α) co-efficient

Construct	Cronbach's α
Objective1: Uses of the Internet	
– E-mail	0.740
– E-commerce	0.800
– Web-browsing	0.725
Objective 2: Inhibiting factors	0.701

The constructs used in this study were found to have adequate internal reliability, since the constructs of Internet usage (specifically: e-mail, e-commerce and web-browsing), and inhibiting factors, had Cronbach's alpha values greater than 0.7.

Results
Overall Sample Characteristics
The work in this study was based on a quantitative approach using self-administered questionnaires. The views of SME owners and managers were sought and primary data was obtained. Table 3 summarises the demographic characteristics of the sample in this study.

Table 3: Demographic representation of the SMEs

Characteristic	No.	%	Characteristic	No.	%
Size of the business			**Age of the business**		
Micro	38	62.3	Less than 1 year	2	3.3
Small	23	37.7	1 – 3 years	13	21.3
			Greater than 3 years	46	75.4
Breakdown of activities in the business-services sector			**Information technologies being used in the business (yes responses)**		
Legal	15	24.6	Computers	57	93.4
Information and communication technology	10	16.4	Telephone or Fax (TeleFax)	54	88.5
Accounting, auditing and tax	7	11.5	E-mail	53	86.9
Business management	7	11.5	Cell-phones	50	82.0
Building, cleaning and fumigation	6	9.8	Internet	48	78.7
Equipment rental	5	8.2	Websites	13	21.3
Photography and sign-writing	4	6.6	Intranet	5	8.2
Architecture and engineering	2	3.3	Other: *(Radios and wireless local area network (LAN))*	2	3.3
Debt collection and credit rating	2	3.3			
Packaging	2	3.3			
Advertising	1	1.6			

Objective 1: Internet Usage

Table 4 describes Internet usage among SMEs. The variables were recoded as ordinal scales (in ascending order where: 1 = no, 2 = plans to, 3 = yes) which reflected an increasing likelihood of Internet adoption. Various uses of the Internet that were identified in the literature review were tested in this study. The shaded area in the table highlights those variables which are applicable in the current research context [i.e. the respondents said that they were using the Internet for these purposes (median=3, S>122)]. The un-shaded area shows those factors which were tested but found to be not applicable (median=1, S<122).

Table 4: Current and planned uses of the Internet

Variable	No (%)	Plans to (%)	Yes (%)	Median	Mode	Sum (S)
Uses Internet to find suppliers	4.92	8.20	86.89	3	3	172
Uses Internet to find out about competitors	8.20	3.28	88.52	3	3	171
Uses Internet to do industry/market research	8.20	6.56	85.25	3	3	169
Does Internet banking	16.39	1.64	81.97	3	3	162
Uses Internet to attract new customers	14.75	16.39	68.85	3	3	155
Uses Internet because its expected in the industry	27.87	6.56	65.57	3	3	145
Uses Internet to build business connections	24.59	21.31	54.10	3	3	140
Uses Internet to receive payments for services rendered	34.43	11.48	54.10	3	3	134
Allows staff to use the Internet to search for information	49.18	3.28	47.54	2	1	121
Provides info about its services over the Internet	42.62	19.67	37.70	2	1	119
Uses Internet to order non-inventory items	59.02	4.92	36.07	1	1	108
Use the Internet to streamline its internal operations	57.38	26.23	16.39	1	1	97
Uses Internet to recruit new staff	70.49	4.92	24.59	1	1	94
Purchases goods/services over the Internet	73.77	1.64	24.59	1	1	92
Sells goods/services over the Internet	78.69	8.20	13.11	1	1	82

Notes: n=61. The mode is the most frequently occurring response, the median is the mid-point after the responses have been arranged from smallest to highest and the sum refers to the total sum of responses of the ordinal scale where (1=No, 2=Plan to, 3=Yes).
S<122 indicates "non-use", S=122 indicates "plans to use" and S>122 indicates "current use".

In order for SMEs to increase their market reach, they need to sell and market themselves over the Internet; they need to have a website or at the very least they need to be listed in on-line directories. Figure 1 shows the number of SMEs that are listed in on-line directories and, if they are not, whether they intend to get listed in on-line directories.

Figure 1: Number of SMEs listed in on-line directories

	Listed in an on-line directory		
	Yes	No	Plans to
☐ Small (n=23)	13.1	21.3	3.3
▨ Micro (n=38)	23.0	31.1	8.2

Percentage
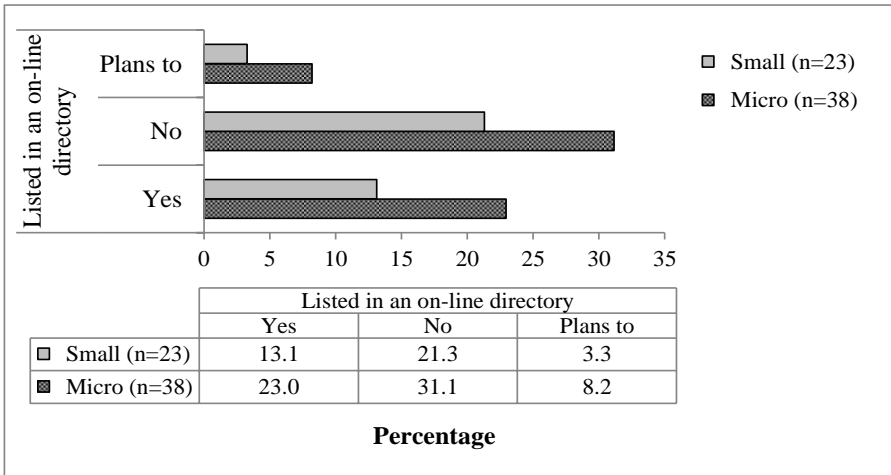
Websites are an important tool for e-commerce and Figure 2 shows the number of SMEs that currently have a website, and, if they don't, whether they plan to get one in the future.

Figure 2: Frequency of website ownership

	Has a website		
	Yes	No	Plans to
☐ Small (n=23)	6.6	27.9	3.3
▨ Micro (n=38)	14.8	41.0	6.6

Percentage
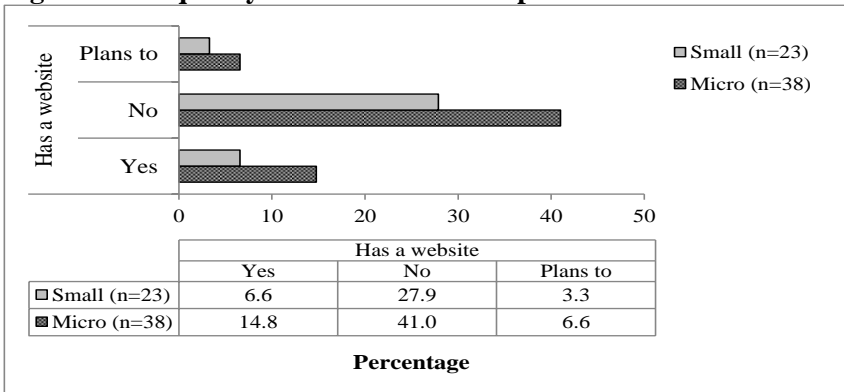
Figure 3 summarises the e-commerce activities in which the respondents engaged.

Figure 3: Frequency of e-commerce activities

	Uses Internet to attract new customers	Uses Internet to receive payments for services rendered	Does Internet banking
■ Yes	68.9	54.1	82.0
□ No	14.8	34.4	16.4
▦ Plans to	16.4	11.5	1.6

Percentage
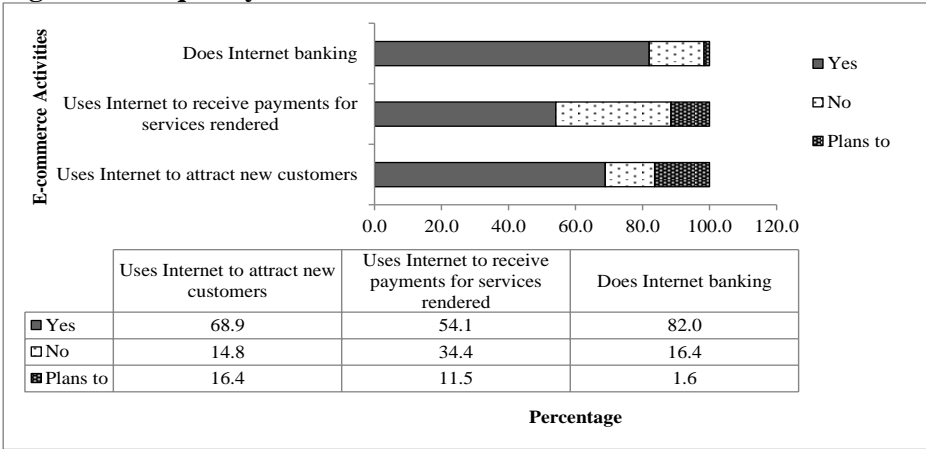
In relation to e-mail, the respondents were asked if they utilise e-mail applications in their businesses; 86.9% (53) of SMEs responded in the affirmative. The construct of e-mail as a communication medium looked at the purpose for which e-mail is being used and the results are presented in Figure 4.

Figure 4: Purpose for which e-mail is used

	Uses email for internal communication	Uses email to communicate with customers	Uses email to communicate with suppliers
■ YES	65.6	86.9	83.6
□ NO	34.4	9.8	13.1
▦ PLANS TO	0	3.3	3.3

Percentage
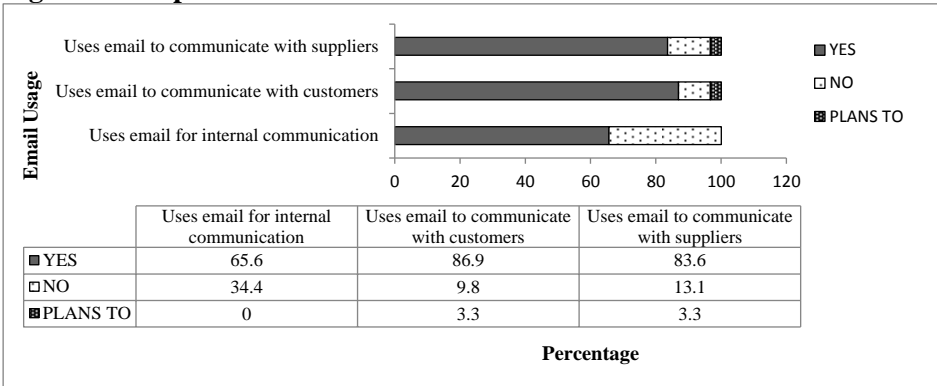
The web-browsing construct looked at how the SMEs were using the Internet to search for information. The results are presented in Figure 5.

Figure 5: Information being searched for, by SMEs

	Uses Internet to find out about competitors	Uses Internet to find suppliers	Uses Internet to build business connections	Uses Internet to do industry/market research	Allows staff to use the Internet to search for information
■ Yes	88.5	86.9	54.1	85.2	47.5
□ No	8.2	4.9	24.6	8.2	49.2
▣ Plans to	3.3	8.2	21.3	6.6	3.3

Percentage
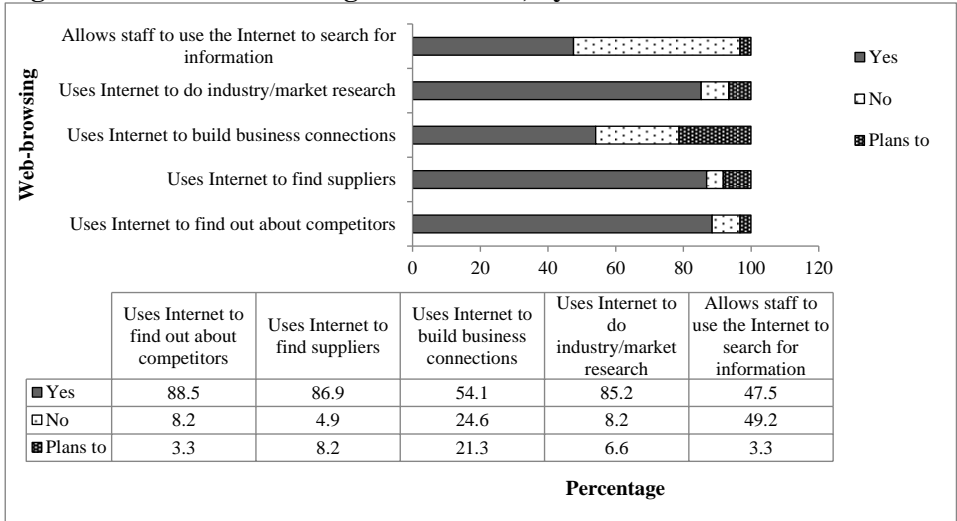
Objective 2: Factors Inhibiting Internet Adoption

In the second part of the questionnaire, respondents were asked to rate their agreement with statements regarding inhibiting factors sourced from the literature. In the questionnaire a five-point Likert scale was used where: 1 = strongly disagree, 2 = disagree, 3 = no opinion, 4 = agree, 5 = strongly agree. In order to maintain uni-directionality of the variables for analysis, the variables reflecting the inhibiting factors were reverse recoded in SPSS to 1 = strongly agree, 2 = agree, 3 = no opinion, 4 = disagree, 5 = strongly disagree, and the variables were set as ordinal scales. The sum of the responses was then used to rank the inhibiting factors in ascending order.

Various barriers to Internet adoption, as identified in the literature review were tested in this study (Table). The shaded area in the table highlights those variables which are applicable in the current research context (i.e. the respondents agreed that these were inhibiting factors

(median=2, S<183). The un-shaded area shows those factors that were tested but found to be not applicable (median=4, S> 183).

Table 5: Descriptive statistics of factors inhibiting Internet adoption

Variable	Strongly agree (%)	Agree (%)	No opinion (%)	Disagree (%)	Strongly disagree (%)	CENTRAL TENDENCY		
						Median	Mode	Sum (S)
Cost of electricity is too high	44.26	50.82	3.28	0.00	1.64	2	2	100
There is a lack of support from the government for businesses to use the Internet	16.39	75.41	4.92	1.64	1.64	2	2	120
IT consultant services are too expensive	13.11	49.18	1.64	34.43	1.64	2	2	160
The Internet is too expensive	13.11	49.18	1.64	32.79	3.28	2	2	161
The Internet poses a security threat to businesses	4.92	50.82	8.20	32.79	3.28	2	2	170
There is a lack of information on how to use the Internet for business purposes	6.56	44.26	3.28	42.62	3.28	2	2	178
Cost of equipment required to use the Internet is too high	1.64	52.46	1.64	40.98	3.28	2	2	178
My staff will waste time using the Internet	8.20	34.43	3.28	54.10	0.00	4	4	185
The Internet is too slow	3.28	24.59	9.84	55.74	6.56	4	4	206
IT consultants are hard to find	3.28	18.03	1.64	68.85	8.20	4	4	220
The Internet is too complex	0.00	16.39	4.92	73.77	4.92	4	4	224
The Internet has no relevance to this business	0.00	9.84	6.56	63.93	19.67	4	4	240
I do not understand how the Internet works	0.00	4.92	1.64	77.05	16.39	4	4	247

Notes: n=61. The mode is the most frequently occurring response and the median is the mid-point after the responses have been arranged from smallest to highest. The sum refers to the total sum of responses of the ordinal scale where (1=strongly agree, 2=agree, 3=no opinion, 4=disagree, 5=strongly disagree). S<183 indicates agreement, S=183 indicates no opinion and S>183 indicates disagreement

In order to further explain the inhibiting factors, only those SMEs who did not adopt the Internet (non-adopters) were selected for further analysis. We determined that 21% (13 SMEs) were non-adopters and a frequency analysis on the inhibiting factors identified in Table 5 was conducted on this group. The shaded area in Table 6 shows the barriers to Internet adoption, from the point of view of the non-adopters. The un-shaded area illustrates that these factors were not prevalent among non-adopters ($S > 39$, median ≥ 3).

Table 6: Non-adopters' reasons for not using the Internet

Inhibiting factors	Strongly agree (%)	Agree (%)	No opinion (%)	Disagree (%)	Strongly disagree (%)	Median	Mode	Sum (S)
Cost of electricity is too high	30.77	53.85	7.69	0.00	7.69	2	2	26
The Internet is too expensive	15.38	46.15	0.00	38.46	0.00	2	2	34
IT consultant services are too expensive	0.00	61.54	7.69	30.77	0.00	2	2	35
Cost of equipment required to use the Internet is too high	7.69	46.15	7.69	38.46	0.00	2	2	36
There is a lack of information on how to use the Internet for business purposes	0.00	46.15	15.38	38.46	0.00	3	2	38
The Internet poses a security threat to businesses	7.69	38.46	7.69	38.46	7.69	3	2	39
There is a lack of support from the government for businesses to use the Internet	0.00	7.69	92.31	0.00	0.00	4	3	51

Notes: n=13. The mode is the most frequently occurring response and the median is the mid-point after the responses have been arranged from smallest to highest. The sum refers to the total sum of responses of the ordinal scale where (1=strongly agree, 2=agree, 3=no opinion, 4=disagree, 5=strongly disagree). S<39 indicates agreement, S=39 indicates no opinion and S>39 indicates disagreement

Correlation Analysis: Spearman's Correlation Co-Efficient

Spearman's correlation co-efficient (also known as Spearman's rho - r_s) was used to determine correlations between Internet adoption inhibitors, as a group, and using the Internet for business purposes. When using categorical variables that are directional (ordinal) it is more appropriate to report the results of the one-tailed tests instead of the two-tailed tests (Field 2009).

Factors Inhibiting Internet Adoption

- The Internet being too expensive was significantly correlated with the cost of equipment required to use the Internet, $r_s=.306$, p(one tailed)<0.01 and lack of information on how to use the Internet for business purposes, $r_s=.328$, p(one-tailed)<0.01.
- Internet complexity, was significantly correlated with a lack of understanding about how the Internet works, $r_s=.339$, *p(one tailed)<0.01* and lack of information on how to use the Internet for business purposes, $r_s=.295$, p(one-tailed)<0.05.
- The Internet posing a security threat to businesses was significantly correlated with a lack of understanding about how the Internet works, $r_s=.272$, p(one tailed)<0.05.
- Lack of government support was significantly correlated with lack of information on how to use the Internet for business purposes, $r_s=.290$, p(one-tailed)<0.05.
- Internet adoption was significantly related to the complexity of the Internet $r_s=.258$, p(one-tailed)<0.05.

Discussion

Technologies Being Used by SMEs in the Business-Services Sector

Overall, 79% of the respondents indicated that their organisation currently used the Internet, and e-mail usage was slightly higher at 87%. While most of the SMEs use computers (93%); website ownership (21.3%) and Intranet usage (8.2%) were much lower (Table 3). This is consistent with findings of the study conducted by Stansfield and Grant (2003) who also found that,

while some technologies are being used extensively, other technologies like Intranets and having websites were limited among Scottish SMEs.

In terms of communication capabilities, SMEs were equipped with telefaxes (89%) and cell-phones (82%). The high percentage of cell-phone technology indicates that it plays a vital role in business communication. It also implies that mobile commerce (m-commerce) is likely to be embraced in the future. Besides telefax and cell-phone services, SMEs were using e-mail (87%) to facilitate communications with business partners and employees.

Objective 1: Uses of the Internet

Table 4 showed that SMEs currently use the Internet as an information search tool to find out about competitors, customers and suppliers, and to conduct market related research. Furthermore analysis of their usage patterns revealed that they most often used the Internet as a communication medium. There was a limited number of SMEs which used the Internet for e-commerce purposes. The following sections describe the prevalent uses of the Internet.

E-mail

In the current study e-mail was defined as using the Internet as a communication medium. Table 3 shows that most SMEs (87%) are using e-mail and Figure 4 illustrates that they are mainly using email to communicate with customers (83.6%), suppliers (80.3%) and for internal communication purposes (63.9%). Dholakia and Kshetri (2004) wrote that SMEs often use mailing lists to update customers on their latest offerings and receive e-mail alerts from suppliers about product offerings.

Through e-mail, businesses are able to timeously disseminate information to customers and suppliers (Tan & Teo 1998) because it allows for global communication, and the ability to exchange multimedia documents, which is convenient and cost-effective (Poon & Strom 1997). Interestingly, a study conducted in New Zealand showed that, while external communication with customers and suppliers was significantly associated with using the Internet for business purposes, internal communication between staff was not associated to Internet adoption (Al-Qirim 2007).

E-commerce

Dholakia and Kshetri (2004) found that prior technology use, in the form of website ownership significantly contributes to the use of the Internet for e-commerce. The current study found that SMEs in the business-services sector are not fully exploiting the Internet for e-commerce purposes. The results in Figures 1 & 2 show that the majority of SMEs (69%) in the business-services sector do not have websites, and more than half (53%) are not listed in on-line directories. Being listed in on-line directories is a precursor to establishing an on-line presence, because this allows Internet savvy customers to search for businesses. Having an informational website is the first step to informing and attracting future customers (Tan *et al.* 2010), and falls into the early stages of integrating the Internet into routine business processes to enable e-commerce (Stansfield & Grant 2003).

In terms of using the Internet for trading (e-commerce), 13% of SMEs indicated that they sold goods or services on-line and one-quarter of the respondents reported that they purchased goods and services on the Internet (Table 4). More than half (54%) of SMEs indicated that they use the Internet to receive payments for services rendered, and 82% reported that they make use of Internet banking (Figure 3).

In this study, while some e-commerce activity was taking place, it was essentially in the form of Internet banking. Buying and selling of services was less common. This is consistent with the findings of Cragg *et al*. (2001) who reported that despite e-commerce offering an extensive list of applications for business use, advanced applications, such as on-line trading, are rarely used by SMEs. Similarly Xu *et al*. (2004) found that SMEs in developing countries were less likely to be using the Internet for buying and selling products and services to business partners.

Web-browsing

In this study web-browsing was defined as using the Internet to search for information. Table 4 shows that the Internet is predominantly used, as a tool, to search for information. In Figure 5 we see that the kinds of information SMEs are searching for include looking for suppliers (87%), finding out about competitors (89%), and doing industry or market research (85%).

Poon and Strom (1997) found that communications and information retrieval were primary reasons why SMEs were using the Internet. Not much had changed six years later when Stansfield and Grant (2003:23) reported that the 'main use for the Internet related technology is for undertaking research activities, in particular, looking for new suppliers and customers and finding out about the activities of competitors'. These finding are also consistent with even more recent studies which show that the Internet is mostly used for web-browsing and that the use of the Internet by SMEs for other more advanced activities is limited (Tan *et al*. 2010; Lee & McGuiggan 2009; Mohamad & Ismail 2009).

Objective 2: Factors Inhibiting Internet Adoption

While most SMEs (84%) acknowledged that the Internet was becoming increasing relevant to their businesses, they felt that the main barriers to Internet adoption were concerns about the costs and complexity, issues around security, and lack of support when it comes to using the Internet (Table 5).

Cost and Complexity

Notable in the results is the number of SMEs that indicated that the costs of; electricity (95%), IT consultant services (63%), Internet access (63%) and equipment (54%), required to use the Internet were high (Table). There were significant associations between the cost of the Internet and the cost of equipment, where both variables were positively correlated. This implies that SMEs consider the high cost of the equipment required to use the Internet as the strongest reason why they consider using the Internet as expensive.

While 5% of SMEs indicated that they do not understand how the Internet works, there was a medium strength positive correlation between understanding the working of the Internet and the perception that the Internet is too complex. This means that the less the SME owner understood the Internet the more likely they were to consider it a complex tool. Similarly, Internet complexity was also significantly associated with a lack of information on how to use the Internet for business purposes.

Table 6 showed that the factors that influenced SMEs who were not using the Internet (non-adopters) were all related to cost, namely the cost of the Internet, the costs of IT consultants and the high cost of electricity. These results were significantly higher for non-adopters than adopters of Internet technologies.

Although many SME owners expressed interest in the potential of the Internet, they seemed far more concerned about the additional expense of adopting the Internet. Here again, the findings are consistent with studies conducted by Walczuch *et al*. (2000) in the Netherlands and Tan *et al*. (2010) in Malaysia. In contrast, Lee and McGuiggan (2009) found that costs were not a significant barrier to Internet adoption among Australian SMEs.

Information Security

There was a medium strength positive correlation and significant association between the perception that the Internet posed a security threat to businesses, and a lack of understanding of how the Internet works. The implication here is that the less the owner manager understood the working of the Internet the more likely they were to believe that it posed a security threat to their businesses.

Although there were no other significant associations with the other constructs, information security was highlighted as a concern among 55% of the SMEs (both adopters and non-adopters). These findings are consistent with a study conducted amongst Australian SMEs, where concerns for confidentiality and security of information were identified as a barrier to Internet adoption (Lee & McGuiggan 2009).

Lack of Government Support

The lack of support from government for SMEs to use the Internet was significantly associated with a lack of information on how to use the Internet for business purposes. This could mean that in the South African context, the SMEs see government agencies as important sources of information regarding business tools. Also, Lee and McGuiggan (2009) identified that SMEs were more likely to use the Internet to find out about government policy updates and that SMEs looked to the government as an important

source of information. The findings of the current study were similar to those of Chau and Kuan (2001) who found that SMEs in Hong Kong did not adopt the Internet because of lack of knowledge and skills, insufficient internal IT expertise and a lack of legislated support.

Limitations of the Study

There does not seem to be a single, comprehensive database of South African SMEs (de Klerk and Kroon, 2005). In this study the Durban Chamber of Commerce (DCC), South African Revenue services (SARS), Department of Trade and Industry for KwaZulu-Natal (DTI), eThekwini municipality and Durban City Engineers (DCE) were contacted. The City Engineers' department was the most helpful with regards to information about SMEs. However, while the City Engineers' office had a database of formally registered SMEs in the Durban region, it was not accessible to the researcher. Only staff members with proper clearance had access and the population size was based on what the researcher was told, hence the information was subject to human and counting errors beyond the control of the researcher.

The study focused on formally registered businesses and did not take into account those SMEs, which were not registered (i.e. SMEs in the informal economy). Furthermore, since there was no consistent definition of small business in the literature and policy documents, it was difficult to consistently determine the exact number of SMEs in the business-services sector. Finally, the response rate was 76.25% of the required sample size; hence the generalisability of the results to other SMEs in the business-services sector located in Durban is limited by the nature, small size and low response rate of the sample.

Recommendations
Government Support and Incentives

Most of the respondents reported that the government should give businesses more incentives to get on the Internet. Therefore government support in assisting SMEs in a developing context, should begin by creating a legal environment which is conducive for SMEs trading via the Internet. This

includes establishing appropriate Internet and e-commerce laws, and appropriate tax incentives for using the Internet. Additionally, 91% (Table 4) of the respondents indicated that government support in terms of Internet usage was lacking.

Hence government assistance should extend to formulating and implementing educational and training plans that aim to prepare SMEs to build up their technology competence, thus enabling them to adopt and integrate the Internet in their businesses for the purpose of e-commerce. This can be achieved through the development of a network of IT support agencies which provide education and training to SMEs. Moreover, government support should also include public awareness programmes that build upon the favourable sentiments towards the Internet among SMEs. This will emphasise the importance and benefits of the Internet, and its applications for the economic future of the South Africa.

Managerial Awareness

In this study most SMEs felt that the associated costs of acquiring the Internet were too high. Managers need to re-evaluate the benefits and costs of Internet adoption as the business environment changes. In the long-term, the benefits of Internet adoption outweigh the costs. Therefore an important message for SME owner/managers is to realize that, as businesses increasingly engage in e-commerce, SMEs will have more opportunities to compete in the global marketplace.

Conclusion

The study provided evidence that SMEs are aware of the advantages provided by the Internet. However, the short-term benefits are not apparent enough to SME owners for them to plan any significant investment in adopting Internet technologies.

The results of this study showed that, while the majority of SMEs in the business-services sector were engaging in Internet activities, these activities were limited to e-mail and web browsing. E-commerce (use of the Internet for trading purposes) was limited.

Important factors that influenced business-services SMEs' decision to adopt the Internet; included costs and complexity, information security, IT support, pressure from trading partners, and the perception of gaining a competitive edge. The role of government support in convincing SMEs of the benefits of the Internet, and assisting them to adopt and integrate the Internet into their businesses is essential.

Acknowledgements

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Business Process Development: Integrating Best Practices

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Abstract

This article explores the process of incorporating the best practices embodied in different ICT management frameworks such as ITIL and COBIT into the development of business processes and their successful management. Business processes development and their management need to be regarded as the integration of various practices and components that interact with one another directly and indirectly to ensure that they achieve the organisational objectives. This research followed a qualitative research process. Unstructured interviews were used to collect data and the research revealed that there is a need for effective, well developed and managed business processes in organisations (especially in the current competitive business environment). Business processes create harmony and ensure control of different actions and activities of different stakeholders, either internal or external to the organisation to ensure quality products and services are delivered to customers. The study also found that effective business processes can be developed only if the organisations apply tried and tested best practices and principles and consider different environmental components that interplay during the development and management of these business processes. This includes a better understanding and mastering of factors such as the vision, mission, objectives, and the organisation's stakeholders. The selection of proper practices and the adaptation of proper management tools and experiences from different frameworks is another

point considered as important. It is also prudent to establish proper measurement units (such as KPAs or KPIs) to assess the performance of business processes and proactively develop strategies to deal with challenges such as requirements.

Keywords: Business process development, ITIL, COBIT, IT service management, Information systems

Introduction

Business organisations rely on different factors to achieve high performance. These factors include resources such as financial, technological, human, and the processes followed to achieve specific outcomes. Chief among this list is technological innovation, especially in the IT field, which has always positively influenced the operations of business organisations.

Rainer and Turban (2009) describe the era from year 2000 as being driven by globalisation 3.0. This was characterised by global business environment reproached by different flatteners and the Web-based platform. Even if technology has influenced the operations of business organisations, business processes are still valuable as they translate the activities that are implemented using technology into actions. This observation is the same from manufacturing to the service organisations, profit-makers to not-for-profit, and government departments in such a way that without better processes customers become dissatisfied.

According to The Society of Management Accountants of Canada (2000), business processes have become more important as customers' expectations are increasing and there is a need to become focused on providing customer value. Simultaneously, time-based competition (shorter planning cycles, shorter lead-times, shorter product development cycles, shorter product life cycles are becoming prevalent. Many enterprises are not ready to meet the concurrent demands of customer-focused, time-based, and low-cost competition because their key business processes are poorly structured.

Business processes are seen as an inherent part of doing business in the current global economy. That is, although processes will chiefly

differentiate between the competitive forces in the networked economy, they will be deeply integrated into business itself. Processes are critical components of almost all types of systems supporting enterprise-level and business-critical activities (Sheth *et al.* 1999).

Most business organisations that operate in the network economy depend on IT to be successful. If processes and IT services are well integrated and implemented, managed and supported in the appropriate way, the business can achieve success, suffer less disruption and loss of productive hours, reduce costs, increase revenue, improve public relations and achieve its business objective (The IT Service Management Forum, 2007).

Organisations operating in the current networked economy rely on IT resources to conduct their businesses. Managing IT resources and integrated processes require better understanding and application of best practices such as those provided in the ITIL and COBIT frameworks. Therefore, managing IT processes infers a direct management of business processes as IT infrastructure integrate business processes or translate business activities into IT infrastructure.

Mentioning the importance of frameworks, Violino (2005) notes that ICT has become increasingly automated, more companies are embracing best practices and procedures outlined in formal ICT frameworks. At stake are service quality, security, regulatory compliance and other increasingly important strategic corporate goals. While there is some degree of duplication among the frameworks, there also exists a greater degree of complementarity than overlapping. Many companies use more than one framework in managing their business entities and operations.

Due to the continual changes in the business environment and customers' requirements for service speed and flexibility, and increasing competition in the market, organisations are using different strategies to ensure that they provide value to customers and are ahead of their competitors. Therefore, the organisations rely on effective business processes as one of the strategic tools to achieve this market success.

The main question looks at how business organisations in South Africa use ICT management frameworks to achieve success in the development and management of business processes. In this article, different best practices are investigated and included in the development and

management of business processes by applying a formal research methodology. The rest of the article is as follows: In the next section a brief literature study is given, then follows the methodology, the results and a conclusion.

Literature Review

According to SearchCIO (2008), a business process is a set of coordinated tasks and activities, conducted by both people and equipment that will lead to the accomplishment of a specific organisational goal. A business process achieves a goal that the business cares about. This is called the output of the process (Gabhart & Bhattacharya 2008).

As business organisations operate in different industries with different requirements, their processes vary according to what they deliver. Interfacing (2008) regard business processes as methods, steps and activities performed to provide a service. Some examples of these processes include, filling a customer order, claims handling in an insurance company (Hurwitz *et al*. 2009), and admitting a patient in a hospital. Note that a business process is not automated by definition. It might indeed require manual participation or intervention. But the gain is efficiency, which comes when processes are automated from end to end, although at times this isn't always possible. Effective business processes lead to innovation, allowing companies to do business differently as compared to its competitors in the market.

Business process management (BPM) is an approach for achieving business goals, coordinating the end-to-end processes of firms, establishing best practices, and furnishing software, such as in an automated business process management system (BPMS), to describe, analyse, and enhance the efficiency of the processes against business goals (Lawler & Howell-Barber 2008). Mainly, BPM deals with definition and optimisation of business processes (Gabhart & Bhattacharya 2008).

According to Gabhart and Bhattacharya (2008), BPM covers the following aspects related to the definition of a business process:

- Define the business process, which involves modelling the process where it moves from As-Is process discovering weaknesses through to the To-Be process.

- Establishing business process, which will involve the training of staff and selection of appropriate software.

- Putting the process into practice.

- Monitor and control the process to identify the performance level (through the use of alert system or periodic reporting system).

- Improving the business process where needed.

- Business Process Development (BPD) refers to the activities related to the design, modelling, development, implementation of business processes and aligning them with the business goals to achieve the organisational specific outcome (SearchCIO 2008).

To ensure that their services and products rendered in a global economy meet the quality requirements, organisations are required to ensure that their business processes are effectively managed and integrated in their strategies. This is done with the objective of ensuring that customers are satisfied in all spheres by minimising the time, cost, increasing the quality of products or services and also the channel through which the products and services are to be delivered.

In the words of Sheth *et al*. (1999), speed and distribution will characterise every aspect of most business and organisational undertakings in the current networked economy. Companies distributed over space, time, and capability will have to come together to deliver products and solutions in the global marketplace.

As global business operators, organisations are operating in the chain made of different role players, which include suppliers, contractors, customers, government, and other different stakeholders that require services and products supplied according to specific levels of standards. To serve all these constituencies of the system, organisations need not only knowledge capable technologies, but also effective processes that successfully link the activities of the organisations to their internal departments and external stakeholders.

Hurwitz *et al.* (2009) note that a business is about the products and services it offers to its customers including the processes that make it unique in how it delivers value. This implies that business organisations exist in order to provide services and products to their customers on time, at affordable prices, and in good quality. These are also the outcomes of business processes. The latter exist only through well managed BMP principles, which (BMP) deal with definition and optimisation of business processes (Gabhart & Bhattacharya 2008). Therefore, the existence of well managed BMP contributes to the improvement of business productivity and achievement of business objectives.

In general, it can be said that business process management is about: organising the business around processes (set of activities) and focussing on customer satisfaction, clarifying and documenting processes, monitoring progress performance and compliance and lastly continuously identifying opportunities for improvement. To achieve greater performance and efficiency with business processes, there is a need to look at the following factors as mentioned by Carter (2007):

- People: having the right people, motivated and performing is naturally a key requirement to performance.

- Technology: providing the people with the right tools to do their jobs well is also vitally important. Computer technology has revolutionised the office environment, and with web technologies and mobile computing we are all becoming much more efficient for longer**.**

- Process: business processes integrate different organisational functions. A sales process may start with marketing and production, it may involve accounts, involve sales (close the deal) then it can go back to accounts. Production's input may involve the supply chain. Therefore, the sales process cannot just involve accounts receivables, but accounts payable as well (Carter 2007).

Smith and Fingar (2008) noted eight characteristics that distinguishbusiness processes from other elements of the business. Businesses are large and complex, dynamic, widely distributed and customised across boundaries, long-running: a single instance of a process such as order to cash or develop product may run for months or even years, automated, both business and technical in nature, dependent on and supportive of the intelligence and judgment of humans, and lastly, difficult to make visible.

Business process management allows the organisation to map the entire cells of the organisation as activities, procedures, steps, resources and more. It creates a model for management, allowing organisations to manage their activities just as they manage the people performing the activities. More than that, BPM allows process managers to enact specific improvements on the company structure with fast implementation, ensuring the most efficient change management (Interfacing 2008). Interfacing (2008) also describes a Process Management Lifecycle that is made up of five activities namely: Process Design, Process Modelling, Process Execution, Process Monitoring, and Process Optimisation.

According to Sparx Systems (2008), a business process contains the components such as goals, specific inputs, and specific outputs. It also has the characteristics such as consumption of resources and has a number of activities that are performed in some order, may affect more than one organisational unit, creates value of some kind for the customer, and the later may be internal or external.

Sodan (2008) mentions that improved processes mean improved business. Therefore, effective and flexible business processes help the organisation achieve improved productivity, provide a higher level of customer service, obtain flexibility in resources usage including staff, respond more rapidly to new opportunities, raise the morale of staff through better work environment, and deploy new technologies without disruption.

There are many best practices from a variety of frameworks that can be included in business process development and management. Examples are ITIL and COBIT, the two selected here because of their advantages as shown in the Table 1 below.

Table 1: ITIL and COBIT Frameworks

Framework	Benefits
ITIL	ITIL supports IT governance by providing a framework to ensure that: • IT is aligned with the business • IT enables the business and maximises benefits • IT resources are used responsibly • IT risks are managed appropriately • A view of what IT does • Ownership and responsibilities, based on process orientation Shared understanding amongst all stakeholders, based on a common language.
Source: Best Management Practice (2007).	
COBIT	COBIT supports IT governance by providing a framework to ensure that: • IT is aligned with the business • IT enables the business and maximises benefits • IT resources are used responsibly • IT risks are managed appropriately • A view of what IT does • Ownership and responsibilities, based on process orientation Shared understanding amongst all stakeholders, based on a common language
Source: IT Governance Institute (2007).	

Research Methodology

Given the necessity to interact with the participants and observe the best practices they include in the development and management of business processes, the qualitative research method was adopted for this research.

With reference to collection of best practices from different organisations from different industries, the multiple studies were selected as a strategy for this research as the researchers explored in depth the concept and practice of BPM as it is practiced in different organisations. Henn *et al.*, (2009) note that cases are units of investigation. They (cases) may also refer to other units of analysis, including organisations (schools, businesses, and political parties), localities, regions, or countries. The advantage of multiple cases to this research is to improve data reliability and generalizability of the study (Gray, 2009). This is because different participants (six cases as in this research) give their perspectives to the research question.

Data collection was accomplished partly by reviewing previously published materials and later, semi-structured interviews were conducted with experts from different business organisations. A recording device in some cases (portable cellular phone, Sony Ericsson W200i) was used to capture the data. The data analysis included some techniques from the family of grounded theory techniques. This selection relied on the fact that grounded theory method is based on the principle of building theory based on the data collected (Saunders *et al.* 2007:142) and this is directly linked to the qualitative research process (Teddie & Tashakkori 2009; Gray 2009). In this study, the researchers first collected data before developing any theory to answer the research question.

Purposive sampling technique was used to select participants. It was ideal to select participants that have knowledge of both business processes and management frameworks, namely ITIL and COBIT. Table 2 below provides an overview of the organisations that participated in this research study. For confidentiality purposes, alphabetical letters were used to denote the official names of participants. These are labelled Candidate A, through to F.

Table 2: Research participants targeted sample

No	Participants	Industry	Data collection technique
1	Candidate A	Consulting	Semi-structured interview (recorded) interview

2	Candidate B	Transport	Semi-structured interview (recorded)
3	Candidate C	Consulting	Semi-structured interview (recorded)
4	Candidate D	Consulting	Semi-structured interview (recorded)
5	Candidate E	Mining	Semi-structured interview (online)
6	Candidate F	IT systems development and consulting	Semi-structured interview (online)

Table 2 lists the six candidates from different companies that participated in this research study. All six organisations have either been involved in the BPM practices for internal use or as consultants and have experience in the practice of ITIL and COBIT frameworks in the development and management of business processes.

Necessity for the Integration of Best Practices in Business
The summary of the findings for this study is provided from both literature review and the interaction with the participant's perspective.

From The Literature Reviewed
From the literature reviewed, no business can produce adequate outputs or any result without proper business processes. Gabhart and Bhattacharya (2008) characterise business process as a conductor in an orchestra music choir and ask the service providers to perform specific tasks. In this way, services become the building blocks of a business. Hurwitz *et al.* (2009) note that a business is about the products and services it offers to its customers. It is also about the processes that make it unique in how it delivers value.

It is therefore clear that business processes are core to the internal functioning of any business and to its interaction with stakeholders in the value chain. Without them, it is difficult to manage a business.

Business processes are heavily linked to their industry and the purpose for which they are developed (Bieberstein *et al*. 2008; and Hurwitz *et al*. 2009:65). For instance, in an insurance company, claims handling is a business process. In a hospital, admitting a patient is a business process. In a furniture store, selling a cabinet is a business process. Note that a business process is not automated by definition. As the business processes are different, so are the frameworks used to develop and manage them (Holtsnider & Jaffe 2007; Jiejin 2009). It was noted that business processes pose different challenges during their development and management. Some of these challenges as stated by Rickayzen *et al*. (2005) are:

- Lack of adequate information, which is the core input into the decision making process of every organisation.
- Clarification of source and destination of knowledge in process.
- Flexibility during the operation time to address cases of emergency.
- Application of best practices during the operation of process once it is operating.
- Ensuring that employees spend more time producing than learning how processes are interacting.

Quality means different things to different people. For this research study, the quality in business processes is taken from ITIL Survival (2006) that states that ITIL is based on the need to supply high-quality services with an emphasis on customer relationships. ITIL's philosophy is also based on quality systems, including the ISO-9000 series and Total Quality Frameworks, such as that of the European Foundation for Quality Management (EFQM). All the service delivery and support processes, from the Service desk through to Service Level Management (SLM), inter-relate to provide a seamless flow of information that helps to ensure on-going service quality. This means that by following the ITIL methodology and other frameworks such as COBIT, a company is indirectly abiding to the standards of quality management and some best practices.

From The Empirical Findings
The purpose of the empirical approach was to collect the evidence through

interviews (four out of six were recorded and two candidate e-mailed their answers given their time that could not accommodate face-to-face interviews) with participants from various industries on the practices of business process development. This approach was intended to confirm and supplement the theory as presented in the previous section and answer the research question using empirical evidence.

Using data analysis techniques, codes representing the key words from the respondents' answers were highlighted, and they represent the participants' summative views to each interview question. These were categorised to remove duplication and are presented in Table 3 below.

Table 3: Interview data summary

Unit of analysis	Code categorisation	Conceptualisation
Importance of business processes	- Standard and create understanding - Vision and mission - Enable Inputs, interrelated activities, and outputs to predict outcome - Certification - Documentation - Series of action and instructions with outcome - Create harmony and consistency - Proactive and avoid waist - Products and services - Key driver task that adds value to value chain - Meeting requirements - Guideline for the business - Best practice	Business processes are a set of actions and instructions that are documented to create harmony and standard with a purpose of enabling inputs, coordinating activities to predict outcomes (products and services) that enable the organisation to achieve its mission and vision with intent to meet the requirements of its stakeholders (internal and external).

Framework(s) used to develop business process	• ITIL adapted • BMC remedy • SAP • ISO 9001:2000 • COBIT what • ITIL how • IDF0 • PRM-IT and IBM Services Model • SDLC • PMBOK process	There are different frameworks used for the purpose of developing business processes: • ITIL and COBIT are the most used frameworks and complement each other and can be used in different industries and businesses. • Two or more frameworks can be combined according to needs. • The adoption of framework is based on company's needs, industry, and level of maturity. The frameworks used are: • To facilitate reuse • To meet customers (internal and external) needs • To ensure alignment between processes and vision, mission, business objectives, and governance in services delivery • According to the needs of the business

		and can be adapted according to the level of the organisation's resources.
Specific characteristics of a business process	• Document processes • Explain people and soft skills and workshop • Management support • Know business and activities. • Customer needs • Best practices • Inputs, outputs, and controls. • Standards • Infrastructure • People • Flexibility to accommodate changes • Common goal • Clear understanding	These categorised codes ensure that when engaging in business processes development, the developer needs not just the technical knowledge, but also a fair degree related to the understanding of business and its goals, its environment, combined to people skills or soft skills.
Challenges experienced during the business processes development and management and strategies used to manage them.	• Misalignment due to lack of understanding: conduct Workshops and ensure stakeholders buy in and document the steps • Access to infrastructure • Engaging people: Workshop the people • Resistance: communicate, use soft skills, and technical training, engage with the people • Change management	The challenges experienced during the development and management of business processes are broad and depend on individual business situation as each business is different to another due to each structure, industry, and composition of its resources. The strategies used to deal with these challenges are also

	• Benchmarks and workshops • Phased deployment • Financial • Depend on business situation • People feel obsolete as knowledge being documented	different, some challenges are common such as communication, while others are specific such as financial.
How do you ensure quality?	• SHEQ to Audit • Update documents • ITIL certification • Quality management system • Be proactive • Continuous audit • Meeting needs • KPAs or KPIs measures • Quality policies • Quality check • Training people	Quality means different things to different people and it is at the heart of each process development. As in this case, it is based mainly on the measurable KPAs at the beginning of process development. But some companies develop their own policies or rely on certification institutions for quality standards.

As mentioned earlier, ITIL and COBIT frameworks are among the best practices in business processes development and management. They provide a guideline and align processes with business strategies, ensure that business structure integrates with designed processes (IT Governance Institute, 2007a). ITIL is suitable to assist during process development through the following components:

- ITIL standard process methodology: this component is based on identifying high-level business objectives, identify the gap in business process, redesign the business process to close the gap, design appropriate application, then implement the new application.

- ITIL lifecycle diagram: this is the heart of ITIL processes design and management. It starts with the strategic component, moves to the design, transition and operation to the continual process improvement.

This component helps in the creation of conceptual model for business process development and management as it matches process design phases. But as a collection of best practices, ITIL improves the process development activities.

- ITIL in the development of business process can be subdivided into design and deployment components. Where the former will focus on identification of business process, modelling and development, the later component focuses on management and improvements during the operation.

COBIT's contribution to process development is based on its focus areas, which are strategic alignment, value delivery, resource management, risk management, and performance measurement (IT Governance Institute, 2000). All of these areas ensure that business processes once developed, deliver value to business, and risks related to interruptions are minimised or totally removed.

Representing the BPM Cycle

After a critical review of theory on business process management (BPM) and review of participating organisations understanding and practices on the BPM, the researchers have understood that business processes operate in a dynamic environment with different requirements that need to be managed to ensure that they are developed according to best standards and help the organisation to achieve its objectives.

To arrive at the stage of business process management, business processes must be developed, and the development itself must be in relationship with business objectives, strategies, and environment. The above leads the researchers to develop Figure 1 to explain the environment that interacts with the business processes (cf. below).

According to Figure 1, the environment of business processes can be described in the following way:

- The cycle starts with the understanding of why the business exists through its vision, mission, and business objectives. This is required and has to be done by any person engaged in the business process

development despite his or her technical knowledge, but with a good understanding of the organisational operations.

- Understand the people (including the users, management, contractors) who deal directly and indirectly with the business and its processes.

- Evaluate the needs of the business and the stakeholders to which you are going to apply the framework and related technologies to develop business processes. This is to enable the adaptation of the framework to suit the needs of business stakeholders.
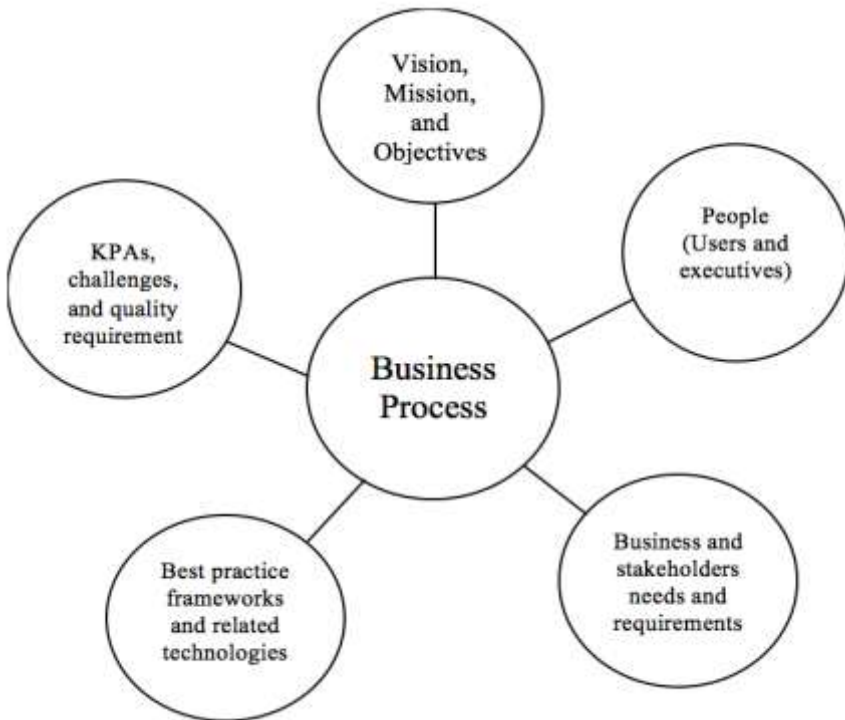
Figure 1: The environment of business processes

- Best practice frameworks are the tools, they are helpful only if you use them accordingly and apply them to correctly identified needs. After the understanding of business and its people, you can then contemplate the tool or framework that can be matched to its way of doing business and resources.

- Develop the key performance areas (KPAs) that are going to be used to measure the success of the business process. These KPAs can be based on people, technology, or any other resource that apply to the business process, which can be financial resources. Understand also the challenges that can be faced during the development of business processes and quality requirements to develop strategies proactively to remove them or minimise their impact.

Figure 2: Value proposition

The reason for addressing the technological requirements in figure 2 above is because some participants mentioned the combination of tools such as SAP and BMC remedy suites of products during the development of business processes. In general, technological infrastructure of different forms

(such as Enterprise Resource Planning (ERP) and telecommunication facilities) play a critical role in the development and management of business processes. A discussion of the technological aspects of business processes is beyond the scope of this research.

Value of the Study

Business processes are the ones that drive all the operations of an organisation. As such, they need to be developed according to best standards and practices available in the market. Of great importance is that processes need to be developed once and well to avoid any disruption to services that are provided to clients. Working from the research question of this study which is restated here again as:

How can business organisations in South Africa use ICT management frameworks to achieve success in the development and management of business processes?

This research study has revealed that:

- There are several IT frameworks that are used in industry during the development and management of business processes. The choice of these frameworks is dependent on the type and size of the organization. Another point revealed herein is that it is expected of organizations to employ the use of best practices that are enshrined in these frameworks if they want to achieve success in the management of their processes.

- It is noted that industry experts regard the usage of ITIL and COBIT as the widely used frameworks in BPM. However, other frameworks are also important and the question here is of selecting what applies to the needs of the organisation as each framework and its roles are different.

- The researchers noted that participants' efforts in the use of these frameworks are directed to ensuring the creation of harmony and

alignment of business processes to technological infrastructure together with the overall organisational environment. This guarantees flexibility, and minimises organizational costs. As a result of effective management of business processes, the organisation improves its productivity and competitiveness and ensures that customers get value for what they are paying for.

Following the consideration of the importance of business processes and their management using ITIL and COBIT frameworks as presented in this article, it should not be generalised that all organisations operating in the networked economy should implement their business processes using ITIL and COBIT frameworks. This is because organisations are different in their objectives, sizes, structure, culture, industry they operate, products offered, employees skills level, and many other elements. It is their choice to select and adapt suitable tools to assist in the management of business processes and the measurement used to evaluate their quality and success.

One cannot therefore assume that the findings of this research can be generalised to all situations where any framework can be used in the management of business processes as different frameworks can be applied for different industries and different objectives.

Conclusion

Business organisations in today's highly competitive networked economy are competing based on different strategies. Some of them are financial, technological, innovation, quality of products and services, other organisations rely on the business processes that speed up the development and delivery of products and services to the customers.

The empirical study revealed that business processes are counted among the key strategic assets of the organisation. If the challenges affecting them are not addressed, the expected value from business processes cannot be experienced. Therefore, better address the development and management of business processes with best practice frameworks as identified in this study.

The most important concern with business processes throughout all the phases should not only be emphasised on the usage of the ITIL, COBIT or other frameworks, but need also to have a systematic view of the business and stakeholders needs, requirements and environment. The emphasis should also be on the identification of the most needed activities that need to be included in different phases of business processes. Ensure also that different challenges that can affect the development and management of business processes can be removed or managed to minimize their impact along the processes development and management activities.

Through effective selection of processes and frameworks that best support the organisation's objectives, the management of business processes should be made effective from the analysis, design, implementation, and throughout the continual improvement phase. All these strategies and best practices were identified to ensure that the organisation becomes flexible, effective, and well equipped to satisfy customers' requirements and can be adapted because of the dynamic environment in which they are delivering products and service changes continuously.

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A Pedagogical Intervention Based on
Agile Software Development Methodology

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Abstract
In recent times, the activity of software development has been tagged as being embroiled in a crisis because of the inability of software developers to deliver quality software. In response, the software engineering (SE) community have opted to discard the traditional processes that underpin software development in preference for a set of processes that have been termed as agile methodologies. The underlying philosophy of the agile approach is that the software development process should enhance the possibility of constant interaction with the customer and also be adept at accommodating changing customer requirements. In this article, we examine the pedagogical implications of using the agile approach as part of an academic programme. We also report on students' acceptance of the agile approach as a methodological framework for the development of an information system as part of their capstone major project course. A purposive sampling strategy was employed to conduct a survey with final year Information Systems & Technology students at the Pietermaritzburg and Westville campuses of the University of KwaZulu-Natal. A 71% response rate was achieved. A combined academic framework consisting of behavioural science and design science theory was used to operationalise acceptance of agile methodology. The results from each of the criteria used to quantify acceptance of agile methodology indicate a high level of acceptance of agile methodology within the IS student community.

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Keywords: software development, information systems, agile methodology, behavioural science, design science, constructivism, connectivism

Introduction

The broad discipline of information technology (IT) is anchored around the core activity of software development which in turn, is historically grounded within computer science (Shackelford *et al*. 2006). The focus in computer science is on the delivery of functional software underpinned by a strong mathematical component that ensures optimum usage of the processing capacity of a computer (Glass 1994). In an overview report on academic curricula in computing disciplines released by the Association for Computing Machinery (ACM) (Shackelford *et al*. 2006), a post-modernistic view of software development is adopted. The recommended strategy for disciplines such as software engineering (SE) and information systems (IS) is that these disciplines should focus on the non-functional aspects of software development. As a consequence, software systems began to incorporate a social dimension where the usability thereof began to assume as much attention as functionality. The software development process models have also begun to adopt a "business-like" demeanour where the imperative is that quality software should be developed on time, within budget and to satisfy requirements that have been stipulated by the customer. Recently, the activity of software development has been tagged as being embroiled in a crisis because of the inability of software developers to deliver quality software that is usable and in accordance with customer's expectations of the system (Parnas 1994; Glass 1994; Schach 2008; Pressman 2010).In response to this dilemma, the software engineering community has opted to discard the traditional processes that underpin software development in preference of a set of processes that have been termed agile methodologies. The underlying philosophy of the agile approach is that the software development process should enhance the possibility of constant interaction with the customer with a view to efficiently accommodating changing customer requirements.

Data recently released in the "State of Agile Development" survey (VersionOne 2011), indicate a global acceptance of the agile approach as the

current de-facto software process model of choice. It is reported in Cohn (2012), that according to the Standish Group 2011 report, software applications developed through the agile process have three times the success rate of the traditional waterfall method and the agile process could be viewed as a possible solution to the problem of failed software projects.

In order to align the undergraduate curriculum offered by the Discipline of Information Systems & Technology at the University of KwaZulu-Natal (UKZN) towards the latest trends in industry, the capstone project module offered at third year level has been re-designed in accordance with the dictates of Extreme Programming (XP), a popular agile methodology. The choice of XP is informed by claims made by Bergin, *et al.* (2004) that XP has a positive influence on the learning of computer programming and it facilitates the use of constructivism as a pedagogical strategy

In this article, we examine the pedagogical implications of using the agile approach as part of an academic programme. We also report on the students' acceptance of the agile approach towards the building of an information system as part of their capstone project course.

The Research Questions
The following research questions have been used to underpin the current study.
- What does Agile Methodology of software development entail?
- What are the pedagogical challenges of implementing the Agile Methodology as part of a capstone module?
- What is the students' level of acceptance of Agile Methodology?
- How well did the students comply with the requirements of XP?

The Academic Dilemma
There is a growing body of opinion that suggests that research within the disciplines of management studies as well as information systems is severely lacking in relevance (Davenport & Markus 1999; de Villiers *et al*. 2007; Holcombe & Thomson 2007), so much so that research produced at

universities will have minimal or no impact on the practitioner community. Despite the acknowledgement by some members of the academic community of the lack of relevance of academic research in the above mentioned disciplines, there is still an exclusive focus on academic rigour with very little consideration being given to the relevance of the research effort (de Villiers *et al*. 2007;Worrall *et al*. 2007) . This has resulted in a steady decline in the amount of funding that academics are generating from business because the research produced is lacking in "real world" relevance. There seems to be a strong preference within parts of the IS academic community to engage with the "social dimensions of phenomena" (Pinch 2008), and to relegate the technology to a "black box" status. As a consequence, "…the richness of important and interesting IS research questions has been lost or severely limited" (Niederman & March 2012). A further issue that compromises the relevancy and currency of IS research is that of the time delay, as identified in Knight *et al*. (2008), between the problem inception and the publication of the results of an attempted solution in an academic journal. The academic community seems to wait for emerging trends in the practitioner sector before any research in that area is conducted and eventually published. Hence, it is actually the academic community that is always playing "catch-up" thereby trivialising the value of academic research to the practitioner community (van Loggerenberg 2007).

An ideal resolution to this dilemma of keeping abreast of technology change as well as bridging the gap between the world of practitioners and the world of academics is to incorporate the technologies and methodologies that are current, from a practitioner perspective, into research and development projects that drive academic curricula of universities. This strategy would entail a revisit to the relevance versus rigour debate because it would entail a resurrection of the importance of producing IS research that is current and relevant (widely discussed in the Alternation Journal, titled Themes in Management Studies (2007)). This solution strategy has been extensively deliberated upon and endorsed by Rosemann and Vessey (2008); van Loggerenberg (2007); Jami and Shaikh (2005); Fällman and Grönland (2002); Benbasat and Zmud (2003); Davenport and Markus (1999) and Lee (1999). As a consequence of the imperative to produce relevant IS research, Hevner *et al*. (2004) made reference to the two main domains of IS research. The first domain is behavioural science, where theories exist to explain the

usage of IT artefacts in an organisational context. The dominant theories in this domain focus on the usage, perceived usefulness or intended usage of IT artefacts (referred to as the Technology Acceptance Model (TAM) proposed in Davis (1985)) or the utility value and information quality delivered by an IT artefact (referred to as the Information System Success Model proposed by Delone and Mclean (2004)). The second domain of IS research is design science, where the focus is on the development of an IT artefact, encompassing an evaluation of the feasibility of the development process. In order to enhance the relevance of IS research, the design science domain needs to be given just as much prominence as the behavioural science domain (Hevner *et al*. 2004; Niederman & March 2012; Kuechler & Vaishnavi 2011; Wieringa & Moralı 2012). This approach of delving into the "black box" whereby IS researchers view behavioural and design science as interdependent (Niederman & March 2012) can only serve to add an element of "richness" and broaden the impact of IS research.

In accordance with these sentiments, the current study incorporates elements of the technological and social science realms to investigate the applicability of the agile approach towards software development in an educational context. From a technological perspective, the XP process was subjected to an inquiry regarding its effectiveness as a software process model to develop an information system. From a social science perspective, the effectiveness of the strategies adopted to teach the essence of XP as part of a capstone module was also analysed.

Software Process Models

The development of software is underpinned by software process models that are adaptations of the generic software life-cycle model referred to as the Waterfall model which was proposed by Royce (1970). Many of these adaptations have been given extensive coverage in software engineering texts written by Schach (2008), Pressman (2010) and Sommerville (2007). The main theme emanating from these texts is that the Waterfall model of software development is characterised by a linear or sequential approach consisting of various stages of development. From an overview perspective, these development stages consist of requirements, analysis, design, implementation, testing and maintenance. The Waterfall process is quite

rigidly structured and does not easily handle changing software requirements; which entails the developer going back to the requirements stage (the analogy used here is that it is not natural to flow up a waterfall). The Waterfall model is a process oriented model where the process of development is given priority over the possibility of entertaining changing user requirements. In its purest form, the Waterfall model has been subjected to severe criticism from the SE community. These criticisms, which have been summarised in Parnas and Clements (1985), include the following:

- A system's users seldom know exactly what they want and cannot articulate all they know.
- Even if the system's users could state all requirements, there are many details that they can only discover once they are well into implementation.
- Even if the system's users knew all these details, as humans we can master only so much complexity.
- Even if the system's users could master all this complexity, external forces lead to changes in requirements some of which may invalidate earlier decisions.

These factors prompted the SE community to look at other process models. A possible contender was the iterative process model that began to receive attention after a proposal by Basili and Turner (1975) that software development should follow an "iterative enhancement" technique. The idea here is that the software process model has to accommodate changing user requirements as well as deliver functionality incrementally to the user rather than as a complete finished product. This endorsement of iterative software development by the SE community prompted a group of software engineers to formalise the set of iterative development models as the Agile Methodology for software development. The Agile Methodology is informed by a set of core principles and values that is documented by Beck *et al*. (2001) in what is referred to as the Agile Manifesto. The essence of the manifesto is that software development should prioritise:

- Individuals and interactions over processes and tools
- Working software over comprehensive documentation

- Customer collaboration over contract negotiation
- Responding to change over following a plan

The Agile Methodology comprises a set of methods that subscribes to the core principles of the Agile Manifesto. A detailed analysis of these agile methods are provided in Dybå and Dingsøyr (2008). It is reported in van Valkenhoef *et al*. (2011), Dybå and Dingsøyr (2008) as well as Vijayasarathy and Turk (2008), that one of the more popular agile methods is Extreme Programming (XP). An overview of the XP process model is provided in Beck (1999), and some of the significant aspects of XP include the following:

- System development is driven by user stories. A user story is essentially communication between the customer (person who commissioned the development of the system) and the system developers. A user story is a brief, concise description of the functionality required by the customer.
- A set of user stories are developed and released for customer review. This is referred to as one of many iterations of the system until it is fully developed.
- The customer must be available for consultation with the development team, thereby entrenching the idea of greater customer interaction.
- A customer provides test criteria that will determine whether a user story has been developed to the customer's preference.
- All production code is written by two people using a single computer. This strategy is referred to as pair programming, an agile computer programming strategy that is given extensive coverage in Hulkko and Abrahamsson (2005) and Vanhanen and Korpi (2007).
- There is no overall, architectural design. The system design evolves with the development. There is constant re-factoring of the system design as the system evolves.

The XP method of software development was introduced as part of the learning experience for students registered for the Major Project capstone

module offered by the Discipline of Information Systems and Technology (IS&T) at UKZN. In this article, we report on the pedagogical challenges of incorporating an agile approach such as XP into a Major Project capstone module as well as the effectiveness of the XP process in developing an information system, from a student perspective.

The Essence of the Major Project

The Major Project is a reference to a set of final year modules where IS&T students are required to work in groups of 4 or 5 and build an information system for an organisation (typically, a local business) that is prepared to serve as a client. The ultimate purpose of the system is to provide organisational decision making support where business reports are accessible on a front-end or Web based platform. In order to achieve this objective, the system would have to initially capture and process as much data as possible from core business transactions so that the data can be analysed from many different perspectives.

The Major Project provides an ideal opportunity to allow academics as well as students to bridge the divide between the practitioner and academic worlds. It is reported in Holcombe and Thomson (2007) that at the University of Sheffield, a similar strategy was used to provide students with a large scale project and real client, thus motivating the students as well as providing academic staff with a viable opportunity to engage in current, "cutting edge" research. The value inherent in the Major Project from a student perspective is well documented in Strode and Clark (2007). Lynch *et al*. (2007) analysed student and academic perspectives of the Major Project undertaken at academic institutions in the United Kingdom, South Africa and Australia. They reported that in all three countries, the Major Project was highly endorsed by academics as "…it recognises the need for industrial experience and learning of applied skills, and therefore make these projects a compulsory part of the curriculum". The group work aspect of the Major Project was also endorsed by Mahnič (2008). The paper asserts that the Major Project exercise is not just about technical skills, but also provides a platform for the acquisition of skills such as teamwork, leadership, planning as well as the production of formal documentation and an opportunity for

students to obtain the experience of doing a project presentation to a formally instituted panel consisting of academics as well as industry representatives.

The Pedagogical Challenge of the Major Project

In order to report on students' acceptance of the agile approach towards systems development, it became imperative to ensure that the student cohort chosen for the current study subscribed to the principles of agile methodology. However, getting the student cohort to abide by the dictates of the XP process model in developing the Major Project system presented itself as a pedagogical challenge. The XP approach of attaching less significance to documentation could possibly result in a "cowboy" development style (Ferreira & Cohen 2008) where there is complete disregard for any formal aspects of software development such as requirements gathering, design, planned development, testing and continuous consultation with the system stakeholders. Wellington (2005) warned that the most significant challenge in employing XP in a Major Project course is to ensure that every student abides by the principles of agility and XP and respects these development models as process driven. The temptation to "dive into coding" (Sewchurran 2007) under the banner of being agile needs to be guarded against. The pedagogical challenges of conducting a Major Project exercise as part of a capstone module are well documented by Sewchurran *et al*. (2006) from their experiences at the University of Cape Town (UCT). However, a significant aspect of these challenges was the problem experienced in trying to get students to "internalise" the essence of the agile approach and to engage with the methodology in a conventional manner thereby ensuring the development of a system that conforms to the customer's requirements and expectations. As part of the agenda for the current study, a brief report is provided on the strategy used in overcoming the pedagogical challenge of incorporating the agile software process model as part of the Major Project capstone module.

The Pedagogical Strategy Used to Incorporate Agility

From a theoretical perspective, the educational theories of constructivism and connectivism were deemed to be most appropriate as descriptors of the

strategy adopted to present the Major Project course. The learning theory of Constructivism (emanating from contributions by the likes of Piaget, Vygotsky, Bruner and Dewey) allude to the activity of constructing one's own knowledge from personal experiences rather than becoming dependant on an intake of passive knowledge (Applefield *et al.* 2000). Development of a fully functional business information system is quite an undertaking, something that you would not expect many students to have experienced. From a constructivist perspective, this could be seen as a significant disadvantage to the students. In order to minimise this disadvantage, we adopted a strategy of simulating this experience by focusing lectures and practical sessions on the development of a generic point of sales system, a strategy also used quite successfully by Demuth *et al*. (2002) for a similar teaching agenda. This exercise provided students with the opportunity to "construct" the appropriate cognitive structures that would facilitate an awareness of the requirements for the development of the actual Major Project system.

In an attempt to get the students to internalise and identify with the principles of XP, in response to the concerns raised by Sewchurran (2007) and Wellington (2005), we adopted a connectivist approach. The introduction to agile methodology and XP was conducted via a series of lecture presentations. It was quite evident during these lecture sessions that the terminology and methodological explanations used in these lecture sessions only served to increase the abstractionism inherent in the whole concept of agility. Hence, there was certainly a need for a formal pedagogical intervention.

From an educational theory perspective, we decided to use connectivism as our underpinning theoretical model so that the process of knowledge construction regarding XP could be facilitated. However, this knowledge construction had to be guided or "cajoled". The basic tenet of connectivism (Siemens 2005) is that learning takes place when individuals establish "connections" between elements in the learning domain in order to construct new knowledge. Hence, we needed to present the elements that underpin XP to students within a problem-solving context so that they could create their own knowledge regarding XP (within the parameters of the Agile Methodology). An opportunity presented itself, courtesy of the sentiments expressed in Beck (2008), that in order for the agile approach to be

successful, there has to be adequate software support (referred to as a software tool) to underpin the software process model. In response to this opinion, Microsoft (2012) released Windows Team Foundation Server (WTFS), a software tool that is designed to support the entire agile process model. After having conducted an inspection of the trial version of WTFS, the authors realised that using WTFS as a software project management tool would ensure that an XP approach would be enforced in the building of the software artefact. This conclusion was based on the support for aspects of agile development and XP that formed the core functionality of WTFS. These included aspects such as user stories, tests cases, release dates, main and navigator programmer (a reference to pair programming). Acquisition of WTFS would incur a significant cost, time and effort overhead to the IS&T division and there was no guarantee that students would use it to underpin their Major Project effort.

In order to resolve this dilemma, we decided to use the practical sessions to get the students to build a scaled down version of WTFS which we referred to as the User Story Application (USA). This strategy served the dual purpose of ensuring that each Major Project group had their own customised software project management tool as well as sufficient knowledge of the components that were used in the building of that tool. In this way, the entire agile approach comprising of aspects such as user stories, test cases and pair programming became an integral part of the vocabulary used by students in the Major Project course. The concept of XP and agile development now seems to have gained widespread acceptance by the Major Project student cohort thereby achieving the objective of reducing the abstractionism inherent in these concepts.

Academic Framework Underpinning the Acceptance of Agile Methodology

It is reported in Chan and Thong (2009) that the constructs of TAM, perceived ease of use (PEOU) and perceived usefulness (PU), are generic enough to be readily used for examining the acceptability of software development methodology (SDM). The current study leveraged off the adaptable nature of these constructs to provide a guiding framework to

investigate the acceptability of the core activities that underpin the agile methodology for software development. From an IS research perspective, this approach falls within the ambit of behavioural science research. However, the current study also involves an incursion into the actual software development process and as such, hovers on the periphery of design science research as well. Design science research is anchored around the basic tenet that an innovative IT artefact is developed and becomes the source of inquiry from a research perspective (Wieringa & Moralı 2012; Kuechler & Vaishnavi 2011; Kautz 2011; Niederman & March 2012). However, this interpretation of design science research is still very technically oriented and does little to bridge the gap between technical and social aspects of IS research (Niederman & March 2012).

Table 1: Constructs of Agile Methodology Classified According to an IS Research Framework

	Behavioural Science	
	Perceived Usefulness (PU)	Perceived Ease of Use (PEOU)
Design Science	User Stories are effective in capturing user requirements	Compiling a set of user stories is easy to do
	Test Cases are effective in ensuring that the system works correctly	Test cases are easy to construct and implement
	The time allocated to the analysis phase was sufficient	Refactoring the database is easily accommodated
	An evolving system design is effective in directing the development process	There is no need for a specific design phase
	The "quick route" to system implementation improves the prospect of refining user requirements	The "quick route" to system implementation makes the system easier to develop

In order to address this situation, Niederman and March (2012) propose a second dimension to design research where the software design and construction process itself may be viewed as the artefact of inquiry. By doing so the IS research community would be making a practical and relevant contribution to the software design and development process. In accordance with this assertion, the current study adopts a similar stance by viewing the agile software development process model, as embodied by XP, as the source of inquiry. From an IS research paradigm perspective, this kind of approach can be classified as an amalgamation of the behavioural and design science domains. The overriding academic framework comprising of TAM may be classified as part of behavioural science whilst the exploration of specific aspects of agile methodology can be classified as part of the design science framework.

The academic framework for the current study is underpinned by the dimensions of TAM that are operationalised via references to specific aspects of the agile software process model. This overriding framework was used to inform the design of the research instrument that comprises of a questionnaire.

Table 1 above illustrates the relevance of the academic framework to the design of the questionnaire.

Data Collection & Analysis

A purposive sampling strategy was adopted in order to obtain responses from final year IS&T students. The data collection instrument was a questionnaire that was designed to elicit students' perceptions on aspects of agile methodology. The questionnaire was designed so that perceptions on aspects of agile methodology (alluded to in Table 1) could be quantified on a 5 point Likert Scale ranging from "strongly agree" (coded as 1) to "strongly disagree" (coded as 5). The questions were phrased positively towards the constructs of agile methodology and were classified along the dimensions of PU and PEOU (in accordance with the acceptance framework of TAM). The population consisted of 135 students and there was a response rate of 71%.

It is reported in Sekaran and Bougie (2010) that several questions may be used to measure a single concept. In order to obtain a measure of

quantification, "… scores on the original question have to be combined into a single score" (Sekaran & Bougie 2010). In accordance with this suggestion, the analysis of the responses was conducted by collapsing the individual measures of the perception variables into 2 single dependent variables that represented the mean of the individual responses. The dependant variables represented PU and PEOU. An affirmation of the internal validity was obtained by conducting a Cronbach alpha test for these variables. According to Sekaran and Bougie (2010), a Cronbach alpha in excess of 0.6 indicates an acceptable level of cohesiveness with respect to the grouping of questions. A set of 5 questions was used to operationalise the PEOU variable. The Cronbach alpha value obtained was 0.64 and fell within the acceptable range alluded to by Sekaran and Bougie. The histogram representing the PEOU variable is shown in Figure 1.

The summary data from Figure 1 (mean =2.52; median=2.4; mode=2.2) indicate a majority acceptance (75% of responses were below 3 and 50% of the responses were below 2.3) of the ease of using agile methodology. While these results are sufficient to indicate acceptance of the PEOU of agile methodology, the low Cronbach alpha value obtained for the PEOU variable became a source of concern as well as a catalyst for further inquiry. Upon closer scrutiny of the data, it becomes apparent that 2 questions did not seem to fit well with the remaining 3 questions. These 2 questions required responses to the following statements:

- There is no need for a specific design phase (a reference to the whole concept of not having a "big up front design" that is part of the agile strategy).
- Refactoring/changing the database design to accommodate changing user requirements is easy to achieve.

If these 2 questions are removed from the original set of questions, then the Cronbach alpha value increases to 0.78 which is indicative of much better cohesiveness with regards to the grouping of questions. A frequency count of the refined set of questions used to measure the PEOU variable is displayed in Figure 2.
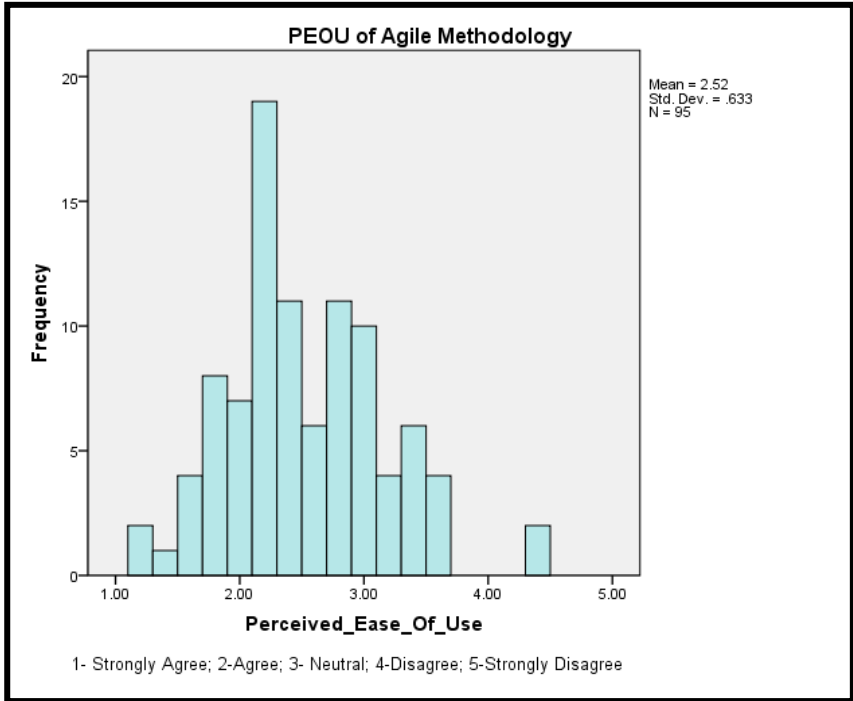
Figure 1: Frequency Count of PEOU of Agile Methodology

The summary data from Figure 2 (mean=2.09; mode=2.0; median=2.0) indicate a higher level of acceptance (88% of the responses were below 3 and 74% of the responses were below 2.3) of the ease of using agile methodology.
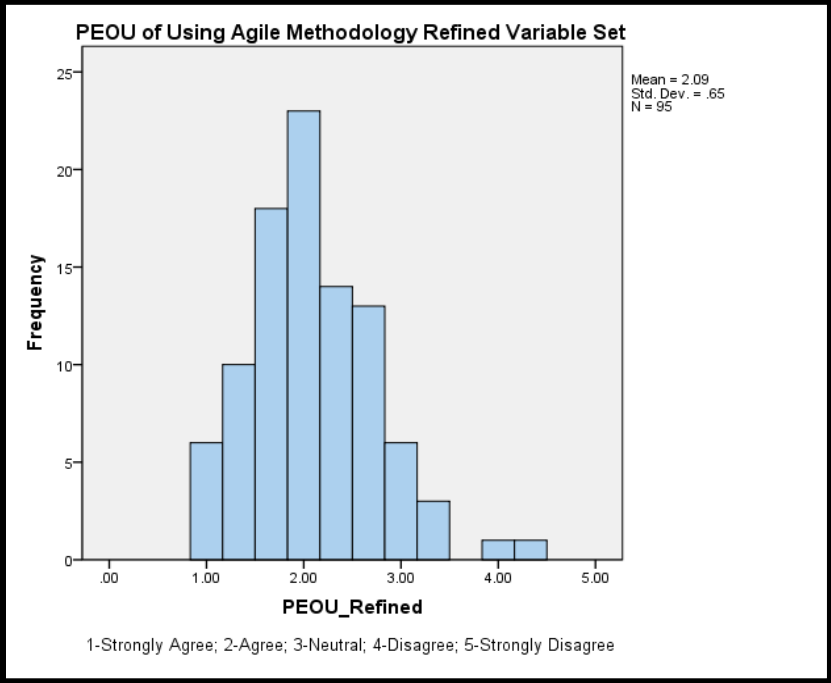
Figure 2:   Frequency Count of PEOU
with of Agile Methodology Using a
Reduced Variable Set

The PU variable was operationalised using a strategy similar to the one used for the operationalization of the PEOU variable. A set of 5 questions was used to derive a quantitative value for PU. The Cronbach alpha value obtained was 0.71 and fell within the acceptable range alluded to by Sekaran and Bougie. The histogram representing the PU variable is shown in Figure 3.
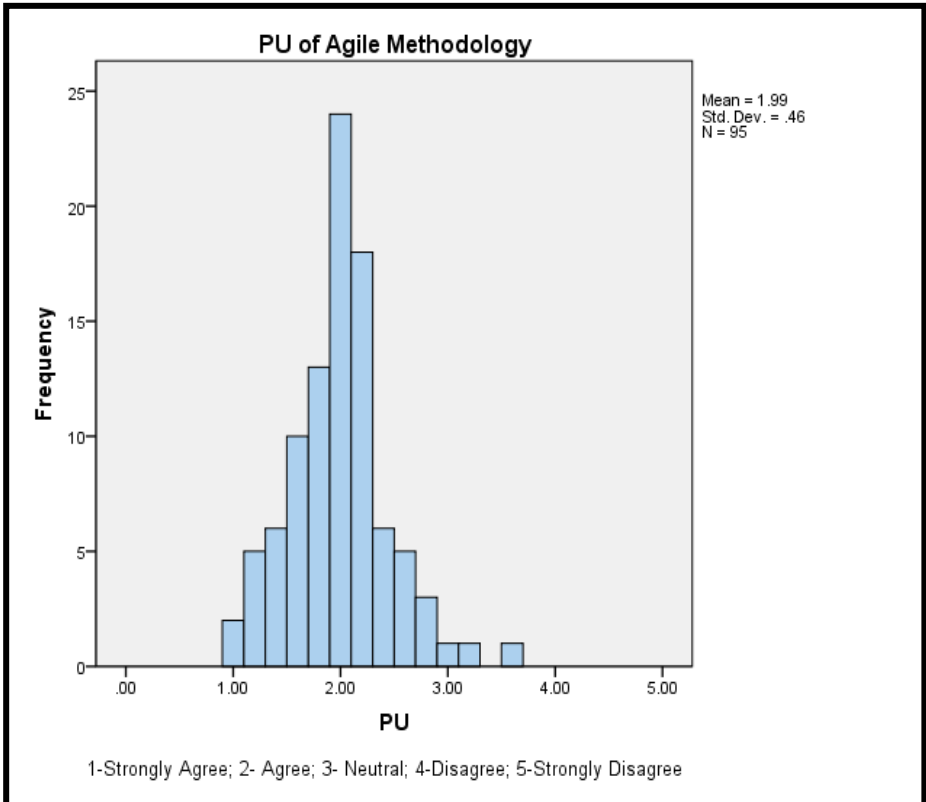
Figure 3: Frequency Count of Acceptance of the Perceived Usefulness of Agile Methodology

The summary data from Figure 3 (mean=1.99; mode=2.0; median=2.0) indicate a high level of endorsement (97% of the responses were below 3 and 82% of the responses were below 2.3) of the usability of agile methodology.

In order to operationalise the level of engagement with agile methodology, students were required to provide a response with respect to their participation in "agile activities", more specifically elements that underpinned XP. This included aspects such as frequency of participation in

group meetings, frequency of involvement with identification and development of user stories, frequency of meetings with the system client/ business owner as well as the frequency of participation in pair programming. These frequency values were summed and expressed as percentage values (illustrated in Figure 4) reflecting the students' level of engagement with XP concepts.
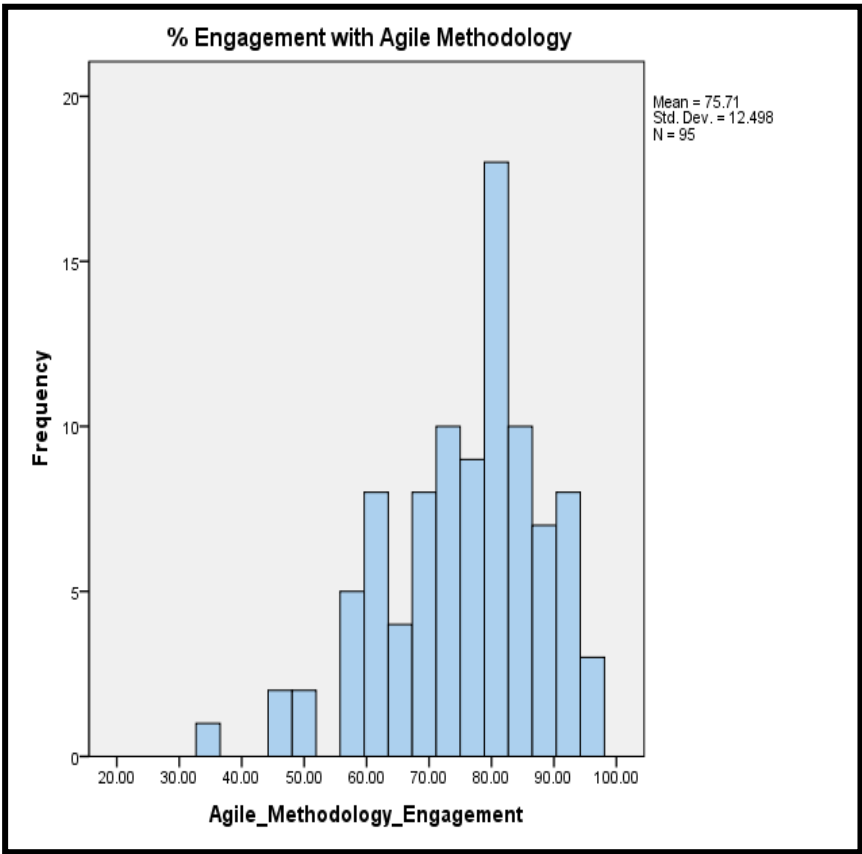
Figure 4: Level of Engagement
with Agile Methodology

The median value of 77% as well as negatively skewed distribution illustrated in Figure 4 is indicative of a high level of engagement with the elements of XP.

Discussion and Conclusion

In this article, we have contextualised the objectives of this study by providing a justification for the research topic. It is envisaged that IS researchers will make an effort to leverage off the wider range of IS research topics that will become available as a consequence of the strategy of integrating the 2 distinct IS research paradigms of behavioural and design science. Whilst the current research agenda has a dominantly explorative demeanour, the empirical evidence provided suggest that the outcome of such research efforts can be beneficial to the IS academic and practitioner community.

The literature review as well as the data collection and analysis efforts have jointly contributed towards the provision of a solution, within the framework of this study, to the research problems that were identified at the outset. This assertion is corroborated by the summary provided in Table 2.

Table 2: Summary of Research Problems and Outcomes

Research Question	Research Method	Research Outcome
What does the agile methodology entail?	Literature Review	A definition and listing of main characteristics of the agile methodology
What are the pedagogical challenges of implementing the agile methodology?	Literature Review	A strategy is required to discourage "cowboy style coding"(Wellington 2005); A strategy is required to facilitate the internalisation of agile processes (Sewchurran 2007)

What is the students' level of acceptance of Agile Methodology?	Quantitative data collection and analysis	A high level of acceptance of agile methodology is reported on the basis of the data analysis (74% acceptance of PEOU and 82% acceptance of PU)
How well did the students comply with the requirements of XP?	Quantitative data collection and analysis	A high level of compliance is reported (An average engagement level of 75% is reported)

Table 2 provides an overview of the outcome of this study as well as an indicator that agile methodology will be endorsed as a successful process model for software development. However, the areas of concern, as highlighted by inconsistent data responses, are that of not adopting a "big design up front" (BDUF) as well as constant database re-factoring in order to accommodate customer requirements that may have changed during the system development process. With regards to the BDUF issue, a possible source of rationalisation lies in the approach that is adopted in teaching the systems development process at IS undergraduate level. The traditional "offering" consists of systems analysis and design that is delivered as part of the Systems Development Life Cycle (SDLC) through prescribed texts such as those written by Satzinger, Jackson and Burd as well as Bentley and Whitten. After having been accustomed to the routine of having a BDUF for an entire year, the notion of not starting with comprehensive design models for the system will create a "disorienting moment" (Hughes 2008) thereby resulting in a response that may be inconsistent with the other responses provided. The second inconsistent response emanates from the concern that any re-factoring of a software system will generate regression errors (Schach 2008; Sommerville 2007; Mens & Tourwé 2004) that may be difficult to resolve. The .Net framework also implements a "disconnected" data architecture that creates a memory resident "snapshot" of the database. Any change to the database structure will require re-generation of the memory resident copy of the database as well as re-coding of data structures designed

to facilitate database processing. Hence, the strategy of database re-factoring will invariably receive mixed responses from the student cohort. The anomalous responses regarding the strategy of adopting an evolutionary modelling style as opposed to implementing a BDUF strategy as well as the whole issue of constant database re-factoring and the impact it has on system success is a viable area for future research concerning agile methodology.

From an overview perspective, the biggest challenge of implementing an agile approach towards systems development lies in the behavioural realm. The "lightweight" and flexible nature of the agile approach could be perceived as an opportunity to trivialise the methodological component of agile methodology in favour of development practice that is not "plan-driven" (such as "cowboy" style coding) under the "banner" of agile methodology. Whilst these remarks have been made on the basis of the literature review and the empirical evidence that was reviewed as part of the current study, they have also been endorsed in an interview that the researchers conducted with IBM Research Fellow, Grady Booch (Skype interview, June 11th 2012) where he emphasised the "socio-technical" nature of agile methodology. The term "socio-technical" is a reference to the recognition/incorporation of the behavioural traits of the software development team towards the technical aspects of agile methodology as a critical success factor in determining the success of an IS project developed using an agile approach. Hence, while many research efforts may attempt to quantify the success of the agile approach towards software development, it is equally important to ascertain whether the software development team adhered to the principles of agile methodology before the methodology itself is evaluated.

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The Strategic Use of Web 2.0 Social Media by Civil Society Organisations

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Abstract
This study focuses on how South African civil society organisations deploy Web 2.0 technologies strategically in support of their social advocacy initiatives. The technologies targeted for study are those commonly described as Web 2.0 social media. The research undertook a survey of South African civil society organisations, which painted a picture of the extent of adoption of Web 2.0 social services across South African civil society. The framework for the strategic use of networked technologies identifies variables that naturally lend themselves to the generation of a model. This research has developed such a model, which has been statistically validated and subsequently modified.

Keywords: Civil Society, Web 2.0

Introduction
The main aim of the article is to explore how civil society organisations are strategically appropriating and deploying emerging social media technologies effectively for transnational advocacy. The strategic appropriation of technology by civil society occurs when organisations becomes proficient enough to ensure that the technology furthers the aims of the organisation. Surman & Reilly (2003) define a spectrum that CSOs must traverse as they gain knowledge, evaluate and eventually adopt an emerging technology. The first step relates to basic access e.g. an office with an Internet connection and

/ or use of a cell phone. The second step, termed adoption, stresses the need for the necessary skills to use the technology optimally. The final step, appropriation, occurs when an organisation becomes proficient enough to ensure that technology is able to be used strategically to further the aims of the organisation. The main areas where networked-technology is used strategically are collaboration, publishing, mobilisation and observation (Surman & Reilly 2003).

Online observation spans a range of activities that include research and intelligence gathering. Within CSOs specifically it involves the collection and pooling of information (Surman & Reilly 2003). The emerging interactive and collaborative communications paradigm makes more information readily available, whilst demanding greater transparency from governments and corporations (Wikileaks is a case in point).

One of the most fundamental tasks of CSOs is to publish information i.e. books, articles, reports, news releases, alerts, policy statements, pamphlets, posters, radio programs and videos (Surman & Reilly 2003). The ability to post content online in real-time, not only poses a challenge to print media, but in many cases replaces it. The advent of social media means that online publishing is more than just about the web and e-mail, but rather encompasses blogs, and the uploading of audio and video content. Civil society organisations have always been able to adapt to new communication and technological opportunities (Castells 2004; Anheier, Glasius & Kaldor 2001; Surman & Reilly 2003).

Surman and Reilly (2003: 46) define online mobilisation primarily as the 'efforts to move people to action – to protest, intervene, advocate, support'. Networked technologies provide the ability to mobilise globally, directly and quickly while lessening the dependence on mainstream media channels, which in turn combines the advantages of broadcast and many-to-many media.

While civil society organisations have always cooperated with each other, the recent past has witnessed increased levels of consensus, cooperation and collaboration (Anheier & Themudo 2002) enabled in the main by inexpensive, worldwide, networked communications infrastructures that enable a many-to-many paradigm. It has become easier to communicate decisions and to engage with members on a regular and ongoing basis. It is easier to place staff in various parts of the world and still effectively engage

with them; it is also easier to coordinate the work between multiple offices. Online collaboration offers the possibility of increased information sources, which produces better quality information, more support and a discernible impact on the political environment (Surman & Reilly 2003).

Research Methodology

This study is exploratory and focuses on how civil society organisations deploy emerging Web 2.0 technologies strategically for social advocacy. A survey targeting South African civil organisations was conducted between May and June 2011. The online survey was developed using the Google Docs$^©$ toolset, which provided an effective means of survey research – online surveys cannot be easily mislaid and remain in place until purposefully deleted (Sheehan & Hoy 1996) - with respondents citing ease of use as one of the things they liked most about answering a Web survey (Cook, Heath & Thompson 2000).

The development of the survey instrument followed a comprehensive process, which included: an initial desktop review of existing and similar surveys, which provided a necessary structure and some of the initial questions (MobileActive 2010; NTEN 2010; NTEN 2011; NTEN 2011a; NTEN 2011b); ethical clearance through the ethics committee of the University; evaluation of the survey by a statistician; a pre-test; and finally a pilot study.

The population of South African civil society organisations is most comprehensively embodied in the Prodder database, which is maintained and administered by the non-government organisation (NGO) SANGONeT, whose main function revolves around ICT-related services to the broader NGO sector. At the time of the survey, the database had information on three thousand two hundred and forty one (3241) civil society organisations. The target population represented all the CSOs listed in the Prodder database that had an Internet presence and an email address, which turned out to be a total of two thousand five hundred and seventy one (2571) organisations. Eight hundred and fifty nine (859) organisations did not have a valid email address (emails were returned as undeliverable) and the remaining one thousand seven hundred and twelve organisations (1712) represented all the South

African civil society organisations that had a valid email address and was the eventual population of the study

Strategic Uses of Web 2.0

This section relates to the strategic use of Web 2.0 by South African CSOs. Responses from different questions and sub-questions within the survey were consolidated to give an overall picture of the strategic areas of collaboration, publishing, mobilisation and observation.

Observation

Online observation spans a range of activities that include research and intelligence gathering and within CSOs; specifically it involves the collection and pooling of information (Surman & Reilly 2003).

Just under half (49.6%) of all organisations indicated that they use social media equally when providing and accessing information. A fraction over thirty per cent access information more than they provide information, while small a minority (14.3%) provide and contribute information more than they access it (see Figure 1).

Figure 1: Observation
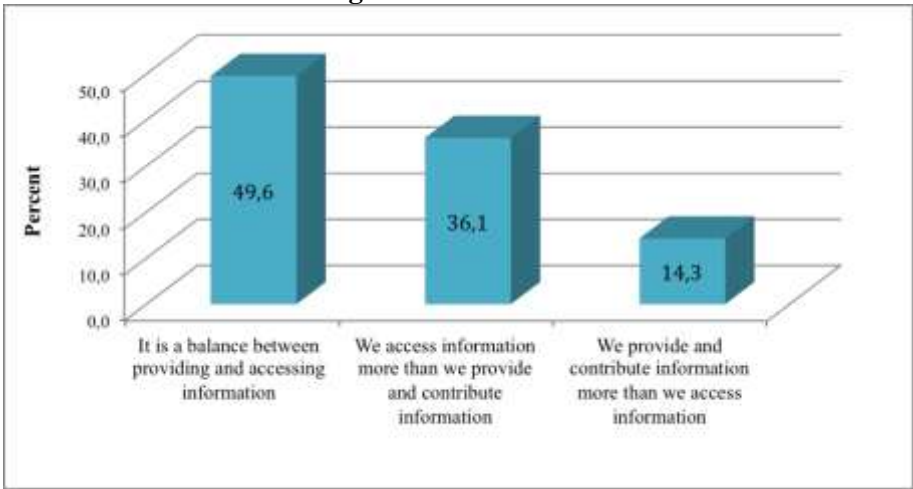
Various statements relating to Web 2.0 for information gathering are presented in Table 1.

Table 1: Observation Using Web 2.0 Social Media

Observation using Web 2.0 Social Media	Percentage
Web 2.0 has helped organisations gain a wider perspective	55
Monitoring of the blogosphere	17.3
Downloading of podcasts for market research	12.7
Use of wikis for market research	26.4
Use of RSS feeds for market research	21.3
Importance of getting information available from other sources	76
Importance of gathering relevant information and knowledge	79.3

While many organisations recognise the importance of Web 2.0 for gathering information (76% and 79.3%) it does not necessarily translate to actual practice with only a small percentage of organisations using any kind of social media services for data gathering: monitoring of the blogosphere (17.3%), downloading of podcasts (12.7%), and using wiki's and RSS feeds for research (26.4% and 21.3% respectively). One of the main uses of social media for civil society has been the ability to access and disseminate vast amounts of information from disparate sources in real-time, something that aids advocacy efforts

Publishing

This section relates to the publishing of information by CSOs which is one of the most fundamental tasks of CSOs i.e. books, papers, reports, news releases, action alerts, policy statements, pamphlets, posters, radio programs and videos. Not only has publishing content online augmented traditional print media, but in many instances it has actually replaced it. Online

publishing goes beyond the web and e-mail and now includes the use of blogs and the publishing of audio and video materials. Table 2 presents various statements relating to the use Web 2.0 for publishing information.

Table 2: Publishing Information via Web 2.0

Publishing using Web 2.0 Social Media	Percentage
It is a balance between providing and accessing information	49.6
Better communication of ideas with the public	55.5
Important to disseminate information to other parties	71.9

A large majority of organisations (71.9%) believe that Web 2.0 is an important tool to disseminate information to other parties while 55.5% of organisations believe they are able to use social media to better communicate ideas to the public.

Figure 2 illustrates the responses to the question 'Indicate for how long your organisation has been using the following Web 2.0 services to publish information on the web.'

Figure 2: Publishing information via Web 2.0
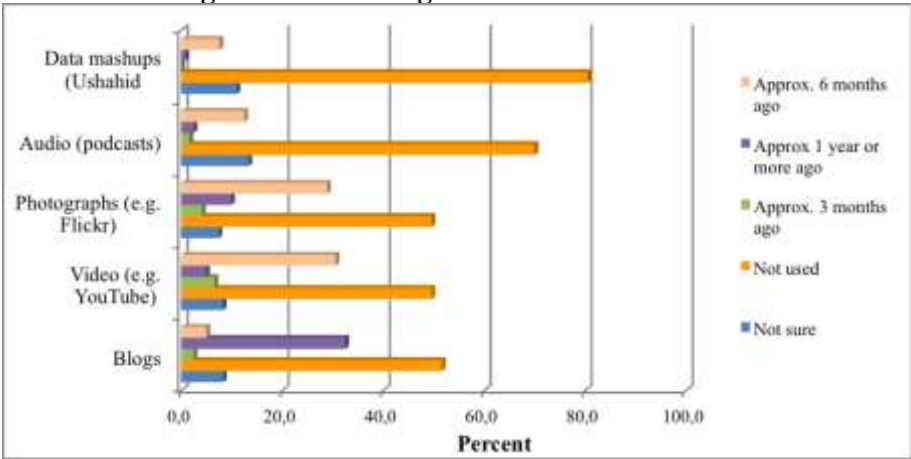
The cumulative usage percentages are presented in Table 3. Many organisations have begun posting videos (42.2%), sharing photographs on photo sharing sites (42.9%) and using blogs (40%) in the last twelve months. Blogs have been the most popular form of publishing information and also one of earliest adopted publishing services with 32.5% of organisations having adopted blogs one year or more ago. Data mashups are the least used service with 80.5% of organisations indicating no usage of this service to publish information.

The 1999 protests against the World Trade Organisation's Ministerial meeting, which came to be known as the 'The Battle for Seattle' owes much of its success to the ability of the organisers of the protest to disseminate information. This protest was also the birthplace of the Independent Media Centre (IMC or IndyMedia), which enabled the rapid distribution information (Pickerill, 2006).

Table 3: Publishing information via Web 2.0

Social Media Service	Not used	Cumulative Usage %	3 months ago	6 months ago	>1 year ago
Blogs	51.7	40	2.5	5.0	32.5
Video (e.g. YouTube)	49.6	42.2	6.6	30.6	5.0
Photographs (e.g. Flickr)	49.6	42.9	4.1	28.9	9.9
Audio (podcasts)	70.0	16.7	1.7	12.5	2.5
Data mashups (Ushahidi)	80.5	8.4	0.0	7.6	0.8

Mobilisation

Surman & Reilly (2003: 46) define online mobilisation primarily as the 'efforts to move people to action – to protest, intervene, advocate, support.'

Networked technologies give the ability to mobilise globally, directly and quickly; it lessens the dependence on mainstream media channels; and it combines advantages that are inherent in broadcast and one-to-many communication channels.

Fundraising

An important aspect of mobilization is the ability to raise funds. Fundraising is analysed in respect of questions 2.8 and 3.6 posed in the survey, and reported in Table 4 and Figure 3 respectively.

The majority of organisations (65.3%) believe that the value of fundraising via traditional means is more significant than fundraising via Web 2.0. Only 15.3% believe the opposite. Organisation in the large do not raise funds via social networking sites. The largest proportion of organisations that do fundraise via Web 2.0 (11.8%) raise only up to ZAR 5,000. Only 1.7% of South African CSOs raise more than ZAR 100,000.

Table 4: Fundraising using Web 2.0 Social Media

Fundraising via Web 2.0	Percent
The value of fundraising via traditional means is more significant than Web 2.0 fundraising	65.3
The value of fundraising via Web 2.0 and via traditional means is similar	19.5
The value of fundraising via Web 2.0 is more significant than traditional forms of fundraising	15.3

While early attempts at online fundraising were not very successful, more recent efforts which aggregate online fundraising efforts with advocacy activities (termed advocacy fundraising) is starting to bear fruit; the example of Amnesty International in Spain is illustrative with a successful online fundraising initiative, which was preceded by a high profile online petition (Surman & Reilly 2003).

Figure 3: The value of fund raising using Web 2.0
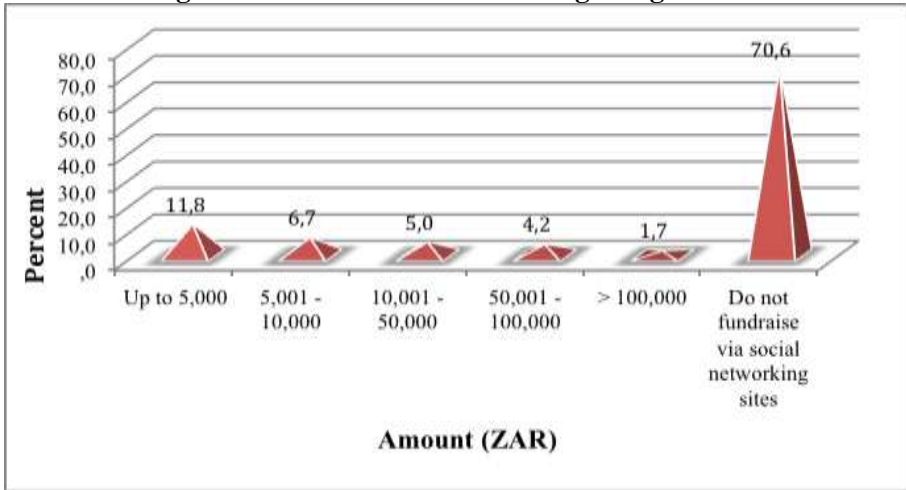
Fundraising: **An International Perspective**

Internationally, fundraising via social networks (and Facebook in particular) is growing but it is still a minority effort with many CSOs generating minimal revenue streams of between ZAR 7 to ZAR 70,000 annually (or $1 to $10K annually). The number of organisations raising ZAR 700,000 or more per year on social networks doubled in 2011 year from 0.2% to 0.4% (2011 Nonpprofit Social Network Report 2011).

Mobilisation

Various questions from the survey were analysed with respect to mobilisation by civil society and are presented in Table 5 below.

Table 5: Mobilisation via Web 2.0

Mobilisation using Web 2.0 Social Media	Percentage
Has increased dialogue with supporters	54.6

Better communication of ideas with the public	55.5
Campaigning / opinion building	38.1
Has had a positive impact in advancing advocacy initiatives	57.5
Important to accumulate bargaining power for advocacy	47.9%
Important to widen influence on society	71.1

While many organisations cite the positive contribution of social media in mobilisation initiatives, only thirty eight percent of organisations chose campaigning/opinion building as a benefit (see section 4.6.1 for a discussion on benefits). A majority did believe that it increased dialogue with supporters (54.6%); assisted to better communicate ideas with the public (55.5%); has a positive impact in advancing advocacy initiatives (57.5%) and was important to widen influence on society (71.1%).

Networked technologies are vital when attempting to shift policy through advocacy because of its ability to reach diverse groups of people, which increases representativeness reaching beyond the 'converted'. Organisations are no longer reliant on existing mass media organisations to get their message out; instead they have new media in the form of e-mail, protest websites, and text messaging that allows many-to-many broadcasting giving CSOs the ability to quickly and affordably reach a large group of people (Surman & Reilly 2003).

Collaboration

Various statements relating to the use Web 2.0 for collaboration were extracted from the survey protocol and the responses are summarised and presented in Table 6.

Table 6: Collaboration via Web 2.0

Collaboration using Web 2.0 Social Media	Percentage
Positive influence on relationships with other organisations	52.9

Better communication of ideas with other organisations	48.3
Building a wider network with other organisations	52.5
Collaborative projects with other organisations	29.1
Important to collaborate with other organisations	67.8

Many organisations believe that social media is important in respect of collaborating with other organisations (67.8%) and also with regards to relationships with other organisations (52.9%). This perception is not turned into practice though with just over twenty-nine percent of organisations citing collaborative projects with other originations as a benefit of adopting social media. The emerging global communications infrastructure has enabled increased levels of cooperation, partnership and opportunities for joint actions and campaigns amongst CSOs (Anheier & Themudo 2002). It has become easier to communicate decisions and to engage with members on a regular and ongoing basis, irrespective of geographic location.

Social media provides CSOs with a communications platform that simplifies access to large volumes of previously published information. It reduces the costs of publication and allows organisations to circumvent established media houses (who often act as gatekeepers of information), which in turn enables global scale communication. All of which enables the rapid formation and maintenance of virtual communities of shared interests (Naughton 2001).

A Model for Strategic Use

The strategic goal of civil society is to engage citizens in activities that advocate for the changing of policy and behaviours, which is achieved by proposing alternate debates, highlighting issues to relevant decision-makers, and by proposing alternate solutions to issues (Jones 2011). In order to conceptualise a model for strategic intent by CSOs the following predictors were chosen: collaboration, publishing, mobilisation and observation as suggested by Surman and Reilly (2003). These variables constitute the strategic use of networked technologies and lend themselves naturally to a model.

Figure 4: Proposed Model for the Strategic Appropriation of Networked Technologies
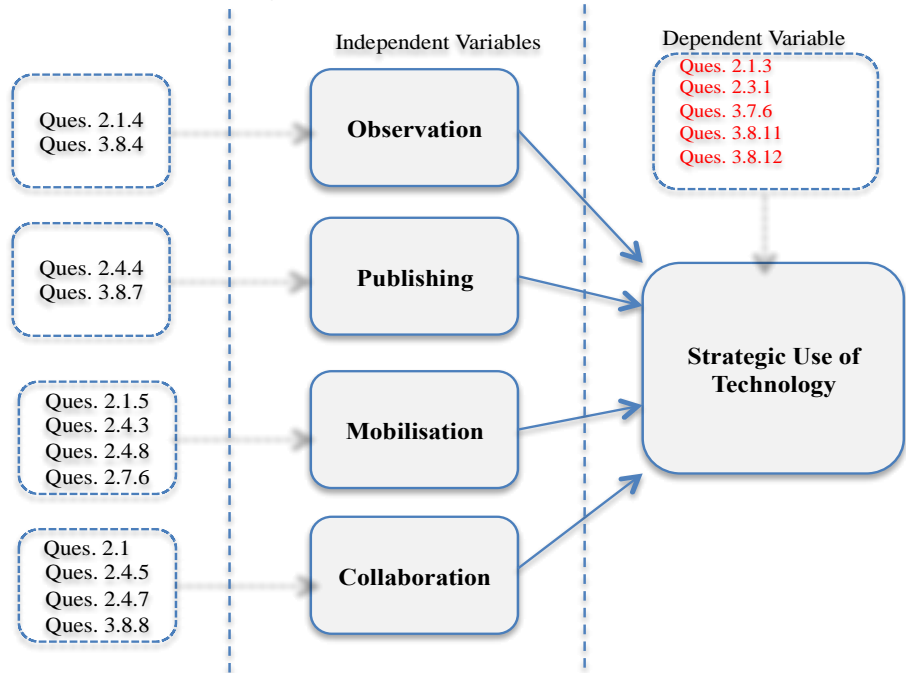
Rogers (2003) employs a similar approach for describing the relationship between structural characteristics and organisational innovativeness. In this model the independent variables of individual leader characteristics, internal characteristics of organisational structure and external characteristics of the organisation are related to the dependent variable of organisational innovativeness. A simple regression model was chosen to illustrate the impact of these variables on the strategic use of social media services, which is represented visually in Figure 4.

Five relevant operational questions from the survey were chosen as a measure of strategic intent. The questions were aggregated using simple averaging techniques. Similarly, relevant operational questions were chosen and aggregated using a simple average for the dependent variables: two for observation and publishing and four each for mobilisation and collaboration (detailed in Table 7).

Table 7: Operational Questions Versus Model of Strategic Appropriation

Strategic Adoption Constructs	Operational Questions
Strategic Use of Technology (SuT)	• The use of Web 2.0 social media has positively influenced the organisation's aims, missions and goals • We have engaged Web 2.0 in almost all aspects of our work • Web 2.0 services are important in order to achieve missions, and targeted goals. • Web 2.0 services are important in to accumulate bargaining power for advocacy • Web 2.0 services are important in to widen the influence on society
Observation (Obs.)	• The use of Web 2.0 social media has helped the organisation to gain wider perspective towards issues and concerns • Importance of gathering relevant information and knowledge
Publication (Pub.)	• Better communication of ideas with the public • Important to disseminate information to other parties
Mobilisation (Mob.)	• The use of Web 2.0 social media has increased dialogue with supporters • Social media has benefitted the organisation by better publication/communication of ideas with the public • Social media has benefitted the organisation with campaigning / opinion building • Web 2.0 has had a positive impact in advancing Advocacy initiatives
Collaboration (Collab.)	• The use of Web 2.0 social media has had a significant positive influence on the organisation's relationships with other organisations • Social media has benefitted the organisation by building wider network with other organisation(s)

	• Social media has benefitted the organisation by collaborative project with other organisation(s) • Web 2.0 is important for co-operation intensity (to co-operate, collaborate with other organisations)

Correlations

The correlations in Table 8 were generated using all one hundred and twenty-two data points and all correlations were statistically significant.

Table 8: Correlations

Correlations						
		SuT	**Obs.**	**Pub.**	**Mob.**	**Collab.**
Pear. Corr.	SuT	1.00	0.75	0.73	0.77	0.76
	Obs.	0.75	1.00	0.76	0.67	0.75
	Pub.	0.73	0.76	1.00	0.80	0.87
	Mob.	0.77	0.67	0.80	1.00	0.87
	Collab.	0.76	0.75	0.87	0.87	1.00

Model Summary

Table 9 is a summary of the model and describes the correlation and coefficient of determination.

The Durbin-Watson statistic is an indicator of the likelihood that the deviation (error) values for the regression have a first-order autoregression component. Small values of the Durbin-Watson statistic indicate the presence of autocorrelation. A value less than 0.80 usually indicates that autocorrelation is likely. Autocorrelation indicates that errors for the predictors are not related to each other and that errors are independent of each other.

Table 9: Model Summary

Model Summary				
R	**R Square**	**Adjusted R Square**	**Std. Error of the Estimate**	**Durbin-Watson**
0.83	0.688	0.677	0.48925	2.115

Analysis of Variance (ANOVA)

Table 10 presents the analysis of the variances (ANOVA). In general t-tests are used to test two variables and they test for proportions or averages. When more than three variables are being tested the ANOVA statistic is used which is essentially multiple t-tests.

Table 10: Analysis of Variance

Analysis of Variance (ANOVA)				
Model	**Sum of Squares**	**Df**	**Mean Square**	**F**	**Sig**
Regression	60.739	4	15.185	63.437	0.000
Residual	27.527	115	0.239		
Total	88.266	119			

Coefficients

Table 11 presents the coefficients for the regression model.

Table 11: Coefficients

Coefficients					
Model	**Unstandardised Coefficients**		**Stand. Coeff.**	**t**	**Sig.**
	B	**Std. Error**	**Beta**		
(Constant)	0.818	0.182		4.482	0.000
Obs. (X_1)	0.307	0.069	0.369	4.433	0.000
Pub. (X_2)	0.049	0.099	0.056	0.491	0.624
Mob.(X_3)	0.307	0.087	0.376	3.537	0.001
Collab. (X4)	0.094	0.115	0.110	0.819	0.415

The first column shows the predictor variables (Observation, Publishing, Mobilisation and Collaboration). The constant represents the Y-intercept which is the predicted value of strategic use of technology when all other variables are zero.

The second column represents the coefficients for the linear regression. The regression equation is represented as:

$$Y_{predicted} = b_0 + b_1*x_1 + b_2*x_2 + b_3*x_3 + b_4*x_4$$

The column of estimates provides the values for b_0, b_1, b_2, b_3 and b_4 for this equation. Hence, the equation is:

$$Y = 0.818 + 0.307*Observation + 0.049*Publishing + 0.307*Mobilisation + 0.094*Collaboration.$$

Here Y is the strategic use of technology and the equation above is interpreted as follows, using the variable 'observation' as an illustration:

The coefficient for observation is 0.307, which shows that a unit increase in the independent variable (observation) yields a 30,7% increase in the dependent variable (strategic use of technology). The other variables may be interpreted in a similar fashion. All told, this model accounts for approximately 76% of the strategic use of technology.

Using the standardised coefficients, Beta, yields the equation:

$$Y = 0.369*Observation + 0.056*Publishing + 0.376*Mobilisation + 0.110*Collaboration.$$

By using standardised coefficients it allows the reader to compare the effect of the different independent variables upon the dependent variable. For example, it can be noted that 'mobilisation' has a greater effect on the strategic use of technology than 'observation'.

The significance levels in the table indicate that regression coefficients for publishing (X_2, $p=0.624 > 0.05$) and collaboration (X_4, $p=0.415 > 0.05$) are not significantly different from zero and hence may be omitted from this model. The revised model is illustrated in Figure 5.

Figure 5: Modified Model for Strategic Use
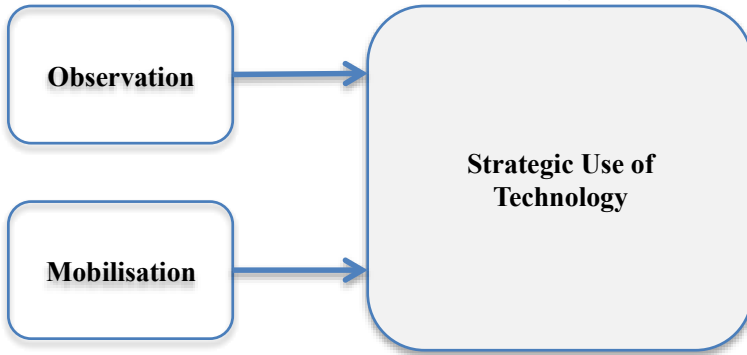
The new linear equation is:

$$Y = 0.818 + 0.307*Observation + 0.307*Mobilisation$$

Conclusion

This study developed a model for the strategic use of technology based on criteria that were identified from the literature and tested empirically. This model lends itself to testing within other developing environments or countries.

A deeper analysis of the independent variable and a broader understanding of the dependent variables may also improve the model. It may also be useful to test specific constructs in a more focused questionnaire, as would a wide-scale survey to determine how CSOs strategically and politically use social media.

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Intercultural Communication: Japanese and South African Work Practices

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Hemduth Rugbeer

Abstract

The rapid increase in business globalisation has brought with it an increased need for effective international working environments. Cultural awareness is important to global business and, partnered with good communication, it is an essential component for ensuring the success of international business ventures. Our values, priorities, and practices are shaped by the culture in which we grow up. Understanding other cultures is crucial for intercultural communication. Therefore, intercultural communication is no longer an option, but a necessity for the survival of an organisation. Against this background, this article aims to assist international organisations and their employees, by providing guidelines for conducting business specifically in Japan and South Africa. This study further aimed to examine cultural identity of employees, intercultural barriers to business communication and communication discrimination, focussing on Toyota employees from Japan and South Africa, also known as ICT's (Inter-company transfers) and coordinators and their work practice. Existing models and theories regarding globalisation and cultural transformations in today's society are examined. The article argues that organisations could encapsulate a more intercultural and global environment and explores how advanced technology and the media are vital components of intercultural communication, used to influence communication across cultures and across geographical locations.

Keywords: intercultural communication, international communication, non-verbal communication, globalisation, glocalisation

Introduction

Alikhan and Mashelka (2009: 31) emphasise that the world is being characterised by an increasing number of contacts which results in communication between individuals and organisations with diverse cultural backgrounds. Communication is inevitable within the areas of business, military, science, education, mass media, entertainment, tourism as well as immigration. It is important to manage these contacts efficiently to minimise breakdowns and misunderstandings so that healthy interaction on a global arena is sustained; therefore, it is necessary to ensure that communication is well planned and exceptionally effective (Allwood *et al.* 2007).

Further, Gobus (2009:69-74), points out that communication is an essential component of society. It is the basic element which ensures that intentions, ideas or feelings are appropriately conveyed and perpetuated between individuals or communities. It is a functional, dynamic and transactional process whereby two or more individuals deliberately try to share meaning and promote understanding by sending and interpreting verbal and non-verbal messages. However, the way one communicates differs from person to person and from culture to culture (Du Plooy-Cilliers & Louw 2003:9).

According to Scott *et al.* (2002) people come to know themselves, form relationships and create communities through interactions with each other. When individuals from distinct groups come together, their background, experiences, culture and language all combine to facilitate the sharing of meaning and understanding through communication. This blending of cultures often contributes to skewed perceptions of individual groups; thereby limiting the ability of cultures to communicate feasibly. Sigband & Bell (1994: 78) support this concept and further affirm that there is an acute need for effective intercultural communication on a global juncture. Samovar *et al.* (1998: 3) also maintain that a symbiotic relationship ties all people together. No nation, group, or culture can remain autonomous.

The rapid increase in intercontinental business ventures has brought with it an increased need for effective international collaboration. Toyota Institute & Toyota Motor Corporation (2001: 1) add that with rapid growth, diversification and globalisation, Toyota Japan in the past decade has increased the scope of their company's manufacturing and marketing presence throughout the world, including South Africa. Hence, to be a part of

the globalised business environment, it is crucial for South Africans to gain an understanding of Japan's unique culture in order to facilitate successful business ventures. Experience with the Japanese culture provides an advantageous stepping stone with respect to the developing South African market. Nevertheless, cultural issues and complexities penetrating Japanese society provide substantial challenges for South Africa.

This article investigates intercultural communication between Japanese and South African employees at Toyota. The study is significant as it assists global organisations like Toyota in identifying pertinent issues relating to intercultural relationships and its impact on globalisation. The study aims to cultivate intercultural awareness thereby contributing positively to the global society.

Intercultural Business Communication

The era of globalisation has given rise to individuals working and living with other individuals from around the world. According to Gamble & Gamble (2010: 23) glocalisation is a new concept describing the effects and mergers of globalisation with local interests and environments. All three aspects (i.e., globalisation, diversity and glocalisation) are important and affect communication. It is therefore crucial to learn about other cultures and to refrain from stereotyping them; welcoming diversity is becoming more and more important.

Chaney & Martin (2011: 2) established that intercultural business communication is a relatively new term in the business environment and is defined as communication within and between businesses that involves individuals from more than one culture. The concept of a world culture has emerged, with the increase in globalisation of the economy and the interaction of different cultures, as a social assimilation of people of varying backgrounds and nationalities; implying that individuals are losing their ethnic differences and forming one large society also known as macro-culture.

Language, Communication and Culture

According to Samovar *et al.* (2007: 230) communication does not take place

in a void, hence it is not immune to external influence. The relationship between culture and communication is complex. A dialectical approach assumes that culture and communication are interrelated and reciprocal. Culture impacts on communication; all cultural groups influence the process by which the perception of reality is created and sustained and culture is also enacted through communication and therefore influenced by communication. Pearson *et al*. (2006: 61) state that culture and language are related in two ways: firstly, as the transmission of culture occurs through language. Secondly, culture creates a lens through which we perceive the world and create meaning; language thus develops in response to the needs of the culture or to the perceptions of the world.

Chaney & Martin (2011: 109) identify both the unifying and divisive nature of language. A common native language ties people together, yet the presence of many different native languages in a small geographic area can cause problems. Language determines people's cognition and perception; therefore, if they are removed from their linguist environment, they no longer have the conceptual framework to explain their ideas and opinions.

If a concept is important to a specific culture, there will be numerous terms to describe it. For example, in our (South African) culture money is very important and we have many words to depict it, for example, wealth, capital, assets, resources and finances. Similarly there are nineteen Chinese words for silk, and five words that they can use for uncle, depending whose brother he is.

The preceding study strongly suggests that there are cultural differences in the way people apply language. Each language has its own grammatical rules, and some seem peculiar to novel speakers of that language. Intercultural communication scholars use the Sapir-Whorf hypothesis to explain the connection between language and culture. This hypothesis advocates that language helps us think, and that culture and language are bound together.

Listening and Culture

Given our basic understanding of listening, it is understandable that listening is an essential skill for effective communicators (Pearson *et al*. 2006: 105). However, listening is difficult because of its inevitable difference that may

exist in the communication systems between the communicator and the recipient, resulting from that reality that each individual has her/his own set of experiences, and each person's communication and meaning system is unique. This is most significant in today's intercultural environment, where people from very different cultures live and work together. It is therefore, of vital importance for these individuals to understand the ways in which cultural differences can influence listening. Three of the cultural differences influencing listening are language and speech, non-verbal behaviours, and feedback (DeVito 2011: 66).

Non-verbal Communication and Culture

Seiler & Beall (2008: 114) maintain that norms and rules that control the management of behaviour differ from culture to culture. However, because human beings around the world share common organic and social functions, it is not surprising to also find areas of similarity in non-verbal communication. For example, studies comparing certain facial expressions have established that certain universal expressions, such as those indicating sadness and fear, are easily understood across varying cultures. Although external behaviour is natural (for example, touching, moving, eye contact, facial expressions, interpersonal distance, smell, and silence), we as humans are not born knowing what meanings such non-verbal messages communicate. It is therefore agreed that cultures formulate rules and norms that dictate when, how, and with what situations non-verbal expressions are demonstrated.

Japanese Culture

According to Samovar *et al*. (1998: 226) Japanese conduct business with an utmost sense of formality. Bowing is an integral part of Japanese society used when meeting, to show gratitude, to express sympathy or as an apology. When conducting business in Japan, Westerners would not be expected to bow (Chaney & Martin 2011: 174). However, a foreigner will most likely be greeted with a handshake combined with a slight nod of the head. The exchanging of business cards when doing business in Japan involves ritual

behaviour. The business card is seen to represent the individual, and should therefore be treated with respect. Japanese business associates also appreciate bilingual business cards. These should be printed on one side in English and the other in Japanese and the business card is presented to the other person by giving it and receiving it with both hands. It is also important to address your Japanese host by her/his last name, as only family members and close friends use their first names. It is apparent that both social and business etiquette are very unique in the Japanese culture; therefore, it is advisable to learn about the Japanese culture and customs before conducting business with the Japanese.

The Importance of Building Relationships in Japanese Culture

When doing business in Japan a successful relationship with Japanese is based on three factors: sincerity, compatibility and trustworthiness. Japanese view sincerity as compromising; understanding and wanting to conduct business on a personal level. Compatibility is established when foreigners are seen to be concerned about the personal relationship, the well-being of the company and not just focused on financial gain. Trustworthiness relates to the faith put in you to protect from loss of face (De Mente 2003: 61).

The Toyota Institute & Toyota Motor Corporation (2007: 18) explains the guiding principles set by Toyota Japan, in order to build and maintain relationships that are sincere, compatible and trustworthy. Toyota hopes to contribute to the global society through its corporate activities based on understanding and sharing of the following guiding principles:

- Honour the language and spirit of the law of every nation and undertake open and fair corporate activities to be a good corporate citizen of the world.

- Respect the culture and customs of every nation and contribute to economic and social development through corporate activities in the communities.

- Dedicate ourselves to providing clean and safe products and to enhancing the quality of life everywhere through all our activities.

- Create and develop advanced technologies and provide outstanding products and services that fulfil the needs of customers worldwide.

- Foster a corporate culture that enhances individual creativity and teamwork value, while honouring mutual trust and respect between labour and management.

- Pursue growth in harmony with the global community through innovative management.

- Work with business partners in research and creation to achieve stable, long-term growth and mutual benefits, while keeping ourselves open to new partnerships (Toyota Institute & Toyota Motor Corporation 2007: 18).

South African Culture

South African traditions often arise from specific cultures, later crossing over to other cultural groups within South Africa. The general division of South African cultural groups can be traced along the lines that were polarised by the old apartheid system of governance, which divided the population into groups, namely, White, Black, Coloured and Indian. However, in April 1994, South Africa's first democratic election was held under an interim Constitution. The ANC (African National Congress) emerged as the new reigning government (Government Communication & Information Systems (GCIS 2007:1-2).

The ANC government embarked on a programme to promote the reconstruction and development of the country and its institutions. This called for simultaneous pursuit of democratisation and socio-economic change, as well as reconciliation and the building of consensus founded on the commitment to improve the lives of all South Africans. This required the integration of South Africa into a rapidly changing global environment. In pursuit of these objectives, government consistently focused during the First Decade of Freedom on seeking the unity of a previously divided society in

working together to overcome the legacy of a history of division, exclusion and neglect (GCIS 2007:41-44).

The Importance of Building Relationships in South Africa

According to World Business Culture (2010) it is important that when conducting business in South Africa, foreigners should take time to develop good relationships with the people they are doing business with. This is an important aspect in all cultures within South African society as relationships have always formed the basis of good business, regardless of cultural background. It is also important to be patient when engaging in South African contacts, as being too forceful will probably alienate people.

In general South Africans are direct communicators. Although South Africa embraces a transactional culture, meaning that they do not require a history about people in order to do business with them, they are amiable people that have deeply rooted traditions. South Africans also adopt the European approach to personal space, meaning that people keep their distance when communicating; however, personal space may also vary depending on the different cultures groups within South Africa.

Cultural Issues that Hinder Cooperation between South Africa and Japan

Cultural Diversity

Steinberg (2007: 298) states that South Africa is ultimately a multifaceted nation, with many people, languages and cultures; hence, it seems to be easier for South Africans in general to accommodate and understand other cultures. However, this is not the same for Japan.

Communication and Language

The foregoing explanation affirms that the Japanese believe that by avoiding direct or explicit statements one has a better chance of not being offensive. The Japanese are implicit communicators. It is also evident that many Japanese that cannot speak English, for example, seem to be rude and do not

attempt to communicate as they do not want to humiliate themselves in an uncomfortable situation. However, South Africans on the other hand, are explicit communicators and English is the most common spoken language in South Africa. Hence, it is inevitable that the difference in the languages between both cultures will contribute to the impediment of their relationship.

Non-verbal Communication

The preceding literature study systematically indicates that non-verbal communication contributes largely to misunderstandings, if not interpreted correctly. For example, silence can viewed as saying nothing and meaning something. Depending on different cultural values, silence is viewed differently (Davies & Ikeno 2002: 51). Hence, if the non-verbal cues are not understood in the context of the communication process, it is inevitable that the communication process will be hindered.

Cultural Issues that Promote Cooperation between South Africa and Japan

Values - Building Relationships

According to World Business Culture (2010) South African cultures expect foreigners to take time in meeting and developing a good rapport with business partners. Building and maintaining relationships is important within all sectors of South African society as relationships have always formed the basis of good business, regardless of cultural background. However, as discussed earlier in this chapter, Hein (2011: 16) also corroborates that the Japanese also focus on building and maintaining successful relationships on a personal level with their business partners. This type of relationship is based on sincerity, compatibility and trustworthiness. The Japanese view these as essential components for a long standing relationship with their business partners.

Corporate Culture

Having a common corporate of organisational culture largely contributes to

learning and merging of both Japanese and South African cultures. For example, Toyota has seven guiding principles. These guiding principles aim at instilling values, ethics and certain methods of appropriate behaviour to their international employees. In doing so, they aim to create and maintain mutual relationships of trust and respect between all employees irrespective of their country or culture (The Toyota Institute& Toyota Motor Corporation 2007: 18).

Taking into consideration the foregoing literature, the ensuing recommendations are projected to demonstrate the most feasible way for people to communicate in an intercultural context:

- Motivation plays a crucial role in human communication, human behaviour and specifically to intercultural communication. Organisations therefore need to create opportunities for employees to engage activities that motivate individuals to want to learn more about other cultures, by creating an environment for employees to want to reach a sense of self actualisation. In order for these employees to fulfil their desire, they will encounter many cultural and societal barriers, which may impede their communication. However, they will need a willingness to persist at the attempts that meet their goals and they are required to select and sustain particular behaviours required to achieve their goal.

- The aspect of social learning is imperative in an intercultural context as it aids individuals in learning from other cultures. It provides an insight into how people in other cultures dress, act, communicate or exhibit themselves in their daily work lives. Hence, it gives employees or new members insight into how to behave in specific intercultural contexts.

- The uses and gratification theory suggests that essential human needs motivate individuals to focus on particular mass media, and to select and use media messages in ways they find personally gratifying or rewarding. Therefore, a specified medium, such as the radio, and a certain message, such as weather information, might be used by different individuals in different ways depending on their particular

needs and interests they are seeking to satisfy (Steinberg 2007: 268-269). This then can be utilised by individuals to learn more about other cultures. However, although the mass media play a critical role in influencing behaviour, as a globalised community, we are required to use this information with discretion and be open to learn from new experiences.

- For organisations to survive, and flourish in the future, their outlook must be global, and in doing so they need to equip their employees with the necessary skills required to engage in the global community.

- As suggested by Fauconnier & Turner (2002: 46-47) individuals engage in conceptual blending, where they blend their conceptual network of knowledge to experiences and new knowledge gained about other cultures.

- Global technology is yet another factor that contributes positively to intercultural communication. Organisations and employees should exploit the use of technology, and use it to their advantage to adjust their strategies in order to survive. In doing so, organisations can also change their organisational culture to suit the global environment, thereby introducing their employees to the global way of thinking and behaving.

Based on the study, the following managerial recommendations are outlined:

- It is imperative that organisations should take the necessary measures to make employees become better adjusted at working in an international environment.

- Organisations dispatching employees to work in other countries should create a network of expatriates for emotional and social support.

- Providing pre-departure training for employees and their families (increasing their daily language proficiency and knowledge of the

host country) is viewed as being valuable and an efficient means of ensuring potential success.

- The results of this study also highlight that adapting to a new culture can have both positive and negative adjustment outcomes. However, motivation and emotion plays a critical role in intercultural communication. Therefore, the answer to achieving successful intercultural communication is for individuals to engage in self-actualisation and a personal growth process. Hence individual's needs are required to change their ways of thinking, their perception of other cultures and worldviews, and become more open-minded to new and exciting cultures.

- In progressively globalised environment, it is inevitable for organisations to face the challenge of managing cultural diversity within and outside of organisation. It is therefore important for organisations to promote issues on globalisation and diversity as a core business process.

- Based on the above recommendations it is evident that in today's globalised society, it is critical for organisations to acquire, develop and retain employees who possess comprehensive globalised knowledge and experiences. These employees are the intellectual assets and fundamental resources of the organisation. It is important for the organisations to recognise this and therefore develop employees to work in a multicultural and international environment. However, this opportunity should not only be for managers, it should also be aimed at developing employees across the board.

- It is also imperative that the business and organisational culture should not only be developed around a first world country, but it should also adopt and consider ethnic cultural practices of their employees both nationally and internationally.

- Promoting and developing a third culture is important to organisations, as it generates a new understanding of other people

and cultures. The essence of a third culture mentality allows varying degrees of understanding, rather than requiring complete understanding of another's culture. A third culture recognises the diverse cultural environment and aims to develop a new context for future interaction.

Research Methodology

This study constitutes both a qualitative and quantitative descriptive survey to record behaviours, experiences and relationships between and among all South African and Japanese co-ordinators within Toyota and their respective families. Questionnaires were administered to all South African (Inter Company Transfers) and Japanese co-ordinators within Toyota (from 2007). 100 representatives were chosen as a sample of which 50 were from South Africa and 50 from Japan.

A research questionnaire was administered to 42 South African and 43 Japanese employees within South Africa Toyota management echelon by means of structured personal interviews. The interview guide contained both open-ended and closed-ended questions. Soliciting open-ended questions in the interview was aimed at inviting participants to express their personal experiences. Seeing that open-ended questions are unstructured, the aim of these types of questions was to elicit underlying ideas, feelings, sentiments and suggestions that researchers may not have considered.

The study was perceived to be important in bridging the gaps identified in intercultural communication and providing guidelines for multinational organisations with regards to building and maintaining intercultural relationships, thereby contributing positively to the global society.

Results and Discussions

This section illustrates close-ended questions using tables and graphs. The results of the open-ended questions were coded and analysed using content analysis. Distinct categories were divided into significant groups into which units of analysis could be placed. The findings of the study were then

compared to the literature review to determine the importance of intercultural communication, the possible barriers to intercultural communication and the possible solutions that could be implemented to combat these barriers.

Biographical Data of Respondents

A question about biographical data provides general biographical characteristics of the respondents that participated in the study. The study comprised respondents from South Africa (respondents that worked in Durban, a city in KwaZulu-Natal) and Japan (respondents from SA who worked in Nagoya – a city in Japan).
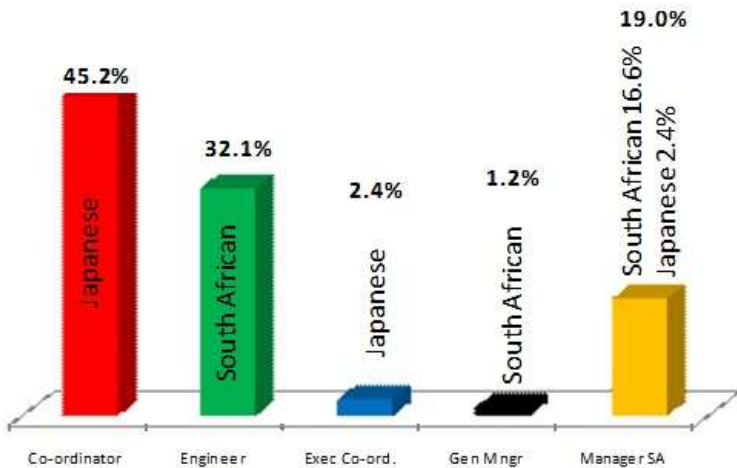
Figure 1: Designation of respondents

Approximately forty five percent (45.2%) of the respondents were Japanese co-ordinators. The second most common job designations were South African Engineers (32.1%). The Managers (19%) were a mixture of South African and Japanese nationals.

International Work Experience

Most of the respondents (almost 76%) had less than two years international work experience. Six percent of the respondents had more than ten years work experience.
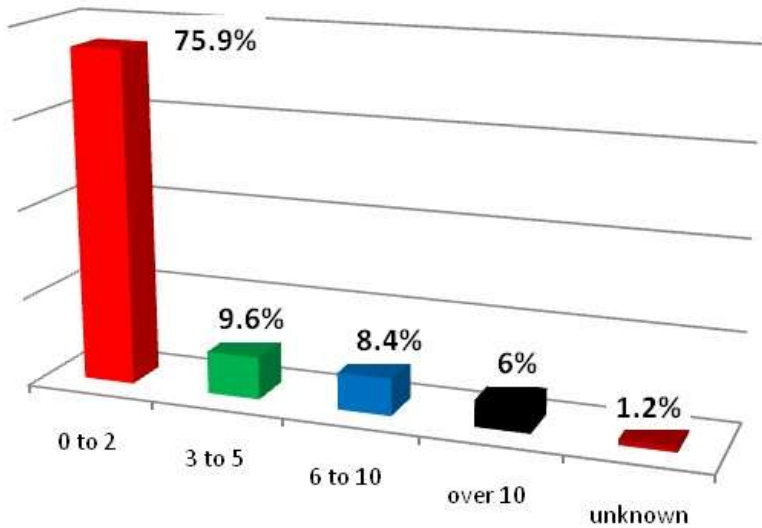
Figure 2: International work experience

However, Figure 2 indicates that there are an increasing number of individuals that are being exposed to international working environments. Figure 2 further substantiates the view of O' Shaughnessy & Stadler (2006: 436) who view globalisation as a sense of interconnectedness which is offered by facilitating interpersonal communication and the formation of communities and relationships across geographical, racial, religious and cultural barriers. South Africa and Japan are both increasingly contributing to the concept of globalisation. In support of the increase in globalisation, Sigband and Bell (1994: 78) affirm that there has never been a more acute need for effective intercultural communication worldwide than at present.

The Main Means of Communication with Other Nationalities

While all forms of communication are pursued (for example: emails and telephone interaction), the majority of the respondents indicated that face-to-face communication is the most common method of communication employed when communicating with workers from other cultures (in this case Japanese and South Africans). Face-to-face communication included video conferencing when communicating cross continents.
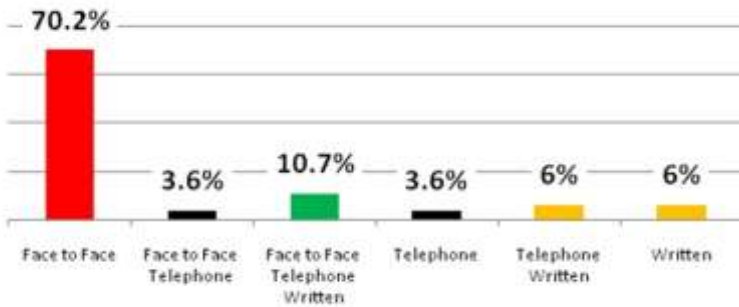
Figure 3: The main means of communication with other nationalities

Gamble & Gamble (2010: 36-37) affirm that technology pervades national precincts and erodes the association between location and experience. It enables individuals to interact more easily with others who have different worldviews than they do.

Preferred Type of Communication when Communicating with other Nationalities

Respondents also indicated their preferred type of communication which they felt was most profitable in an intercultural environment. The majority indicated that oral communication is the most profitable type of communication.
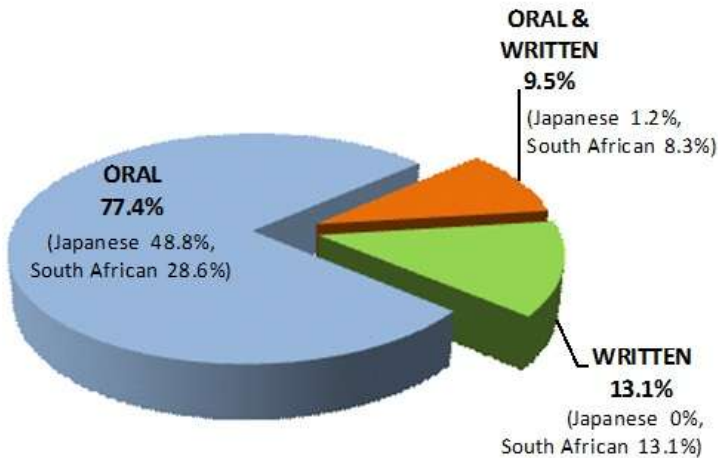
Figure 4: Preferred type of communication

The Positives and Negatives of the Major Cultural Adjustments Experienced

Majority of the respondents (42.3%) indicated that 'language' was the major cultural adjustment experienced while abroad. Almost twenty five percent of the respondents, who were all South Africans, indicated that a safe environment in Japan (which was welcomed) was another cultural adjustment experienced.

Figure 5 indicates the percentage of respondents who found their cultural adjustments positive or negative. A notable number of respondents (45.2%) experienced negative feelings towards cultural adjustment.
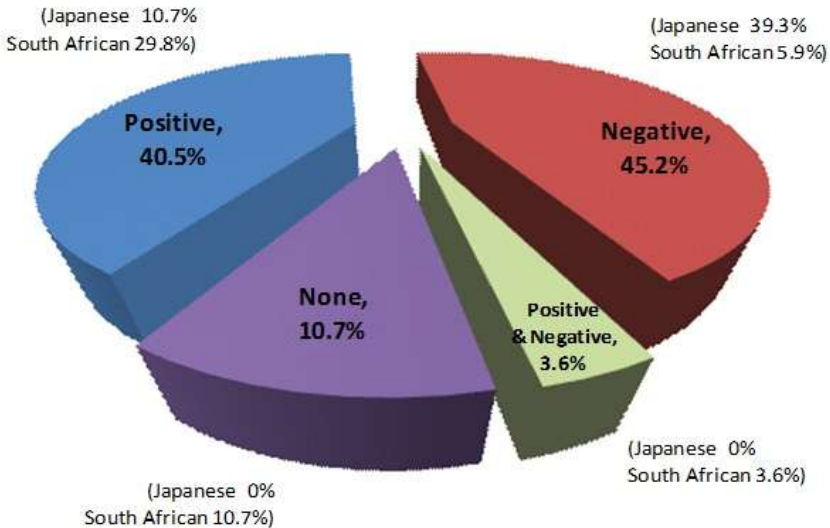
Figure 5: The positive and negatives of the major cultural adjustments experienced

Timekeeping

Froemling *et al*. (2011: 101) deemed 'timekeeping' to be a critical component of non-verbal communication. Alberts *et al*. (2007:147) also add that people often interpret others' use of time as conveying a message, which eliminates it from the behaviour sphere and assigns it to an area of communication.

According to Jandt (2010: 118) the concept of time varies from culture to culture. When people come together from different cultures and value time differently, it is expected to lead to conflict and a sense of displacement. However, this investigation comprehensively affirms that the concept of time is evidently important to both Japanese and South African cultures.
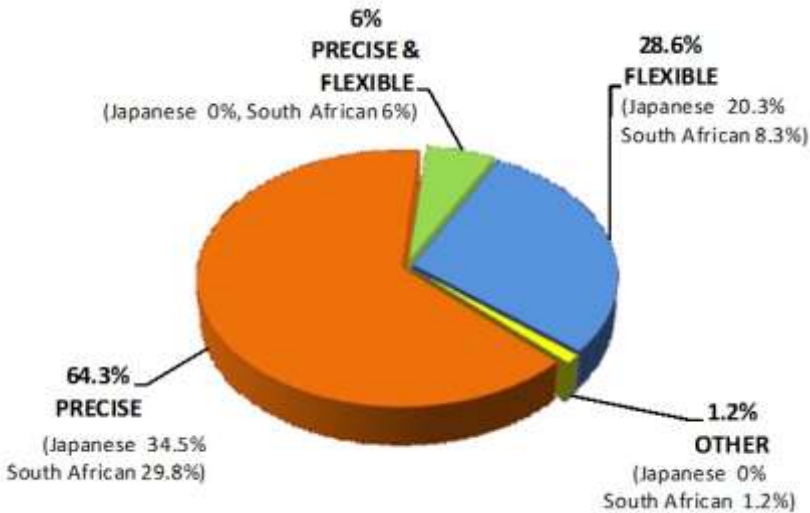
Figure 6: Timekeeping

Figure 6 confirms that the majority, 54 (64%), of the respondents indicated that precise time keeping is important, while 28.6% (24) pointed out that flexible time-keeping is important, and 6% (5) indicated that depending on the situation, both flexible and precise time keeping is important.

Preferred Method of Working

Gamble and Gamble (2010: 267) declare that collectivists use group norms rather than individual goals to guide their participation, hence they are likely to be team players, and emphasise harmony and cooperation. For example, team-work, selflessness, and group cohesiveness are all areas greatly stressed within Japanese society. However, Alberts *et al*. (2007: 179) affirm that not all Japanese are collectivists. In effect, generational differences may exist within cultures where collectivism is strong. For example Japanese college students show a strong preference for individualism while their parents hold a more collectivist perspective which can lead to miscommunication and conflict.

The results in Figure 7 highlight that 77.4% (65) of the respondents preferred working in a team, while 19% (16) preferred working independently. Irrespective of their cultural backgrounds, both South African and Japanese cultures find it important to work together.
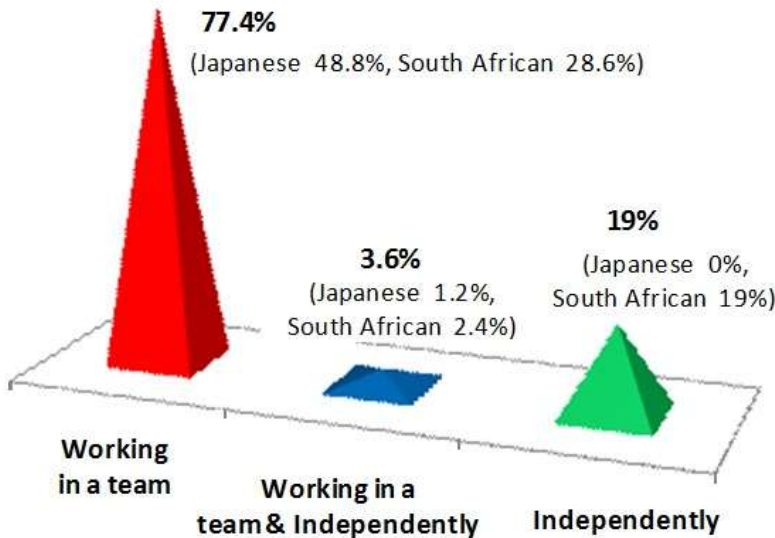
Figure 7: Most preferred method of working

Cultural Ways of Dealing with Business

Figure 8 indicates that 48.8% (41) of the respondents indicated that their culture focussed more on tasks. On the other hand, 46.4% (39) demonstrated that their focus was on developing a rapport with their business partners.

The majority (51.2%) of the Japanese respondents indicated that their cultural priority is to develop relationships with their business partners, while the majority (56.4%) of the South Africans revealed that their culture prefers being task focussed and getting down to business. However, the South Africans also indicated that this depended on the nature of their job.
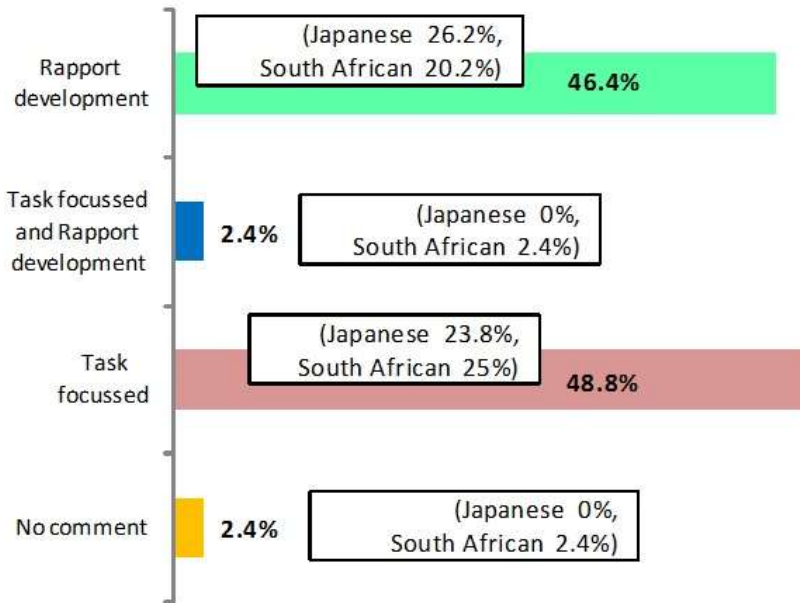
Figure 8: Cultural ways of dealing with business

     South African respondents also indicated that there were situations where developing a rapport with business partners was seen as being most important.

     De Mente (2012: 186) affirms that when conducting business in Japan a successful relationship with Japanese is based on sincerity, compatibility and trustworthiness. In fulfilling these factors, the Japanese aim at establishing and sustaining venerable relationships. The World Business Culture (2010) also confirms that it is also important when conducting business in South Africa, for foreigners to take time to develop good relationships with the people they are doing business with. This is a vital aspect in all cultures within South African society as relationships have always formed the basis of good business, regardless of the cultural background.

The Toyota Company also identifies the importance of building and maintaining relationships with the various stakeholders. The significance of building and maintaining relationships is evident in Toyota's organisational culture by which Toyota aims to contribute positively to the global society.

Respondents were also asked to explain why they conduct business in this way. The majority of the respondents, 41 (48.8%), indicated that although they are tasked focused, it is not always the most preferred way of conducting business. Conversely, due to the nature of their job, being task focused is preferred when doing technical work, as the nature of the business demands immediate action with limited time frames; hence, it seems to be the most effective way to resolve technical issues. It is also evident that when working with targets that are set higher than competitors it is important to be task focused and to be ahead.

However, the 46.4% (39) of the respondents indicated that building and developing a rapport is of utmost importance. It is also Japanese culture to know business partners. Developing relationships is of utmost importance especially when working at a global level, as people are organisations most valuable assets. It was also stipulated that Toyota's core business is to build relationships with both employers and suppliers and good business relationships are required to achieve common organisational goals.

Verderber & Verderber (2008: 116) strongly affirm that competent intercultural communicators overcome cultural barriers by adopting the correct attitudes towards other cultures, increase motivation, acquire accurate information about other cultures' values and practices, and develop specific skills required to be effective across cultures.

Alberts *et al*. (2007: 147) also affirm that people often interpret others' use of time as conveying a message, which eliminates it from the behaviour sphere and consigns it to an area of communication. For example, if a business colleague consistently arrives more than an hour late for a meeting, how is her/his behaviour interpreted? Culture strongly influences how most people answer that question (Alberts *et al*. 2007: 147). The analysis highlights that in both South African and Japanese cultures, time is considered highly important, and the expression 'time is money' is often used to express the value of time. It can then be concluded that in countries like South Africa and Japan, lateness can communicate insensitivity,

irresponsibility, or selfishness. However, not all cultures value time similarly.
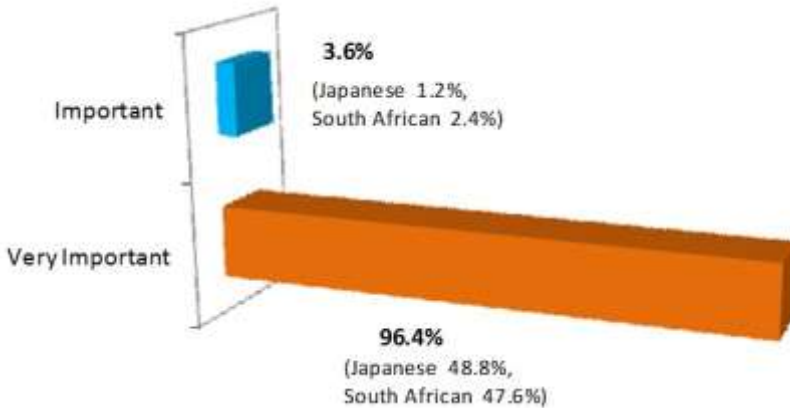
Figure 9: Interaction with international partners

The areas of business communication that are deemed vital in business communication include leadership styles, frequent meetings and discussions and oral and written communication with all business partners.

Conclusion

Many parts of the world are becoming similar because of the prevalence of media that exposes people to elements of different cultures. However, it is also evident that misunderstandings can still occur when individuals lack understanding of real differences in perception and meaning of messages. There were also other intercultural communication problems that were experienced by expatriates that related to:

- Time management;,
- Language deficiency;

- Work culture;, and
- Food and security.

This study revealed that there were more differences than similarities in the area of time management, language deficiency, working culture, food and security in South Africa and Japan. These problems led to inabilities to express what each individual really wanted from another to achieve either her/his organisational or individual goals. However, Beebe *et al.* (2011: 102-103) explain that the reason to understand that humans have similarities and differences is not to diminish the function of culture as a vital element that influences communication, but to understand that despite cultural differences, we are all members to the human family. When engaging in intercultural communication, it is important for individuals to take time to explore the other person's background and cultural values before one can determine their cultural similarities and differences.

Culture plays a pivotal role in the development of human thoughts and behaviours. Disregarding other cultures in an intercultural environment can probably jeopardise the communication process. For example, gift giving is an important component in the Japanese culture; hence, if a wrong gift is given it can jeopardise potential intercultural relationships. This study accentuates the rich and complex process of communication that involves multiple messages sent via several channels. However, culture has an invasive influence on the encoding and decoding of these messages, which can impede intercultural communication. Beebe *et al.* (2011: 98) also confirm that misunderstanding and miscommunication can occur between people from different cultures because of different coding rules and cultural norms, which are instrumental in shaping patterns of interaction.

There is an increasing connectedness of the world in financial, political and cultural spheres, as well as workforce mobilisation. Hence, this study stresses the importance of cultivating intercultural awareness, as it is vital for individuals to improve their intercultural competence to cope with the demands of globalisation.

Feelings of stress and apprehension people experience when encountering another culture is referred to as culture shock. Chaney & Martin (2011:82) add that aspects of cultural shock include cultural stress, social alienation, social class and poverty/wealth extremes, financial matters,

and relationships and family considerations. Losing familiar signs, customs, norms and behaviours can be very disturbing and contribute greatly to culture shock which also impacts intercultural relationships. Therefore, if a person is visiting or living in a new culture, their uncertainty and stress may take time to subside as they learn the values and codes that characterise the other culture.

The study also revealed that language problems were seen as a major contributing factor that impeded intercultural relationships. The study highlighted that basic 'everyday' communication language was required to initiate and follow informal conversations in interactions with the other culture, however, a lack of vocabulary, and more specifically, lack of knowledge of words outside the 'motor industry' meant that both cultures experienced problems talking about issues that were not directly related to the work at hand. This was unfavourable, as small talk is essential for building and developing relationships. According to World Business Culture (2010) it is important that when conducting business in South Africa, foreigners should take time to develop good relationships with the people they are doing business with. Building and maintaining relationships is also a vital attribute in Japanese culture. Hence, respondents indicated that there is no need for language training to focus too heavily on the technical and grammatical aspects; instead it should focus on vocabulary that can be used in daily communication.

Furthermore, non-verbal cues, like facial expressions and even drawings and graphics play a vital role when engaging in an intercultural environment, specifically in this study. As a result of the company being a motor industry, the core responsibilities of the employers were most often than not, technical. Hence, despite the various communication barriers that employers from the different cultures experienced, it was clear that non-verbal and face-to-face communication was viewed as being most profitable, as individuals were able to use drawings and facial expressions to enhance their verbal messages.

It was also evident that technology, particularly the Internet is responsible for educating people about other cultures. Therefore, companies could be exploring this avenue as a means of learning and educating their staff.

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A Framework for Tracking Mobile Communication Technology Trends

Rembrandt Klopper

Abstract

This contribution presents a qualitative research design approach to track rapidly emerging, converging and diversifying mobile communication technology trends. A conceptual framework is developed as parameter-setting research-design, as a pre-empirical procedure to be used in subsequent full-blown empirical research. Conceptual frameworks are typically used to plan research methodologies with the aim of solving problems around the deployment of new technologies. Such frameworks are useful to begin studying emerging 'interdisciplinary' phenomena for which disciplinary boundaries have not yet been established, or to study rapidly developing phenomena like the development of mobile communication technologies.

Keywords: Apps, conceptual framework, convergence, emergence, emergent properties, Gartner's Hype cycle, mobile communication, problem-solving research, qualitative research, techno-pessimism, techno-realism, techno-utopianism, Venkatesh's Technology Acceptance Model

Introduction

One of the problems with tracking emerging and converging forms of mobile communication technology is the extremely rapid rate with which such technological innovations progress. This no doubt is because mobile communication technology is the most recent of the communication

technologies. It stands to reason that one has to develop a robust and coherent framework for this type of study. This project therefore implements a problem-solving conceptual framework design to account for emerging and converging forms of digital mobile communication technology.

Saunders (2003) defines a conceptual framework as the 'an organization or matrix of concepts that provides a focus for inquiry'. Conceptual framework design is a viable methodology when studying rapid change, and serves as precursor for a subsequent full-blown empirical study of the change process. The function of conceptual frameworks like this one is to lay the groundwork for a subsequent comprehensive empirical study incorporating qualitative or quantitative research methods or the combination of both.

The project takes as point of departure Klopper and Lubbe (2012)'s problem-solving research design, which requires that researchers formulate a problem statement from which key terms are extracted and subsequently used as literature review search terms. According to Klopper and Lubbe (2012), research begins at the stage of total ignorance and further progresses through various stages until one reaches an expert level of knowledge on the topic. These stages are referred to as 'levels of competence when completing a conceptual task'. Emergence is a new area of research where little formal academic research has been done to date. Key terms have been identified from the project's problem statement and extracted from the problem statement to conduct searches for relevant literature about the problem under investigation.

Establishing the Viability of the Research Topic

To determine that the *topic* of emerging and converging mobile communication trends was viable a number of searches were conducted within five academic research databases, namely *Google Scholar*, the University of KwaZulu-Natal's *iLink* library catalogue, the NRF's NEXUS database of on-going and completed research, the *J Stor*, and *Science Direct* scholarly databases, using combinations of search terms like:

- Dissertation + 'emerging and converging forms of mobile communication'

■ Thesis + 'emerging and converging forms of mobile communication'

■ Paper + 'emerging and converging forms of mobile communication'

■ Research + 'emerging and converging forms of mobile communication trends'

■ Report + 'emerging and converging forms of mobile communication trends'

The search queries conducted at the above three databases, initially conducted on Wednesday 24 August 2011 and repeated on Friday 1 November 2013, returned zero-references search result like: 'Your search – *dissertation + 'emerging and converging aspects of mobile communication' -* did not match any documents'. Not unexpectedly, a Scholar Google search gave the same result, as did the University of KwaZulu-Natal's *iLink* library catalogue, the *J Stor*, *Science Direct* and similar database searches.

The absence of credible, peer reviewed academic sources on this topic has the following three implications for this study:

1. It is clear that this topic has not yet been researched, either locally or internationally.

2. After the sparse sources that can be identified have been reviewed, non-peer reviewed sources will also be consulted, albeit with care.

3. Because developments around mobile communication technology is a recent phenomenon, not enough may be known about the process by the general public or even students of Informatics to provide information to help solve the problems that have been identified. Therefore, a type of exploratory research known as conceptual framework design would be appropriate.

Problem-solving Research

Problem-solving research requires the formulation of a robust problem statement, and subsequently subjecting it to systematic content analysis in

order to derive key concepts to be used as search terms in order to identify literature that relates to the problems under investigation.

Statement of Problems

Problem statements are best formulated within the framework of some guiding and constraining theory (Gregor 2006). When new information technologies are deployed, an information systems theory, like for isntance Venkatesh's Technology Acceptance Model, ought to be used to guide research on how technology adopters (end-users) will accept and use a new technology (Venkatesh 2003).

Venkatesh's model is a *technology adoption* model and can therefore not be used directly to study *technology emergence and convergence*. It can however, be used to figure out what an empirically testable model of technology emergence and convergence should look like. A theory of emergence and convergence has to accommodate statistics on technology adoption trends. Technology adoption would be one of the factors that influences rates of technology emergence and convergence.

Technology may have both positive and negative influences on society. The United Nations and Vodafone formed a partnership to use innovative technologies to tackle the world's most difficult problems. This partnership is helping the United Nations achieve the Millennium Development Goals and tackle key health, social, environmental, and development challenges. 'Technology especially wireless communication is crucial to finding solutions to these problems. It can connect families separated by disaster, help emergency relief workers respond more quickly, empower farmers to ask for better prices in markets, help track the impacts of climate change, and so much more' (Kinkade *et al.* 2008).

The future impact of technology will play a vital role in how people will live their everyday lives. Currently, one of the main issues is the global focus on climate change and has led to corporates being more aware of their environment and the technologies they use. 'The next quarter century will see the fastest technological change the world has ever known. How will that affect our lives? In general, as Arthur C. Clarke once pointed out, people exaggerate the short-run impacts of technological change and underestimate the long-run impacts' (Cairncross 1997).

One of the more recent trends in the mobile domain is mobile for smartphone applications (apps). Major smartphone manufacturers like Apple, Google, Nokia and Blackberry have shifted their emphasis to mobile applications. Apps allow users to customize their smartphone to suite their everyday and/or business needs. The application business has become the business with the fastest turnaround time, to a global community of enthusiastic downloaders. According to Joshi & Sharma, 2010: 'In January this year, apps were downloaded from the Apple app store 3 billion times, which has more than 100,000 app titles in categories such as games, business, news, sports and health'.

The Epistemological Grounding of the Research Design

The research design framework proposed here is based on the epistemology of emergent properties as part of systems theory, a generic, flexible approach to studying systems. It is applicable to any complex system that has interrelated coherent parts that require synergy to function as a system, which takes materials as input, performs operations on them and produces products as output.

The crucial idea of the emergent properties of systems is that productive systems are not static entities, but they themselves change (evolve) over time in order to remain fit for purpose to produce new outputs according to predesigned, updated plans in response to ever changing environments.

Examples of such systems are factory assembly lines that systematically assemble component parts based on plans to produce products, alimentary canals that take food as input, converts some of it into energy as end-product, while excreting excess by-products in a variety of ways (defecation, urination and sweat), the design and manufacture of mobile communication devices that have comparable inputs, by-products and end-products, and finally using the principles of research design to plan a research project for generating new insights about problems under investigation. One of the originators of the philosophy of emergence, Mill (1843) describes the philosophy of emergent principles as follows:

All organised bodies are composed of parts, similar to those composing

inorganic nature, and which have even themselves existed in an inorganic state; but the phenomena of life, which result from the juxtaposition of those parts in a certain manner, bear no analogy to any of the effects which would be produced by the action of the component substances considered as mere physical agents. To whatever degree we might imagine our knowledge of the properties of the several ingredients of a living body to be extended and perfected, it is certain that no mere summing up of the separate actions of those elements will ever amount to the action of the living body itself. (A System of Logic, Bk.III, Ch.6, §1)

Theories Compatible with the Philosophy of Emergent Properties

The following theoretical frameworks seem to be compatible with the philosophy of emergent properties, and therefore have the potential of serving as guiding and constraining frameworks for the study of the emergence and convergence of mobile communication:

- Agency Theory (Alchian & Demsetz 1972; Eisenhardt 1985, 1989; Shankman, 1990; IEA 2007, Murtishaw & Sathaye 2006);

- Change Theory (Shackman *et al.* 2002, 2012; Ruiz 2013);

- Diffusion of Innovation Theory (Pemberton 1936; Rogers 2003; Greenhalgh *et al.* 2004);

- Lewin's Three-step Change Theory (Lewin 2011; Kaminski 2011); and

- Prochaska and DiClemente's Stages of Change Model (Singer 2009).

The Overall Problem Statement

Only limited research has been done to date regarding the general problem under investigation about the emergence and convergence of mobile forms of communication. There had been little success in finding a conceptual

framework for the forms of mobile communication through a process of elimination in the literature survey.

Subproblems
Subproblem 1

■ There is no systematized information available at present about a conceptual framework to track emerging and converging of digital mobile technologies.

The topic being researched is a new one and as a result there is no information available on the university's electronic journal database about conceptual frameworks for tracking the emergence and convergence of mobile technology. To substantiate the above, as mentioned earlier, an advanced search on Google Scholar, iLink, J Stor, Science Direct and similar database searches were performed for the search term 'conceptual frameworks for tracking the emergence and convergence of mobile technology', with no exact matches.

Subproblem 2

■ Neither the positive nor the negative impacts of emerging and converging digital mobile technologies on society have been studied yet.

With the rise of emerging and converging technologies, there have been many uses and applications for these devices. This research project will also identify how new mobile technologies will influence society. In contrast, there have been some negative aspects for adopting new mobile technology services.

Subproblem 3

■ It has not yet been established what the best framework would be to track the impact of future technologies on society.

The current pace of technology deployment is fast changing the way in which society live. Technology plays a key role in both emerging and mature markets. For example, the mobile phone has made it possible to communicate and provide transaction services in some rural areas of Africa. In mature markets, technology is embedded in the city's infrastructure, for example, the availability of broadband at high speeds.

With technology playing such a vital role in everyday life, computers are used for business, leisure, socializing and many more. Computer devices have many functions in a society of ubiquitous computing. Technologies are being rapidly deployed with faster processing times and smaller in sizes. It is no surprise that the mobile phone encompasses many converged technologies in a single device. As stated at the beginning, there are no exact matches for the term 'conceptual framework for tracking the emergence and convergence of digital mobile technologies', both on the web and Google Scholar.

Problem-Research Question Alignment Matrix

Unless research questions are derive from and properly aligned with one's subproblems, the empirical phase of research will be incompatible with the design phase and the results will not help solve the problems that prompted the research.

Gen. Problem	Subproblems	Research Questions
The *general problem* under investigation is that as yet there does not exist a coherent framework to track the emergence and convergence of digital mobile technologies.	1. There is no systematized information available at present about a conceptual framework to track emerging and converging digital mobile technologies	1. What is the nature of a conceptual framework that would accommodate the study of tracking emerging and converging digital mobile technologies?
	2. Neither positive nor negative impacts of emerging and converging digital mobile technologies on society have been studied yet	2. What are the positive and negative impacts of emerging and converging technologies?

	3. It has not yet been established what the best framework would be to track the impact of future digital mobile technologies on society	3. What framework could be used to track future digital mobile technologies impact on society?

Table 1: Problem-research question alignment matrix based on (Klopper & Lubbe 2012)

Research Design

Research design forms part of the planning phase of research. It provides the overall structure for the procedures the researcher intends to follow, the data the researcher intends to collect, and the data analysis the researcher intends to conduct (Leedy & Ormrod 2010). This section therefore describes the *planning* of the research process. By contrast with 'research design' the term 'research methodology' refers to the *execution* of the envisaged research process. The term 'methodology' therefore covers the actual empirical procedures for gathering, analysing and interpreting data – choosing a sampling frame, gathering a representative sample of data with an appropriately designed research instrument, systematically analysing the data and applying the appropriate statistical tests to establish valid interpretations for one's data.

Whereas 'research design' precedes one's literature review, one's actual research methodology is best implemented *after* one's literature review, so that one can determine whether any problems that one has identified have not yet been solved by other researchers. This sequence is illustrated in Klopper (2012). It is important to note that the research design may have to be adjusted due to findings in the literature review.

Envisaging a Coherent Research Design Process

Problem-solving research proceeds along five stages.
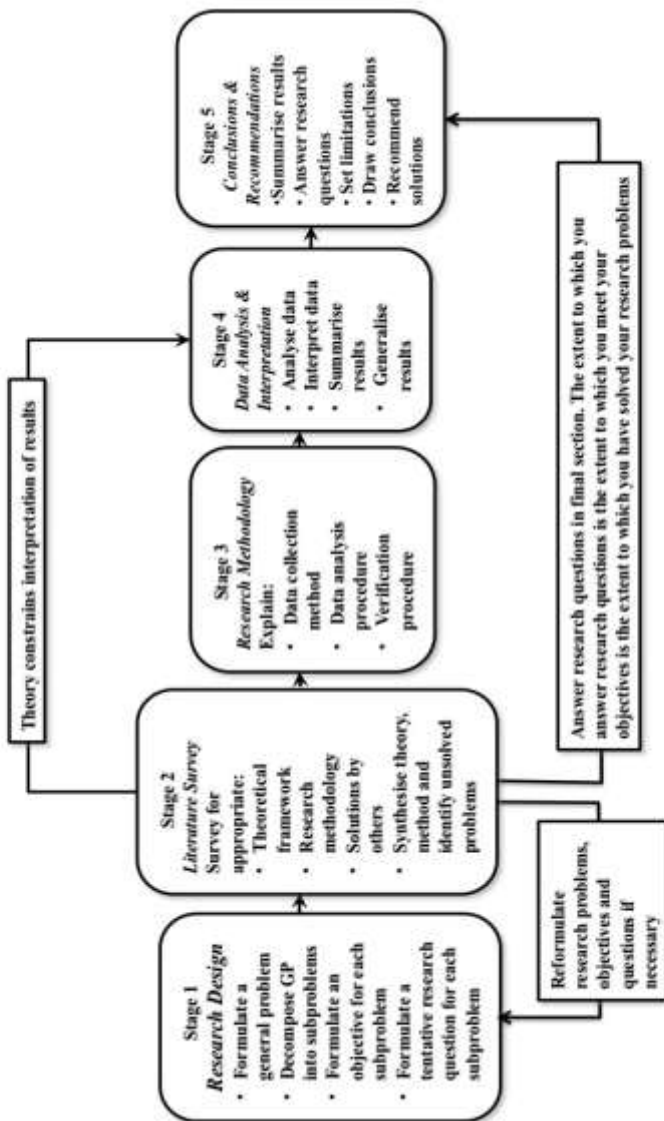
Figure 1: The research process step-by-step adopted from Klopper (2012)

- **Stage 1:** Formulate the problem, decompose it into interrelated sub-problems, derive research objectives and research questions from it.

- **Stage 2:** Do a full literature review.

- **Stage 3:** Design research survey instruments and submit them to organisation for ethical clearance. Conduct fieldwork, and document research methodology.

- **Stage 4:** Analyse, interpret data and assess results.

- **Stage 5:** Collect data, analyse data, determine significance of inferential relationships, assess results and write up research report.

The process of envisaging the five stages of problem-solving research is visually represented in Figure 1 above.

In the course of having served as postgraduate external examiner for several South African universities, I have concluded that many students (and their supervisors) are not quite clear about the nature of problem statements and that they are routinely confused with research questions. Logically problem statements are propositions, while linguistically they are assertions. According to the semanticist John Lyons (1978:142):

- 'A proposition is what is expressed by a declarative sentence when the sentence is uttered to make a statement'.

- 'Propositions may be true or false'.

The Propositional Structure of Statements
What problem statements are not:

- ✗ A problem statement is not a question, e.g., 'Where did the chicken disappear to just before supper?' or 'Why did the chicken disappear just before supper?'

- ■ ✕ A problem statement is not an objective, e.g., 'To determine how the chicken disappeared just before supper'.
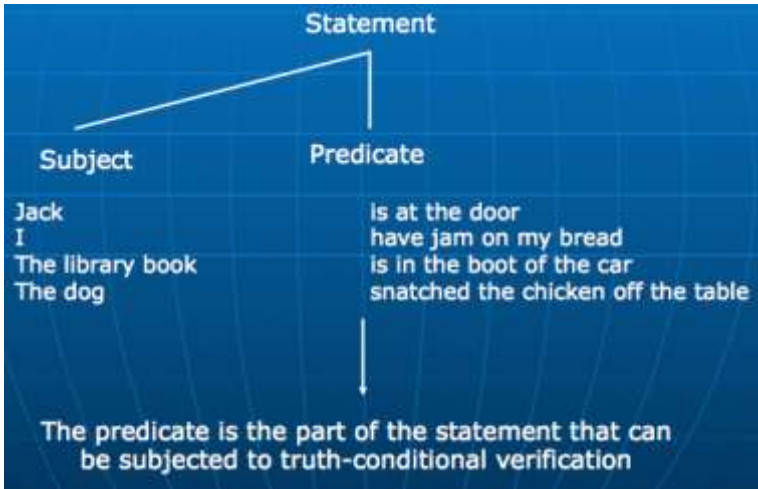
Figure 2: The propositional structure of statements (own formulation)

Identifying Literature Sources by means of Key Concepts

Literature should be identified through key concepts extracted in one's problem statement. Due to the nature of the study, there are many fields of study that impact the emergence and convergence of technology. However, the majority of the literature falls under the fields of social media, mobile computing and information systems. Since this is a pre-empirical study with the intention to set up a subsequent full-blown empirical study.

Identifying Mobile Devices and Mobile Software (Apps)

Fenn and LeHong (2011) note that various new technologies have gained significant momentum since 2010, including augmented reality, cloud computing, social analytics, Internet TV, location based services and E-Book readers. The top 10 largest mobile manufacturers in 2011 were Samsung, Apple, Nokia, LG, Sony Ericsson, HTC/Google and BlackBerry. In the

current mobile market, all smartphones use mobile applications. Most developments happen on various platforms:

- Symbian
- Android
- Windows Mobile
- iOS
- Java ME

Identifying Visual Sources for Content Analysis

From hermeneutic point of view visual representations – sketches, photographs or video material – are texts that contain information just like written texts, although the mode of information representation differs from text type tot text type. Visual texts in the form of videos were identified to form part of literature survey by means of three related key terms derived from the problem statement, namely: *techno-utopianism*, *techno-realism* and *techno-pessimism*. The visual texts identified below are *examples* of the videos that can either be subjectively interpreted as literature review sources, or that can be systematically analysed as primary information sources by means of content analysis.

The content of first video is summarised in enough detail to enable the identification of content categories for subsequent systematic content analysis. For the rest of the videos, only concise notes are provided to serve is mnemonics for subsequent systematic content analysis. The length of a particular summary will depend on the nature and length of the particular video. The primary source of videos about mobile communication devices would be www.youtube.com and www.ted.com.

Video Title	Source	Category
Productivity Future Vision (2011)	http://www.youtube.com/watch?v=a6cNdhOKwi0	Techno-utopianism

A woman walks towards a taxi rank while a voice is welcoming her to Johannesburg International Airport in Afrikaans. She then reaches for a button on her glasses that indicate that it is translating and the voice switches

from Afrikaans to English. She steps into a vehicle where the time is displayed in the bottom corner of the window and takes out her mobile device. With the movement of her hand and finger she draws a heart above the mobile device that then interprets the image as a heart on the screen and places it onto the 'Kitchen Wall'. Her finger slides across the screen that switches to the hotel check-in, she checks in and is notified of her digital room key, as well as her room being ready. The scene then switches to a gentleman who takes out his mobile device that tells him information about the guests who are arriving such as minutes to arrival, number of guests, number of bags and weight of the luggage. Another swipe shows the image of the woman and her name 'Ayla Kol' with time of arrival information in minutes. The gentleman then turns his card around for additional information on the woman's stay and displays information such as guest details, service level, travelling from, favourite amenities and flight time. The screen switches back to the woman and she has received a message from a work colleague, Qin who needs an urgent response for his message. She then replies voice to text and this is identifiable through the instructions displayed on the screen, showing 'Transcribing'. The woman then arrives at the hotel.

The next scene switches to a gentleman at a train terminal and he is looking at his re. He clicks on a button, 'Get Coffee' and the mobile device then provides him with a map and directions. He then slides his finger to display a voicemail message that has been transcribed. The message displays, 'Can you approve the order today?' and the gentlemen then is presented with a dial that he scrolls to '40 Litres' and place the order with a click of a button. He then turns to an interactive advertisement, he places the mobile device... and is then prompted to donate '20 HK$'.

On the next scene it switches back to the woman in her hotel room where she walks towards a 'smart-desk' (similar to Microsoft Surface) and reaches for her mobile device which has a reminder activated. She then picks up a larger mobile device about the size of an open A4 magazine. The woman is working on a presentation where she is copying and pasting items with a touch of a finger as well as switching between pages with a slide of a finger. The woman then sends a message to a gentleman who seems to be working in a research type environment and he then calls her into a conference call where the gentleman can see two women also on the call. The gentleman then works with the information in a 3D like environment and

controls the information with hand gestures. Another gentleman approaches the researcher and they are able to transfer information between the two separate screens via finger slides. After they have collated the information the system makes a decision based on the information provided.

The next scene shows a child solving mathematical problems on a mobile device in an interactive fashion where the correct result resulted in a form of animation on the screen. A gentleman walks into the room and interacts with the fridge door. The child then does a search for recipes on her mobile device by typing, 'Help me find a Recipe' and shortly another application starts populating with recipes. The child then sends a message to her mother, who is the woman in the hotel room, to find a special recipe; the woman is the child's mother. The mother then picks up her mobile device and has a video conversation with her child. The scene then changes to the gentleman who touches the fridge door which becomes transparent and displays what's inside as well as what groceries have been ordered. The daughter then selects the option to find more recipes that are similar to apple pies, and the same information is displayed to the mother, which helps her decide on a recipe.

Video Title	Source	Category
Fabian Hemmert: The shape-shifting future of the mobile phone.	http://www.ted.com/talks/fabian_hemmert_the_shape_shifting_future_of_the_mobile_phone.html	Techno-utopianism

Hemmert demonstrates one future of the mobile phone - a shape-shifting and weight-shifting handset that 'displays' information nonvisually, offering a delightfully intuitive way to communicate. Fabian Hemmert studies the theory and philosophy of embodiment, resistance and thinghood.

Video Title	Source	Category
Jan Chipchase: The anthropology of mobile phones.	http://www.ted.com/talks/jan_chipchase_on_our_mobile_phones.html	Techno-utopianism

Nokia researcher Jan Chipchase's investigation into the ways we

interact with technology has led him from the villages of Uganda to the insides of our pockets. He's made some unexpected discoveries along the way. As principal researcher for Nokia, Jan Chipchase travels around the world and inside our pockets in search of behavioural patterns that will inform the design of products we don't even know we want.

Video Title	Source	Category
Arthur C. Clarke Predicting The Future in 1964.	http://www.youtube.com/watch?v=AOaZspeSBZU	Techno-utopianism

The above video is taken from a BBC Horizon programme in 1964, where Arthur C. Clarke predicts the future. This black and white video see's Clarke in front of the camera describing how the future will be in 1964. The video looks at various aspects of the future such as cities of the future.

Video Title	Source	Category
Mobile Technology.	http://www.youtube.com/watch?v=orPYB741sqY	Techno-Realism

The Mobile Technology video is a short animation video presenting statics and future predictions about mobile technology.

Video Title	Source	Category
Did you Know? – Mobile Stats. For Africa.	http://www.youtube.com/watch?v=5kamlf-uAHU	Techno-Realism

The 'Did You Know?' is a presentation on statistics with regard to increased use of mobile phones in Africa over the past five years.

Video Title	Source	Category
The Growth of Mobile: The Stats and figures will shock you!	http://www.youtube.com/watch?v=0aUQLIPdtg8	Techno-Realism

Sybase Inc. created the video and like the previous video presentations it also discusses statistics and makes predictions about the future based on various mobile statistics.

Top Selling Mobile Handsets in 2013

Part of the preparation for empirical analysis is tracking the top selling mobile phone handsets since 1992 when the first mobile phones came on to the market. By way of example the statistics for 2013 are given:

1. Samsung Galaxy S4, over 39 million sold
2. Apple iPhone 5, over 20 million sold
3. HTC One, 5 million sold
4. Nokia Lumia 520, over 4 million sold
5. BlackBerry Q10, 3 million sold
6. Sony Xperia M, 2.1 million sold

Mobile Phone Manufacturers

Only four mobile phone manufacturers, shown on table 2 below, account for millions of mobile applications (Ruiz 2013), directly available for download on the major platforms. Some appsare available for download for free whereas other apps require users to pay for them. Applications are available through their various branded stores is given on Table 2 below:

#	Mobile Application Manufacturer	"Store" Name	Logo	URL	Programming Language built on:
1	Apple	App Store (via iTunes)		Available in iTunes: http://www.apple.com /itunes/	Xcode Suite (supports C, C++, Fortran, Objective-C, Objective-C++, Java, AppleScript, Python and Ruby)
2	BlackBerry	App World		http://appworld.black berry.com/webstore/	Java
3	Google	Android Market		http://www.android.c om/market/#app~com .wsl.CardioTrainer	Java
4	Nokia	Ovi Store		https://store.ovi.com/	Symbian C++ & Windows Mobile[1]

Table 2: Mobile phone manufacturers in 2013 in alphabetical order

Mobile Technology Companies

Table 3 below shows 94 companies that in 2013 are active in the mobile communication technology (MCT) market, as hardware technology designers, producers, manufacturers or distributers. The information on the table was documented from a variety of sources – Internet web sites, electronic journal articles, printed journal articles and promotional brochures, to name a few. Because the MCT landscape is constantly changing due to forces of emergence, convergence and diversification, it is not possible to provide a definitive list at any particular time.

A	E	J		Neonode	Sonim Technologies
Acer Inc.	Ericsson	Jablotron		Nexian	Sony Mobile
AEG	Ericsson Mobile	John's Phone		Ningbo Bird	Spectronic
Alcatel Mobile	Ericsson Radio	Jolla		O	T
Apple Inc.	Evertek	Just5		Olivetti	Technicolor SA
Archos	F	K		Onda Mobile	Technophone
B	Fairphone	Karbonn Mobiles		Onida Telit	Telefunken
BenQ	Firefly	Kejian		P	V
BenQ-Siemens	Foxconn	L		Palm, Inc.	Vertu
BlackBerry	G	Lanix		Panasonic	Verzo
Brondi	G'Five	LG Cyon		Pantech	Videocon
Groupe	GeeksPhone	Lumigon		Pantech Wireless	VK Mobile
BYD Electronic	Twig Com	M		Peiker Acustic	Voxx International
C	Gigabyte	M.Mobile		S	W
CECT	Goldvish	MagCom		Sanyo	Walton
Celkon Mobiles	H	Meizu		Sendo	X
Cherry Mobile	HTC	Micromax Mobile		Sharp Corp	Xiaomi
D	Huawei	Mitsubishi Electric		Samsung	Y
Danger	I	MobiWire		Sanyo	Yota
DBTel	IGB Eletrônica	Modu		Sendo	Z
Digital Ocean	Inq Mobile	Motorola		Sharp	Zonda Telecom
Doro Telecoms	Inventec	N		Siemens	Zopo Mobile
	Iriver	NEC		Sitronics	ZTE
		NEC Casio Mobile		Sky Electronics	Zync Global

Table 3: Mobile technology companies in 2013 in alphabetical order

Besides the MCT providers listed in table 3, there are an unknown

(and perhaps unquantifiable) number of apps software programmers, using a variety of distribution channels to sell or give away apps.

Mobile Communication Technology Applications Being Tracked

Time span for mobile phone availability: 1992 – 2013.
Aspects of mobile phones being tracked:

- Mobile Advertising Applications
- Mobile Browsing Applications
- Mobile camera and video Applications
- Mobile Health Monitoring Applications
- Mobile Instant Messaging Applications
- Mobile Music Applications
- Mobile Payments Applications
- Mobile Search Applications
- Mobile TV and Smart TV
- Money Transfer Applications
- Multimedia Applications
- Near Field Communication Applications

Factors that Could Affect Mobile Communication Trends

Gartner (2013) identifies five factors that affect successful mobile instrument deployment:

1. Mobility
2. Interoperability
3. Cloud and Hybrid
4. Broad solution appeal

Prospective Model of Emergence to Account for the Evolution of Mobile Communication

Two prominent models used to study technological change are Venkatesh *et al.* (2003)'s Model of User Acceptance of Change shown in Figure 3 below, and Gartner (2013)'s Hype Cycle for Emerging Technologies shown in Figure 4 below:
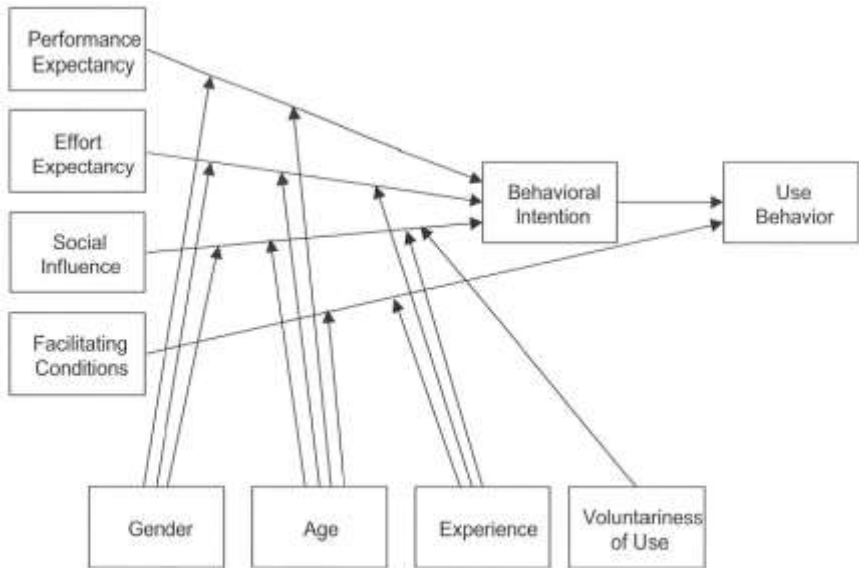
Figure 3: Venkatesh *et al.* (2003)'s Model of User Acceptance of Change

The Venkatesh technology adoption model allows the researchers to formulate questions in their research instruments that allow them to calculate the likelihood of adoption of the technology, relating to *technology-adopter variables* like the gender, age, level of experience of the adopter, the voluntariness of use and variables that relate to *personal expectations* (the adopter's expectations about the usefulness of the technology under consideration) and the *social influence* leverage that the technology provides, plus additional facilitating conditions. Arrows indicate which social factors ought to be correlated with which perceptual factors. Wamuyu (2010) and
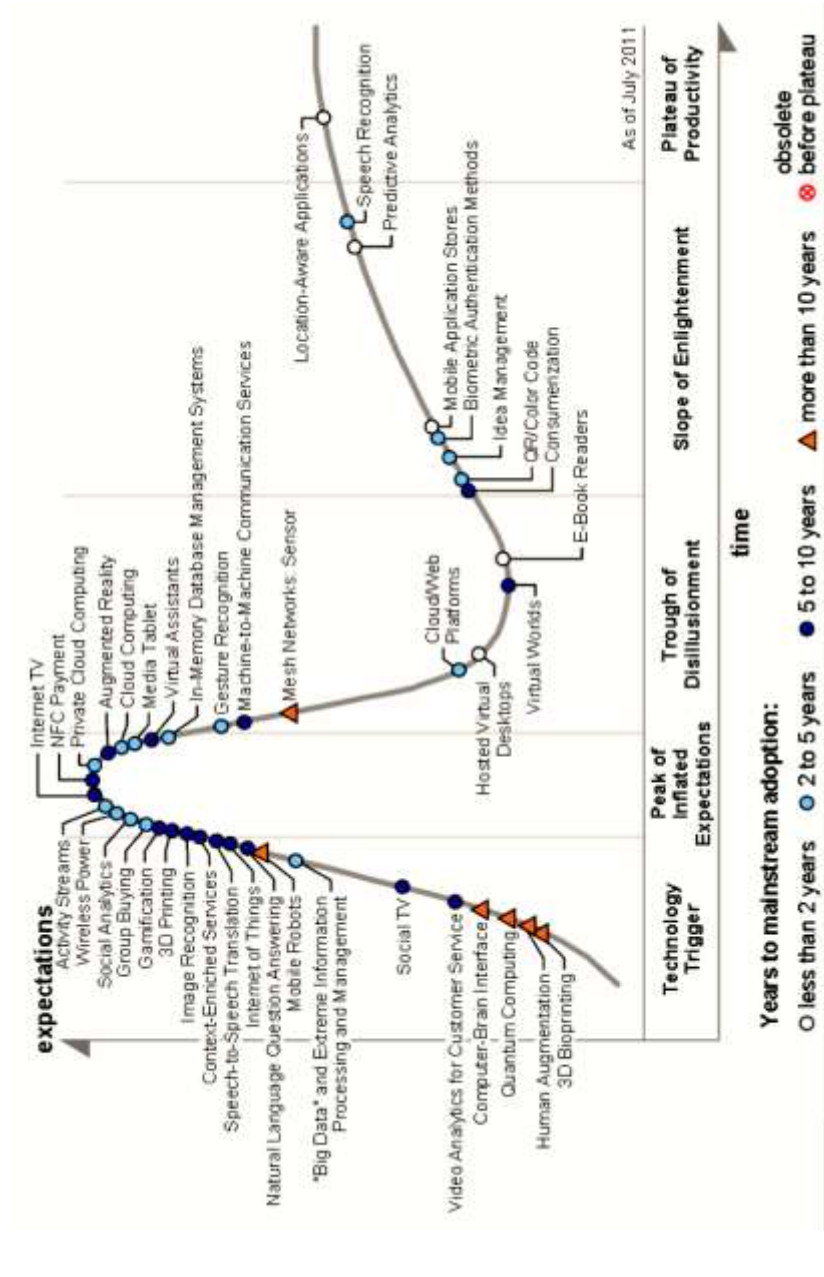
Figure 4: Gartner (2013)'s Hype Cycle for emerging technologies

Wamuyu and Maharaj (2011) show how the Venkatesh model can be applied to study technology adoption. The Venkatesh model however, focuses on end-user perspectives about technology adoption, not on technology *per se*.

The Gartner Hype Cycle for adopting emerging technologies, shown in Figure 4 above, plots in considerable detail, the adoption of a wide variety of emerging technologies against a dynamically adjusted sine curve, based on empirical data (Gartner Inc. 2013).

It is perhaps appropriate that I provide brief explanatory comments about sine wave graphs. Plotted along the vertical X-axis and the horizontal Y-axis, generic sine wave graphs are used to show changes over the longitudinal time-lapse t-axis, shown in Figure 5 below. Sine waves are typically used to represent the propagation of light waves, changes in air pressure as sound travels through the air, or fluctuations in the price of a particular share over time:
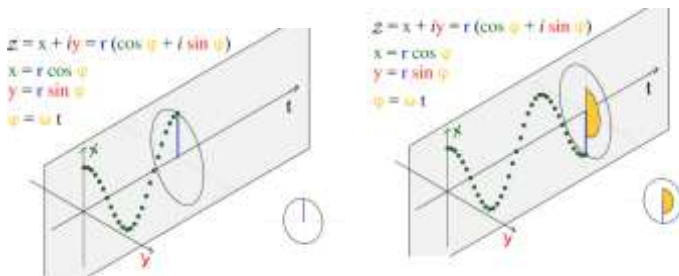
Figure 5: Sine wave propagation of changes over time adopted from Wikipedia 2013 entry, Sine Wave

For natural phenomena like light waves the repetitive cycles remain concentric as long as there is a constant light source. In the case of share price trends, or people's expectations of different technologies, the sine curves are dynamically adjusted to reflect changing expectations.

On the vertical X-axis of the technology emergence hype cycle graph in Figure 4 above the measured degree of expectations expressed by respondents regarding a technological innovation is plotted. On the horizontal Y-axis the upward and downward trajectories of the sine wave are determined for each of the factors as respondent perceptions about it change. time that lapsed since the introduction of the innovation. Each plot point on

the curve represents aggregated group-data regarding the expectations that respondents reported about a specific technology.

Over time the plot-points for specific technologies vary according respondents' changed expectations regarding them as they and their performance become better known. For instance, based on survey calculations, at the onset point of the Gartner sine curve there are low expectations for four new technologies: *3D Bioprinting* (using three-dimensional body tissue printing techniques to generate DNA encoded body parts (Singleton 2013; Miller 2013); *Human Augmentation* (using technology to enhance human abilities in order to temporarily or permanently overcome physical limitations through cybernetics and nanotechnology, as is the case with powered exoskeletons – mobility enhancing machines that serve as external frameworks (comparable to the exoskeletons of insects) for enhanced limb movement to deliver energy and extra strength to lift heavy objects); *Quantum Computing* (using quantum-mechanical phenomena like superposition and entanglement to perform operations on data (Ceder & Persson 2013), and *Brain-Computer Interface* through a neural implant, to serve as a direct communication pathway established between the subject's brain and an external device to assist, augment, or repair disrupted human cognitive or sensory-motor functions (Budinger & Budinger 2006)).

Referring back to Figure 4, *Virtual Worlds* and *E-Book Readers* are positioned on the other side of the sine curve in the Trough of Disillusionment, with equally low low expectations as the yet unknown biotechnology devices taht have not lived up to the initial hype (high expectations) shortly after they were introduced. In similar vein, at the top of the sine curve peak are *Internet TV* and *Near Field Communication* (NFC), *Payment* for goods and services by entering the amount owed on the appropriate App installed on a smart phone and touching it against the receiving device of the vendor to conclude the transaction).

Accordding to Fenn & Huang (2011), Gartner Hype Cycle analysis has been used to survey respondents' expectations about a wide variety of technological, social and business innovations: communication service provider infrastructure, consumer devices, mobile devices, mobile applications, application security, consumer technologies, smart city technologies, emerging technologies, e-commerce, human-computer interaction, and solar energy, to name but a few.

Conclusion

1. While the Gartner Hype Cycle model seems to be more flexible than the Venkatesh model to study expectations about innovations, like the Venkatesh model it has the problem of focussing on end-user expectations rather than on the actual attributes of mobile communication technologies.

2. The study of technology emergence ought, at the outset, be grounded on the hard facts of how and when mobile communication technologies emerge, converge and are diversified into next-generation, feature-rich technologies. Only thereafter can sense be made of the soft human dimension of change - inferences about how technological innovations trigger changes in the perceptions, opinions and preferences of end-users that lead to changes in their purchase and usage behaviours.

3. It may therefore be more appropriate to use qualitative content analysis of documents to gain a proper understanding of mobile technology change before technology adoption dynamics can be studied.

4. It stands to be seen if the Gartner Hype Cycle is flexible enough be adapted to study technology change itself rather than perceptions about the consumer behaviours that drive technology change.

In summary, the exploratory review presented in this article of the elements that constitute the emergence, convergence and diversification of mobile communication technology hardware as well as software applications (apps), provides the basis for an empirical study about the stages of technology innovation shown in Figure 6 below. Whatever model is adopted, adapted or devised to guide and constrain empirical research on mobile communication trends, it should be based on general philosophical principles regarding emergent properties, that were already formulated by Mill in1843 and ought to be taken account of.
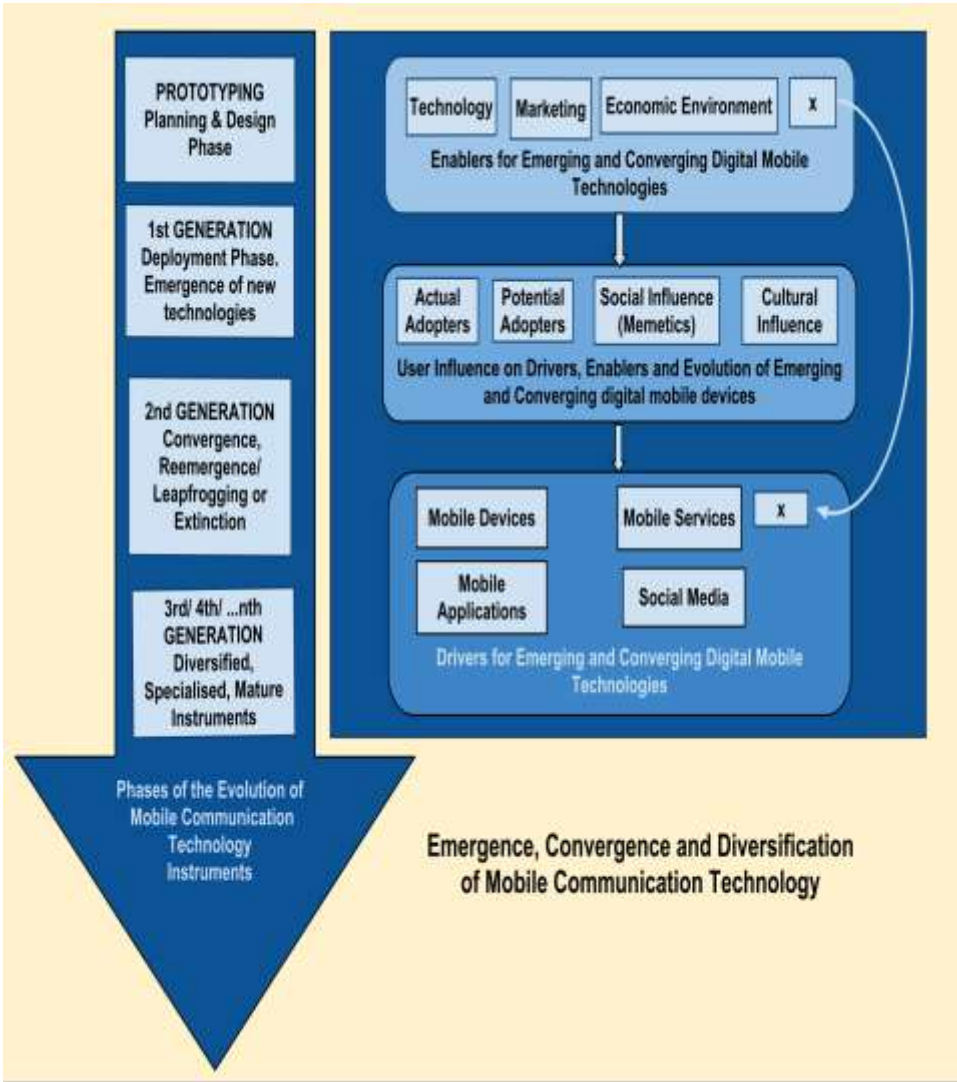
Figure 6: Phases of emerging and converging mobile communication change for which a theory of change should account (author's own formulation)

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