

Comparison of Web and Telephone Survey Response Rates in Saudi Arabia

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Abstract: A study was conducted to compare the response rate of telephone interview and Web Survey in Saudi Arabia utilizing Internet usage statistics, as well as experimental design. Official data shows that the reason that led the majority of Saudi people to choose not to interact with Web Survey similarly to the telephone interview is not technical due to the lack of Internet coverage, but rather cultural. Furthermore, the experimental part demonstrates three main findings. First, the response rate to the Web Survey is significantly lower than to the telephone interview. Second, Saudi males participated significantly more than females especially with the Web Survey though both had the same level of Internet access. Third, the average response rate of telephone interview is significantly above 95% for both genders, whereas the average response rate of the Web Survey is about 30%.

Keywords: Web survey; telephone survey; response rate; Saudi Arabia.

1. Introduction

Survey research is one of three main research types (the other two are: experimental and historical) that are globally used in many disciplines including: education, political science, sociology, public administration, marketing, and public health. Traditionally surveys have been carried out using three main methods of data collection, face-to-face interviews, telephone interviews, and mail questionnaires (Fricker, Galesic, Tourangeau, and Yan 2005). However, over the last ten years the picture changed as the Web Survey became widely used in social science and educational research (Couper 2000). Web Surveys are proliferating at a rapid pace, especially in marketing research, and a further increase can be expected (Loosveldt, and Sonck, 2008). A study showed that in the year 2000, about 5% of all market research conducted in Western Europe and the U.S. was conducted via the Internet. This figure was expected to rise to about 8% in the year 2001, and to reach 50% by 2004 (Poynter 2001).

In Saudi Arabia, however, the picture is a bit different. Researchers still use survey research frequently in social sciences, but they utilize mostly mail questionnaires and secondary telephone interviews as data collection tools for surveying the public. The research methodology reasons behind that are the coverage bias and low response rates. The majority of researchers in Saudi Arabia believe that both conventional survey modes (mail questionnaire and telephone interview) have higher levels of coverage and response rates than any other traditional or modern modes. In addition, they think that the telephone interview is an excellent competitor to the mail questionnaire especially in marketing research. Researchers in Saudi Arabia assume that it is not an appropriate time to use Web Surveys because of the fact that significant numbers of people do not have access to Internet, or choose not to use the Internet (i.e., technical infrastructure or cultural soft factor).

The above stated concerns about utilizing Web Survey in Saudi Arabia are logical and important from research methodology perspectives. The sense and importance come from the fact that there is a significant cross-cultural difference in the Internet usage, the considerable impact of the survey mode on data cost and accuracy, and the lack of literature on such studies about Saudi Arabia and similar societies. Looking at the effect of survey modes from different cultural perspectives helps research methodologists and interested researchers to understand intensely the connection between data-collection components: researcher, respondents, and survey modes, and their effects on data cost and accuracy.

Therefore, the paper was designed to answer two research questions. First, is there an Internet coverage bias in Saudi Arabia comparing to telephone landlines?. Second, is there a significant difference between the response rate means of Web and Telephone Survey modes? Two different research methods were used to answer the questions. The Internet and telephone landlines coverage bias is negotiated using published statistics, and the comparison between web and Telephone Survey is discussed from the response rate point of view utilizing an experimental design (the two-way factorial design).

The article is organized as follows: section 2 reviews the literature relating to the research problem, section 3 demonstrates the current status of the Internet and telephone landlines coverage in Saudi Arabia, sections 4

and 5 describe thoroughly the method used in the experimental part and goes through the results, and section 6 presents conclusions and some final advice.

2. Literature review

The increasing popularity and wide availability of World Wide Web technologies provide the researcher with vehicles for improving research methods. Nowhere is this truer than in the domain of survey research (White, Carey, and Dailey, 2000). Consequently, new types of surveying was established in the field of research methodology and called Web Survey, which uses the Internet (especially the World Wide Web) to collect data from a sample of the target population employing one of the probability or nonprobability sampling techniques. Web Surveys may be conducted by means of interactive interviews or by questionnaires designed for self-completion. Electronic one-to-one interviews can be conducted via e-mail or using chat rooms. Questionnaires can be administered by e-mail (e.g. using mailing lists), by posting to newsgroups, and on the Web using fill-in forms (Eysenbach and Wyatt; 2002). Publishing the questionnaire on the Web is our concern.

The skills required to produce a Web Survey are different from those required to construct conventional mode surveys. Web Survey design focuses more on programming ability and Web page design rather than traditional survey methodology (Couper, 2001). Because of the technology involved in developing Web Surveys, leadership has come from people with a background in technology, not the survey methodology professionals (Gunn, 2002). Thus, the effect of variables related to Web Survey on response rate and data accuracy has been of interest to research methodologists and applied statisticians and continue to receive considerable attention in the recent research methodology literature (see for example, Coomber, R. 1997; Cook, Heath, and Thompson, 2000; Couper, 2000; Dillman and Bowker, 2000; Christian, Dillman, and Smyth, 2007; Ganassali, 2008; Converse, Wolfe, Huang, and Oswald, 2008).

The literature of Web Survey has grown to the point that is not possible be covered in detail in one work. Thus, general points will be highlighted below and the details left for interested readers.

The variables, which their effect was investigated, cover mainly three general factors: technical, methodological, and social. The technical factor consists of all variables related to software and hardware needed for Web Survey programming and designing such as method of presentation (screen-by-screen or scrolling), multimedia capability, graphics, and colors. The effect of these variables on data accuracy and cost is the chief concern of the research methodology literature. For example, it has been noted that software, hardware, network speed, server timeout, password or ID confusion, and display variation from browser to browser can all influence responses to Internet tool surveys. Furthermore, it is found that incorporating advanced page layout design features to create Web Surveys would not necessarily translate into higher response rates or better quality data when compared to simply designed Web Surveys. For more details in this concern, reader is advised to review works such as Dillman, Tortora, Conradt, and Bowker, 1998; Barron and Siepmann, 1999; Schleyer, and Forrest, 2000; Couper, 2001; Couper, Traugott, and Lamias, 2001; Truell, 2003; Christian, Dillman, and Smyth, 2007.

The methodological factor covers variables like cost, coverage, Web-sampling, and validity. The key concern of the related literature is to examine the effect of such variables on Web Survey outcomes in terms of quality and efficiency, and compare them with outcomes of traditional survey modes. For instance, Schleyer and Forrest (2000) calculated the cost-effectiveness of a Web Survey as compared to an equivalent mail survey. The results of their comparison revealed that the Web Survey was 38% cheaper than an equivalent mail survey would have been. By contrast, Couper et al. (1999) noted that they did not achieve the expected cost savings in their study due to high startup costs, technical problems, and low response rates.

Additionally, Schonlau et al. (2002) reported that surveys using Internet tools have used census, non-probability, and probability approaches for selecting participants. They also noted that closed populations (such as universities, hospitals, and banks) might provide researchers with the best opportunity to select a probability sample because every member of the target population can be both identified as being a member of the target population and having access to both email and the Web. Thus, it would be possible to select a random sample from such a closed population. Other researchers have discussed various non-probability sampling techniques for use with Internet tool surveys. Recommended studies for interested readers to review are: Schillewaert, Langerak, and Duhamel, 1998; Bradley, 1999; Couper, 2000; Cobanoglu, Warae, and Morec, 2001; Dillman and Bowker, 2001; and Schaefer, 2001.

The social factor contains all the variables that are linked to social behaviors, attributes, facts, relations, and actions such as age, gender, ethnicity, socioeconomics, level of education, ethical issues, and cross-cultural Internet usage. Effects of the social factor on the quality of Web Survey results are the base of all scientific works. As an illustration, in the USA Internet users are more likely to be young, male, white, more educated, wealthy, city residents and the parents of children living at home (Lenhart et al. 2003; Vehovar et al. 1999; Taylor 2005). Moreover, Wasserman and Richmond-Abbott (2005) found that access to the web was independent of gender, but was related to education, race, income, age, and marital status. They also found that women were less likely than men to chat on the web, but were slightly more likely to use email, and they utilized different types of sites than men. Women access the web as frequently as men, but they communicate on the Internet differently to men, and are online less than men. Finally, it has been found that knowledge related to web use is an important independent variable that influences Internet use by men and women.

In addition, literature confirms that there are cross-cultural differences in Internet usage. For example, Hermeking (2005) indicates that in early 2005, the percentage of the population using the Internet was in the USA, 48%, in Canada and Australia, 46%, in Sweden, 53%, in Germany, 36%, in the UK, 38%, in France, 26%, in Spain, 22%, in Japan, 29%, and in Brazil only 6%. Moreover, he indicates that although those figures change continuously over time, there is a clear continuum of descent from high Internet usage in the (developed, western) North to low Internet usage in the (often less developed, non-western) South due to technical infrastructure, income per capita, and cultural soft factors.

For more details about the effect of social factors on dealing with Web Surveys, the reader is referred to (Bosnjak and Tuten, 2001; Lee, Lee, Kim, and Kim, 2002; Ono and Zavodny, 2003; Wasserman and Richmond-Abbott, 2005; Ono, 2005; Hermeking, 2005; Ono and Zavodny, 2005; Wasserman and Richmond-Abbott, 2005; Hargittai and Shafer, 2006).

The effects of Internet coverage, social thought towards Internet usage, and gender differences in Internet access variables on quality of Web Survey outcomes are the prime apprehension of the research methodologist and researcher in any society, and should be more apprehension in less developed societies such as Saudi Arabia. Moreover, the lack of Web Survey literature that study the effect of social and methodological factors in these societies on the quality of Web Survey results are main reasons to conduct the current study.

3. Internet coverage

In order to study the effect of the Internet coverage bias on Web Survey results in Saudi Arabia, one needs to compare the Internet usage development with landlines telephone trend among people in Saudi Arabia since the Internet was officially made available to the public. That is because Telephone Survey is the competitor research methodology to Web as well as mail survey in Saudi Arabia especially in marketing research.

Internet was first introduced to Saudi Arabia in 1994 when state academic, medical, and research institutions gained access to it. Internet was officially made available to public in 1997 by a ministerial decision, and public access finally debuted in 1999. In December 2000 there were about 200 000 Internet users, by 2005 the number had grown to 2,54 million, making the growth 1170 %. The most recent official statistics indicate that about 4.8 millions Internet users in Saudi Arabia as of December, 2006 which makes Saudi Arabia one of the fastest growing Internet markets in Middle East. This is a bit larger number than telephone lines subscribers in Saudi Arabia, which is around 4 millions as of 2006 (i.e., about 16% of the population have landlines) (see Figure 1) (Communications and Information Technology Commission annual report, 2006).

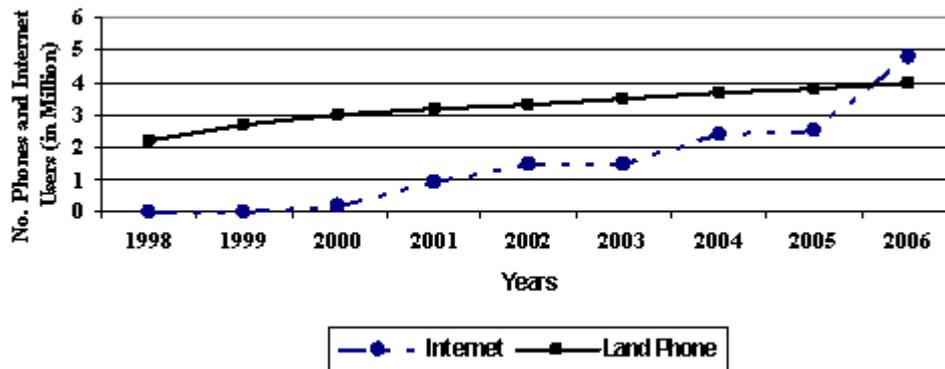


Figure 1: Land phone subscribers and Internet users in Saudi Arabia from 1998 to 2006, Source: The Communications and Information Technology Commission (CITC) in Saudi Arabia annual report 2006.

The number of Internet users in Saudi Arabia is estimated to be the largest among Arab countries, as shown in Figure 2. In terms of Internet penetration rates, however, Saudi Arabia (19.6%) ranks fourth in the Arab World (after United Arab Emirates, Kuwait and Bahrain). Saudi Arabia Internet penetration rate is higher than Arab countries average (7%), developing countries average (10%) and global average (16%), but is well below the developed countries average Internet penetration rate of around 60% (Communications and Information Technology Commission annual report, 2006).

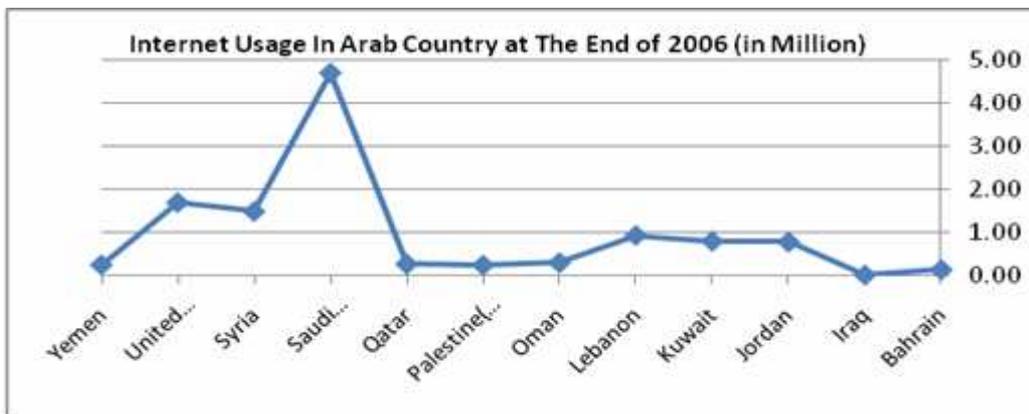


Figure 2: Internet users in Arab World as of December, 2006. Source: The Communications and Information Technology Commission in Saudi Arabia annual report 2006.

The future of Internet in Saudi Arabia is estimated to keep on growing rapidly. In addition to the new Internet structure that can reduce the prices of Internet access, there are also other factors that can speed up the growth of Internet usage in Saudi Arabia. One reason for the growth is that 60 % of the Saudi population comprises teenagers and young adults who are adapting to new technologies faster than expected (Central Department of Statistics, 2005). As the usage of Internet grows in all the Arabic countries, the amount of Arabic content on the Internet will grow as well. This in turn will attract more and more Saudis to join the Internet. Furthermore, several universities and colleges in Saudi Arabia are now adopting e-learning as a part of their curriculum, which will expand Internet usage annually over the next five years. As more banks and companies will offer more of their services online, more customers are drawn to using these services.

Linking the current Internet usage statistics and future prediction with the attitude of Saudi researchers towards Web Surveys, one can see the weakness of the coverage bias justification that says "*significant numbers of people do not have access to Internet*". Thus, from research methodology perspective, it is true to say that there is no an Internet coverage bias comparing with telephone coverage in Saudi Arabia.

However, regarding to low response rate justification, which says "*significant number of people choose not to interact with Web questionnaire*", experimental research should be conducted to investigate its appropriateness. Therefore, an experimental study was designed to compare Web Survey with a Telephone Survey in terms of response rate mean at work, where every one has direct access to Internet and use it frequently. This is done because literature indicates that men and women are equally likely to access the Internet from work. Among Internet users who work full-time or part-time, 65% of men and 66% of women use the Internet at work (Princeton Survey Research Associates, 2005).

Explicitly, the experimental part of the study attempts to answer two main research questions: Is there a significant difference between Web and Telephone Survey response rates?, and Is there a significant interaction between survey modes and respondent gender?. Next section will answer those questions.

4. Experimental design

4.1 Design

In the study, the two-group post test-only randomized experiment was applied, featuring telephone interview as well as Web Survey to collect data from a group of female and male subjects. The design is a factorial design with two independent variables (survey modes and respondent gender) and one dependent variable (response rate). This design is usually used in educational and medical settings to determine whether the two groups are different after the program. One of the benefits of this design is it is relatively inexpensive, strong against the single-group threats to internal validity (history, maturation, testing, instrumentation, and regression), and strong against all of the multiple-group threats (selection-history, selection-maturation, selection-testing, selection-instrumentation, and selection-regression) except for selection-mortality. However, in the study, the selection-mortality threat is controlled for because the treatment (survey mode) is not a noxious or negative one, or the control group condition is painful or intolerable.

4.2 Subjects

In order to answer the research questions utilizing appropriate statistical design and analysis procedures, the needed sample size was determined using the statistical formula presented in Kirk (1995, p: 399-402). The total sample size (n) required to have appropriate Type I error ($\alpha = 0.05$), good statistical power ($1 - \beta = .80$) to deduct mean differences, and large effect size ($f = 0.40$) is 52 subjects.

A simple random sample of a size 52 was gotten from a list of all instructors (trainers) at the Institute of Public Administration (IPA), Riyadh, S.A.. The list was obtained from the computer department in a softcopy. Participants tended to have either Masters or Doctorate degree, be between 25-45 years old, and half of them were female. At the IPA, each trainer (faculty) has an equipped office with almost everything needed: good furniture, powerful PC, Intranet and Internet access, telephone line ... etc. The key points are that each subject has his/her own telephone line, a PC with Internet access, and comparable level of computer skills.

The age range and equality of computer skills and Internet access among subjects helped to control for two of internal validity threats: maturation and statistical regression, which increases the confidence that the dependent variable's results come from the manipulation of the independent variables not some other variable(s).

4.3 Instrumentation

The telephone interview form (questionnaire) and Web Survey designed to be identical in content, wording, questions order, and instructions (i.e., the difference between the two surveys is only the mode). The data collection instrument prepared to contain 44 items in three different forms: short (one word or digit) answer, yes/no, and multiple choices questions. All questions require no specific knowledge background and cover two main factors: personal and job satisfaction. Although most of the instrument items were personal type questions, around 8% of the sample size refused to answer questions via phone about 10% of them for privacy reasons. In order to evaluate the validity of the data collection instrument, it was sent to three IPA faculty members with strong research methodology background to judge questions' sensitivity level, wording, logic, and knowledge background requirements. Few changes were made to meet judges' feedbacks.

4.4 Procedures

The first group (control group) was introduced to Telephone Survey mode. Two data collectors (one male and one female) with a bachelor degree and previous experience in data collection were hired to interview subjects via phone. Both data collectors were asked to use specific interview instructions and questionnaire to minimize respondent - data collector interaction effect. The second group of subjects (treatment group) were sent email messages inviting them to participate in field research via responding to a Web Questionnaire. The message sent to the subjects contained an invitation and a link to the survey Website. Follow-up contacts for non-respondents in the Internet mode were made by email twice. In order to control for positive (or negative) biasness especially that of the researcher was well known to most of subjects, 2 messages (the original and the second follow-up) were signed by "The Researcher". The third follow-up

message was signed by the researcher's real name because some subjects refused to respond to unidentified researcher. The name of the researcher motivated 3 (i.e., about 11%) more respondents to participate in the study.

In Saudi Arabia, where values have strong effects on social life, male-female verbal communication is limited. Thus, and in order to control for research-respondent interaction threat, a female data collector was hired to phone (interview) female subjects only, and a male data collector was hired to phone (interview) male subjects.

5. Results

Missing data is a part of all research types (Oh, 2003). In surveys, for example, missing data occurs when a respondent does not participate in any part of the survey (unit non-response) or does not answer particular question(s) (item non-response). It occurs for several reasons: illness, language problem, privacy issues, insufficient time, no interest, or lack of availability (Fowler, 2002, p: 40; Oh, 2003).

Missing data is an issue that can cause serious problems such as: decreases the statistical power (the probability of rejecting the null hypothesis when it is false), increases the Type I error (the probability of rejecting the null hypothesis when it is true), and raises the possibility of biasness. Most statistical procedures automatically eliminate cases with missing data, which leads to have inadequate statistical power to detect the difference or no enough data to perform the analysis at all. Or, research results may be misleading if the cases analyzed are not a random sample of all cases. That is because whenever segments of the target population do not respond, they become under represented in the data.

5.1 Measure of interest

Every survey question without an answer is a missing data point, and the total sum of all missing data points is an indication of a data collection effort (McCarty, 2003). The response rate, which is also known as *completion rate* or *return rate*, is often taken as a measure of goodness (Schonlau, Fricker, and Elliott, 2001, p: 16). The response rate is the measure of interest in this study because it is likely to be much more salient in the selection of a data collection procedure than other considerations (Fowler, 2002, p: 65). That is, when other variables held constant, the data collection procedure with high response rate is preferred over other procedures available to the researcher.

Response rate has several definitions and, accordingly, different computation formulas (the reader is referred to AAPOR, 2006 for details on operational definitions and formulas). For unit nonresponse definitions that stated above, for instance, response rate refers to the ratio of number of people who answered the survey divided by the number of people in the sample. However, for item nonresponse, response rate refers to the ratio of number of answered questions divided by the total number of questions in the questionnaire. Both are usually expressed in the form of a percentage (Wikipedia, The Free Encyclopedia, 2006), the later definition is adapted in the study because the sample size is small and item nonresponse is more likely to occur than unit nonresponse in telephone interview.

Table 1 shows key descriptive statistics of Web and Telephone Survey response rates, and Figure 3 shows survey mode and respondent gender interaction. An interaction between mode and gender is said to exist if the mean differences among survey modes are not similar for males and females.

Table 1: Descriptive statistics of Web and Telephone Survey response rates

Survey Mode	Web			Telephone			Total			
	Mean	S.D.	n	Mean	S.D.	n	Mean	S.D.	n	
Gender	Male	50.51	48.78	13	98.53	2.016	13	74.52	41.76	26
	Female	15.09	35.27	13	97.68	0.803	13	56.39	48.69	26
<i>Total</i>	32.8	45.45	26	98.11	1.57	26	65.46	45.83	52	

S.D. is the standard deviation, n is the sample size.

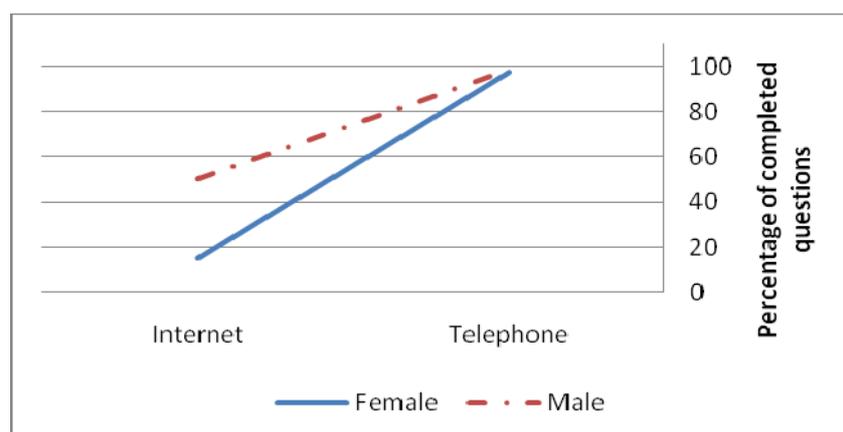


Figure 3: Interaction between gender and survey mode based on percentage of completed questions.

Table 2: Usual two-way ANOVA table that shows significance differences between survey modes (telephone vs. web) and gender, and their interaction.

Source	df	F	p-value
Mode	1	61.119	.000*
Gender	1	4.714	.035*
Mode × Gender (Interaction)	1	4.281	.044*

* Significant result at $\alpha = 0.05$, Dependent variable is the No. of completed questions

5.2 Data analysis

Data collection using Web Survey and telephone interview was performed precisely as described in the previous section. Table 1 and 2 show that, in general, males have significantly higher response rate average to research questionnaire than females ($F = 4.714$, and p -value = 0.035), and have incomparable variation values (i.e., males have significant less variance than females; *Levene's Test* = 215.683, and p -value = 0.000). That means male respondents, in S.A., are expected to answer more survey questions (by any mode; telephone or Internet) than females, and their individual response rates is closer to their mean than female individual response rates.

Moreover, both tables display that, on average, Saudi respondents react to Telephone Survey significantly higher than Web Survey ($F = 61.119$, and p -value = 0.000). Which indicates that researcher is recommended to employ Telephone Survey in Saudi Arabia rather than Web questionnaire, though the second mode is significantly cheaper and faster than the first mode. Table (2) and Figure (1) demonstrate that there is a significant interaction between survey mode and gender. That is, Web Survey encourages Saudi male respondents to answer questionnaire questions more than females, though both genders have the same level of Internet access.

Table 1 illustrates the little difference in both statistics between males and females in terms of Telephone Survey response rate. Data shows that males tend to cooperate with the data collectors more than females, yet the difference is not statistically significant ($t = 1.419$, and p -value = 0.176). In addition, the variation within males' response rate is significantly higher than females at $\alpha = 0.01$ (*Levene's Test* = 24.059, and p -value = 0.000). This indicates that females are likely to cooperate with data collection in similar levels, whereas males' collaboration probability ranges between no cooperation with data collector complete cooperation in the same study. This also means that the researcher can know the cooperation level of female subjects from the beginning of the interview, which has a positive effect on minimizing the data collection cost. Whereas knowing the level of the cooperation of male subjects from the beginning of the interview is not easy, which increases the data collection cost.

Table (1) and (2) demonstrate that the response rate of Web Survey for both genders is significantly low comparing to telephone questionnaire ($F = 61.119$, and p -value = 0.000) with significant difference between the two standard deviations (*Levene's Test* = 215.683, and p -value = 0.000). That is, researcher utilizing Web Survey in Saudi Arabia unnecessarily expect significantly ($t = -1.929$, and p -value = 0.033) high unit

nonresponse rate (missing data occurs when respondent does not participate in any part of the survey). The result tells the reason behind the current lack of employing Internet in Saudi survey research industry, supports the *hypothesis* says "it is not an appropriate time to use Web Survey in Saudi Arabia because of the fact that significant numbers of people choose not to use the Internet (i.e., low response rate)".

6. Conclusion

The study finds that in Saudi Arabia, Internet coverage is not an issue comparing it to telephone landlines. In contrast, current official statistics shows that the number of Internet users is higher than telephone landline subscribers and its future is promising. This indicates that the shortage of using Web Survey in Saudi Arabia is due to some cultural factors (i.e., thoughts among people and a cross certain gender) rather than technical infrastructure (geographical coverage).

In other words, results from the experimental part of the study show that a Web Survey achieved a significantly lower (approximately 70%) response rate than telephone interviews. Moreover, it shows that males interact significantly higher than females with Web Survey (i.e., there is a statistical significant interaction between survey mode and respondent gender). This outcome along with the number of Internet users in Saudi Arabia, confirms the assumption that the reason behind the difference between the two means is the majority of Saudis choose not to response to Web Survey *not* because of Internet coverage bias, but because they did not want to.

With respect to Telephone Interview, the study demonstrates that there is no significant difference between the mean of males and females response rates, and both means are above 95%. The result also shows that data collection cost could be minimized by interviewing females more than males due to significant differences between standard deviations of telephone interview response rates according to gender. Therefore, researchers are recommended to employ telephone interviews to survey the public in Saudi Arabia rather than Web Survey though the second mode is more accessible.

References

- Baron, Jonathan and Siepmann, Michael, 1999 "Techniques for Creating and Using Web Questionnaires in Research and Teaching", [online], <http://www.psych.upenn.edu/~baron/examples/baron4.htm>.
- Bradley, N. 1999 "Sampling for Internet Surveys: An Examination of Respondent Selection for Internet Research", *Journal of the Market Research Society*, Vol 41, pp 387-395.
- Cobanoglu, Cihan, Bill Warde, and Patrick J. Moreo. 2001 "A Comparison of Mail, Fax, and Web Survey Methods", *International Journal of Market Research*, Vol 43, pp 441-52.
- Cook, C., Heath, F., & Thompson, R. L. 2000 "A meta-analysis of response rates in web-or internet-based surveys", *Educational and Psychological Measurement*, Vol 60, pp 821-836.
- Coomber, R. 1997 "Using the Internet for Survey Research", *Sociological Research Online*, 2, 2 <http://www.socresonline.org.uk/socresonline/2/2/2.htm1>.
- Couper, M. P. 2000 "Web Surveys: A Review of Issues and Approaches", *Public Opinion Quarterly*, Vol 64, No. 4, pp 464-494.
- Couper, M. P., Blair, J., and Triplett, T. 1999 "A comparison of mail and e-mail for a survey of employees in U.S. statistical agencies", *Journal of Official Statistics*, Vol 15, No. 1, pp 39-56.
- Couper, M.P. 2001 "Web Surveys: the questionnaire design challenge", Proceedings of the 53rd session of the ISI. [online], <http://isi.cbs.nl/iamamember/CD2/pdf/263.PDF>.
- Couper, Mick P. Traugott, Michael W. and Lamias, Mark J. 2001 "Web Survey Design and Administration", *Public Opinion Quarterly*, Vol 65, pp 230-253.
- Dillman, Don A. and Bowker, Dennis K. 2001 "The Web Questionnaire Challenge to Survey Methodologists", [online], http://survey.sesrc.wsu.edu/dillman/zuma_paper_dillman_bowker.pdf.
- Don A. Dillman and Dennis K. Bowker, 2001 "The Web Questionnaire Challenge to Survey Methodologists," [online], http://survey.sesrc.wsu.edu/dillman/zuma_paper_dillman_bowker.pdf.
- Don A. Dillman, Robert D. Tortora, John Conradt, and Dennis Bowker, 1998 "Influence of Plain vs. Fancy Design on Response Rates for Web Surveys," presented at Joint Statistical Meetings, Dallas, Texas, [online], <http://survey.sesrc.wsu.edu/dillman/papers/asa98ppr.pdf>.
- Eysenbach, G. and Wyatt, J. 2002 "Using the Internet for Surveys and Health Research", *J Med Internet Res*. 4, No. 2): e13. book. [online], <http://www.pubmedcentral.nih.gov/articlerender.fcgi?artid=1761932>.
- Fowler, F.J. Jr. 2002 "Survey Research Methods", 3rd Edition. Thousand Oaks: Sage.
- Ganassali, Stephane 2008 "The Influence of the Design of Web Survey Questionnaires on the Quality of Responses", *Survey Research Methods*, Vol 2, No. 1, pp 21-32
- Gunn, Holly 2002 "Web-based Surveys: Changing the Survey Process by", *First Monday*, Vol 7, No. 12). [online], http://firstmonday.org/issues/issue7_12/gunn/index.html.
- Gupta, S. 1999 "Online research: Results from the first Acorn-IIR survey of online research", [online], <http://www.iir.acornis.com/survey>.

- Hargittai, E. and Shafer, S. 2006 "Differences in Actual and Perceived Online Skills: The Role of Gender", *Social Science Quarterly*, Vol 87, No. 2, pp 432-448.
- Hermeking, M. 2005 "Culture and Internet consumption: Contributions from cross-cultural marketing and advertising research", *Journal of Computer-Mediated Communication*, , Vol 11, No. 1), article 10, [online], <http://jcmc.indiana.edu/vol11/issue1/hermeking.html>.
- Leah Melani Christian, Don A. Dillman, and Jolene D. Smyth. 2007 "Helping Respondents Get It Right the First Time: The Influence of Words, Symbols, and Graphics in Web Surveys", *Public Opinion Quarterly*, Vol 71, pp 113-125.
- Lee, Y., Lee, I., Kim, J., and Kim, H. 2002 "A Cross-Cultural Study on The Value Structure of Mobile Internet Usage: Comparison Between Korea and Japan. *Journal of Electronic Commerce Research*, Vol 3, No. 4, pp 227-239.
- Lenhart, A., Horrigan, J., Rainie, L., Allen, K., Boyce, A., Madden, M., et al. , No. 2003). *The Ever-shifting Internet Population; A New Look at Internet Access and the Digital Divide*. Washington DC: Pew Internet and American Life Project.
- Loosveldt, Geert and Sonck, Nathalie. 2008 "An evaluation of the weighting procedures for an online access panel survey", *Survey Research Methods*, Vol 2, No. 2, pp 93-105.
- McCarty, Christopher 2003 "Differences in response rates using most recent versus final dispositions in Telephone Surveys", *Public Opinion Quarterly*, Vol 67, pp 396-406.
- Michael M. Bosnjak and Tracey L. Tuten, 2001 "Classifying Response Behaviors in Web-based Surveys," *Journal of Computer-Mediated Communication*, Vol 6 , No. 3.
- Mick P. Couper, Frederick G. Conrad, and Roger Tourangeau. 2007 "Visual Context Effects in Web Surveys", *Public Opinion Quarterly*, Vol 71, pp 623-634.
- Mick P. Couper, Michael W. Traugott, and Mark J. Lamias, 2001 "Web Survey Design and Administration," *Public Opinion Quarterly*, Vol 65, pp 230-253.
- Oh, Jeong-Eun 2003 "*Handling Missing Data in Research Studies of Instructional Technology*", Paper presented at the Annual Meeting of the American Educational Research Association, Chicago, IL, April, pp 21-25.
- Ono, H. 2005 "Digital Inequality in East Asia: Evidence from Japan, South Korea, and Singapore", *Asian Economic Papers*, Vol 4, pp 3, 116-139.
- Ono, H. and Zavodny, M. 2003 "Gender and the Internet", *Social Science Quarterly*, Vol 84 , No. 1, pp 111-121.
- Ono, H. and Zavodny, M. 2005", Gender Differences in Information Technology Usage: A U.S.-Japan Comparison", *Sociological Perspectives*, Vol 48, No. 1, pp 105-133.
- P. D. Converse, E. W. Wolfe, Xiaoting Huang, and F. L. Oswald. 2008 "Response Rates for Mixed-Mode Surveys Using Mail and E-mail/Web", *American Journal of Evaluation*, Vol 29, No. 1, pp 99-107.
- Peytchev, Andy Couper, Mick P. McCabe, Sean Esteban and Crawford, Scott D. 2006 "Web Survey Design: Paging versus Scrolling", *Public Opinion Quarterly*, Vol 70, No. 4, pp 596-607.
- Poynter, R. 2001 "A guide to best practice in online quantitative research", In A. Westlake et al. Eds. *The challenge of the Internet*. London, UK: Association for Survey Computing.
- Response rate. , No. 2006, August 12). In *Wikipedia, The Free Encyclopedia*. [online], http://en.wikipedia.org/w/index.php?title=Response_rate&oldid=69154816.
- Schillewaert, N., F. Langerak, and T. Duhamel. 1998 "Non-probability Sampling for WWW Surveys: A Comparison of Methods" *Journal of the Market Research Society*, Vol 40, pp 307-322.
- Schleyer, T. K. L., and Forrest, J. L. 2000 "Methods for the design and administration of Web-based surveys", *Journal of the American Medical Informatics Association*, Vol 7, No. 4, pp 416-425.
- Schonlau, M. Fricker, R. D., and Elliott, M. 2001 "Conducting Research Survey via E-mail and the Web", Working book. [online], <http://www.rand.org/publications/MR/MR1480>.
- Schonlau, M., Fricker, R. D., Jr., and Elliott, M. N. 2002 "*Conducting research surveys via e-mail and the Web*", Santa Monica, CA: RAND.
- Taylor, H. , No. 2005). Does Internet Research 'Work'? Comparing Online Survey Results with Telephone Surveys. *International Journal of Market Research*, , Vol 42, No. 1, pp 51-63.
- The American Association for Public Opinion Research. 2006 "Standard Definitions: Final Dispositions of Case Codes and Outcome Rates for Surveys", 4th edition. Lenexa, Kansas: AAPOR.
- The Central Department of Statistics, General Population Census and Housing 2005, [online], <http://www.cds.gov.sa/english/enewsectiondetail.aspx?id=63>.
- Truell, A. 2003 "Use of Internet tools for survey research", *Information Technology, Learning, and Performance Journal*, Vol 21, No. 1, pp 31-37.
- Vehovar, V., Batagelj, Z., & Lozar, K. , No. 1999, May). Web surveys: Can the Weighting Solve the Problem? , No. Paper presented at the AAPOR Conference in St. Petersburg).
- Wasserman, I. M. and Richmond-Abbott, M. 2005 "Gender and the Internet: Causes of Variation in Access, Level, and Scope of Use", *Social Science Quarterly*, Vol 86, No. 1, pp 252-270.
- White, James A., Carey, Lou M., and Dailey, Kathleen A. 2000 "Improving Web-Based Survey Research Data Collection", Paper Presented at the Annual Meeting of the American Educational Research Association, New Orleans, Louisiana.

Pragmatic Research Design: an Illustration of the Use of the Delphi Technique

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Abstract: The creation of wealth is an important issue in any society, and entrepreneurship is regarded as an important catalyst in the creation of new wealth. This presents a challenge to develop entrepreneurship successfully. An important site for the development of entrepreneurship is higher education. The challenge however, is that there is a lack of a general understanding on how to educate students for entrepreneurship. In addition, current thought and practice on entrepreneurship education is historically biased, implying that graduates are essentially prepared for the past instead of for the future. From the perspective of higher education, the problem is how to develop current students to be entrepreneurial in the future. What is needed is to project into the future and then to develop an understanding of what should be taught as well as how it should be taught today.

A versatile research technique that can assist in achieving this objective is the Delphi technique, as it is used to conduct futures research or research into areas where knowledge is incomplete. The Delphi method is a type of group interview, using the collective opinion of knowledgeable experts. The technique makes use of several rounds of data collection and feedback to create a consensus of opinion.

Making use of the Delphi technique, research is being designed that will formulate expert-based strategic guidelines on entrepreneurial education within the South African higher education sector. The aim of this paper is to illustrate the research design considerations that arise in the use of the Delphi technique for this purpose and how they are addressed.

The main characteristics of the Delphi are presented and arguments for the use of the Delphi within a constructivist paradigm are discussed. Practical issues related to the design of the Delphi, panel-member selection, and the formulation of panel questions, are examined. In illustrating these design considerations, the paper demonstrates a pragmatic approach to research design as well as the importance of creating coherence between the research question, the research paradigm, the research method and its use, encouraging research practitioners to adopt a more systematic, deliberate and philosophically-based approach to research design.

Keywords: entrepreneurship, Delphi technique, higher education, entrepreneurial education, innovation, research design.

1. Introduction

This paper presents a research practitioner's perspective of the design and application of a futures research technique, namely the Delphi. The aim of the paper is to identify the design considerations that arise in the use of the Delphi technique and illustrate how they are addressed. The paper applies this illustration in the use of the Delphi, to research being conducted into identifying an appropriate and effective teaching and learning process for entrepreneurial education in South African universities. The paper begins by introducing the origins of the Delphi technique and its main characteristics and types, before providing the context of the relevant research question. In the light of the research question, the appropriateness of the Delphi is considered and justified, followed by a discussion of the philosophical considerations and practical issues in planning the use of the Delphi, and how they are addressed. This example of the use of the Delphi, serves to highlight the interface and tension between the design requirements posed by the research problem versus those requirements imposed by the typical conventions of a research method, and illustrates how a researcher needs to grapple with both philosophical and practical requirements to develop a coherent design that is customised to the particular study's needs.

2. The Delphi technique

The Delphi technique has its origins in Defence research in the United States in the 1950's. "Project Delphi" was the name given to a study of expert opinion originally conducted in the United States of America (USA) at the Rand Corporation during the 1950's for defense research (Dalkey and Helmer, 1963). The method brings a broad range of perspectives and ideas to bear on problem solving from a comprehensive panel of experts responding to feedback (Gibson and Miller, 1990). The method was used by the Rand Corporation to "... obtain the most reliable consensus of opinion of a group of experts ... by a series of intensive questionnaires interspersed with controlled opinion feedback" (Dalkey and Helmer, 1963:458). The purpose

of the original study was "... to apply expert opinion to the selection, from the viewpoint of a Soviet strategic planner, of an optimal U. S industrial target system and the estimation of the number of A-bombs required to reduce the munitions output by a prescribed amount" (Dalkey and Helmer, 1963:459).

The Delphi technique is typified by five main characteristics which are discussed in more detail below, namely (1) its focus on researching the future or things about which little is known, (2) reliance on the use of expert opinion, (3) utilising remote group processes, (4) the adoption of an iterative research process, and (5) the creation of a consensus of opinion.

Firstly, Delphi is a futures technique used for "developing forecasts of future events" (Stewart and Shamdasani, 1990:23), for conceptualizing and inventing the future, recognizing that quantitative forecasting tools alone cannot solve forecasting problems, as the historical data on which these techniques depend are unavailable or because the available data provide little or no insight into the probability of events of interest (Stewart and Shamdasani, 1990). It is also useful where there is a "lack of agreement or incomplete state of knowledge concerning either the nature of the problem or the components which must be included in a successful solution" (Delbecq, Van de Ven and Gustafson, 1975:5), or when modeling is difficult (Gibson and Miller, 1990). In such cases a satisfactory course of action needs to be invented or discovered (Delbecq, Van de Ven and Gustafson, 1975). As a method of data collection and analysis, Beech (1999) argues that the Delphi method produces data that would otherwise be impossible or difficult to obtain.

Secondly, the technique is characterized by the use of a group format (Stewart and Shamdasani, 1990; Denzin and Lincoln, 1994) in the form of panels of knowledgeable experts. The collective opinion of these experts is used as the source of information. Clayton (1997) defines an expert as someone who has the required knowledge and experience to participate in a Delphi. The membership of a panel may be national or international and may come from the same discipline or from different social/professional stratifications.

Thirdly, the Delphi is a form of remote group communication (Jeffery, Ley, Bennum and McLaren, 2000) in that it typically does not require face-to-face contact and is particularly useful for involving experts, users, resource controllers or administrators who cannot come together physically (Delbecq, Van de Ven and Gustafson, 1975). Communication with the individual panel members is typically via mail or faxed but there is also evidence of e-mail being used to distribute the questionnaires (Saint-Germain, Ostrowski and Dede, 2000). It is argued (Saint-Germain, Ostrowski and Dede, 2000:163) that "the e-mail version of the Delphi method preserves much of the traditional method ... can also improve upon the traditional method ... and provide a quicker response and cut the drop-out rate among participants".

Fourthly, the Delphi uses an iterative research process. The typical Delphi requires a group of relevant experts to respond to an iterative series of written questionnaires (called rounds) interspersed with summarized information and feedback of opinions derived from earlier responses to stimulate thinking mailed or faxed to each respondent individually with the objective of the group reaching consensus.

A fifth characteristic of the Delphi is the development of consensus. Consensus is typically observed through the convergence of variances or the decrease of standard deviations in subsequent iterations (Linstone and Turoff, 1975) and defined as an agreement in opinion of all concerned or as a majority view (Williams and Webb, 1994).

3. Researching entrepreneurial education in South Africa

In South Africa, the changing social and economic needs of a global world as well as South African legislation is emphasising the need for higher education in the country to become more responsive to the nation's needs. Current economic and social indicators in South Africa as well as future projections point to a desperate need for wealth creation in the face of a critical skills shortage.

An important catalyst in wealth creation is entrepreneurship (Timmons, 1999). But, an "entrepreneurial culture" is still missing in South Africa, as well as the broader presence of entrepreneurs as initiators and innovators (Louw, Du Plessis, Bosch and Venter, 1997; Van Aard, Van Aard and Bezuidenhout, 2000). Intervention in facilitating the permeation of entrepreneurship in any economy is clearly sensible (Binks and Vale, 1990). In particular, Binks and Vale (1990:173) call for "... investment in educational and attitudinal policies which encourage freedom of thought, creativity, and imagination". According to Davidson (2002:19), "entrepreneurs are made, not born", and there seems to be general agreement in the literature and growing

evidence that entrepreneurship can be developed through education (Brockhaus, 1991; McMullan and Vesper, 2000; Kent. Cited in Cronje, Du Toit & Motlatla, 2000; Ronstadt, 1987).

The most obvious and ideal place for entrepreneurship education is the university (Hull, Bosley and Udell, 1980; McMullan and Long, 1987). In fact, Chia (1996) argues that the cultivation of the entrepreneurial imagination is the single most important contribution of universities to their national economies. Congruence between the output of higher education and the needs of an economy is of vital importance (Department of Education, 1997) as is the appropriateness and effectiveness of the teaching and learning process (Scott, 1994). A critical issue is not whether entrepreneurship can be taught but rather how it can best be taught (in addition to the content, educators are challenged with designing effective teaching and learning processes and opportunities), for pedagogies to reflect the changing times and for the field of entrepreneurship education to stay on the “cutting edge” (Solomon, Duffy and Tarabishy, 2002).

Timmons (1999) argues that it is the result of entrepreneurship that counts. Ideally what is needed then is Schumpeterian or N-entrepreneurship (entrepreneurial activity that relies upon a completely new combination of resources) as compared to routine entrepreneurship (entrepreneurial activity that refines existing combinations) (Leibenstein, 1968). Marginal micro-enterprises providing what Bhidé (2000:360) calls “... routine services in mature fields such as lawn care and beauty salons” are not required, as their high rate of appearance and disappearance has limited economic significance (Bhidé, 2000). Schumpeter (1934) identified innovation as the single factor that specifically distinguishes entrepreneurial from other activities and the driving force for creating new demand and therefore wealth. For Schumpeter an entrepreneur is “the person who destroys the existing economic order by introducing new products and services, by creating new forms or organisation, or by exploiting new raw materials” (Bygrave. In Bygrave, 1997:1).

While literature highlights the function of the entrepreneur in an economy as that of innovation, there is a lack of understanding of the “psychology” or qualities of an individual who can be innovative. Also, Coberly (1996) argues that educators need to help people prepare for a continuously changing workplace and for the future. However, it is difficult doing this when there is a lack of knowledge and understanding of what that future will be like. What is needed is to develop an understanding of the future economy as the context wherein graduates will need to see and realise innovative opportunities. In addition, there is a need to determine the qualities of an innovative individual in light of the context in which the person will apply their ability to innovate. Having developed an understanding of the qualities of innovative individuals for the future economy, the next question concerns what Higher Education needs to do to develop entrepreneurs.

In the light of this discussion, the research question being posed in this study is “What should Higher Education be doing to ensure that students are still able to be entrepreneurial 25 to 40 years after graduating?”

Addressing this question involves addressing three subsidiary questions, which also provide the basis of a three-phase research procedure. These questions are:

1. What sector of the South African economy will most likely offer the greatest potential for entrepreneurial opportunities in the next 25 to 40 years?
2. What qualities are needed by graduates to equip them to be innovative entrepreneurs in the future?
3. What should Higher Education in South Africa do to prepare/develop students to constructively participate in the future economy as innovative entrepreneurs?

4. The relevance of the Delphi technique for the research problem

In examining the key characteristics of the Delphi technique, its relevance to addressing the above research question becomes clear. Firstly, the research focuses on future requirements rather than current practice. Secondly, relatively little is known about these requirements. While the Delphi technique is able to address these requirements, most other research methods are not, as they tend to focus on historical or current realities. Even survey designs which may ask respondents for their opinions of the future, are restrictive in that they present a preconceived construction, usually derived from the literature, which itself has a historical bias.

Thirdly, the research questions lend themselves to making use of a wide range of experts. However, these groups of experts are geographically dispersed both within South Africa, and internationally. Fourthly, the research is an iterative process, requiring an answer to one question before proceeding to the next. With

regard to data collection, most other research designs are restricted in time and place and do not engage with the research participants in setting the direction of the research and collaboratively and progressively constructing an answer to the research question. While longitudinal research designs are less restrictive with respect to their time dimension, they do not have the same flexibility as the Delphi in allowing the emergence of the research problem, and focus on the unfolding of events in current reality, rather than on future projections. Similarly, while case studies may document the unfolding of events and processes over time, they are also historically focused. Furthermore, the Delphi explicitly facilitates the interaction of experts in this construction process rather than assuming that the researcher holds the monopoly on knowledge construction. This implies that not any and every opinion is accepted at face value, but through the iterative process, needs to stand up to the scrutiny of experts.

However, the question of meeting the Delphi characteristic of consensus requires a more detailed discussion, as the use of a technique that traditionally produces quantified results within a recognizably positivist approach does not seem to serve the requirements of this research. Given the research question, the entrepreneurship education research process required here is essentially qualitative in nature with exploration, identification and description of multiple realities as the main intention, rather than the determination of a single consensus.

While consensus was originally thought of in a statistical sense, different understandings of the idea of consensus are reflected in different versions of the Delphi technique that have emerged. There are three main variations, namely the numeric, the policy and the historic versions (Strauss and Ziegler, 1975; Reid. In Ellis, 1988). The numeric Delphi represents its original design, which aims to specify a single or minimum range of numeric estimates through the use of summary statistics. On the other hand, the policy Delphi and historic Delphi tend to produce more qualitative responses (Reid. In Ellis, 1988). The policy Delphi does not focus on establishing a single consensus relative to a specific reality but on the exploration, generation and definition of several alternatives and the arguments for and against each of these alternatives (Strauss and Ziegler, 1975; Mitchell, 1991) along with their underlying assumptions and views (Turoff. In Linstone and Turoff, 1975). The historic Delphi is retrospective and aims to "... explain the range of issues that fostered a specific decision or the identification of the range of possible alternatives that could have been poised against a certain past decision" (Strauss and Ziegler, 1975:253). Reid (in Ellis, 1988) states that with the policy and historic versions of Delphi "the collation of these responses will require some subjective judgments, but the normal practice is to feed back the full range of opinions or statements produced with some indication of the strength of support for each, and to invite the panel to reconsider on the basis of this information".

Considering the different approaches to the achievement of consensus should be reflected in debates about the research paradigm underlying the use of the Delphi technique, but explicitly debating and identifying the appropriate paradigm is often neglected.

The Delphi however does have a hybrid epistemological status as it straddles the qualitative and quantitative divides (Critchler and Gladstone, 1998), and evident in the literature is use of modified Delphi methods (Jeffery, Hache and Lehr, 1995; Cox and Hooper, 1998; Stewart and O'Halloran, 1999). Selecting from the range of paradigms identified by Guba (1990), when considering the ontology and epistemology appropriate to this research design, a constructivist paradigm is adopted.

Firstly, the research adopts a relativist ontology. This implies that "realities exist in the form of multiple mental constructions, socially and experientially based, local and specific in nature" (Guba, 1990; Guba and Lincoln. In Denzin and Lincoln, 1998:200). Also, the three-phase approach to the Delphi which is proposed here not only attempts to bring together multiple realities and perspectives at each phase, but in progressing from one phase to the next also entails the combination of different worlds, as the research moves from the realm of South African economic futures, to psychological requirements, to questions of educational policy, curriculum, teaching and learning within higher education.

Secondly, the research adopts a subjectivist, transactional epistemology. Subjective interaction is used to access the realities that exist only in the minds of respondents (Guba, 1990). The investigator and the object of investigation are assumed to be interactively linked with the "findings" being the creation of the process of interaction between the two, literally being created as the investigation proceeds (Guba and Lincoln. In Denzin and Lincoln, 1998; Guba, 1990). The conventional distinction between ontology and epistemology consequently disappears (Guba and Lincoln. In Denzin and Lincoln, 1998). A hermeneutic/dialectic methodology is used to identify the variety of constructions that exist and bring them into as much consensus

as possible (Guba, 1990). The constructions are elicited and refined through interaction between and among investigator and respondents and interpreted using conventional hermeneutical techniques (Guba and Lincoln. In Denzin and Lincoln, 1998; Guba, 1990).

In the entrepreneurship education Delphi, the researcher essentially adopts a role of what Miller and Crabtree (1992) call the constructivist inquirer. Here the researcher performs "... an ongoing iterative dance of discovery and interpretation" (Miller and Crabtree, 1992:11). The final aim is "... to distill a consensus construction that is more informed and sophisticated than any of the predecessor constructions" (Guba and Lincoln. In Denzin and Lincoln, 1998:207).

5. Practical issues in the Delphi research design and procedure

While it has been argued that the Delphi technique is both relevant and flexible enough to be useful in addressing the entrepreneurial education research question posed above, there are still a number of practical considerations that need to be addressed, namely designing the Delphi, member selection and panel questions. These considerations need to be addressed in the context of the paradigm relevant to the research question and in light of the fact that the research consists of three phases to systematically address the three subsidiary questions.

5.1 Delphi design

Delphi typically uses one panel with a number of rounds. However, the range of expertise and layering of the questions for this research requires a phased approach of three Delphi studies each with its own number of rounds. Each Delphi has its own objective yet is relevant to the next Delphi.

In phase one the focus is on clarification of the nature of the future economy. From the perspective of entrepreneurship education, where entrepreneurial opportunities are most likely to be found in the future economy need to be identified, in order to help clarify educational priorities. The objective of the phase is to identify a sector/area in the economy that will most likely make a significant contribution to economic growth and hence offer entrepreneurial opportunities. Another objective is to determine the technical skills domain of graduates entering the economic sector identified. A tension that emerges in this phase concerns the role of published literature versus the role of expert opinion, whether a Delphi is required, and if so, for what purpose. Published reports are available on the future growth areas and skill requirements of the South African economy, but these reports tend to have a shorter time horizon than 25-40 years from now. The suitability of a numeric version of the Delphi in this phase consequently arises from the need to establish consensus around economic and educational priorities 25-40 years from now.

Phase two of the research moves onto the qualities that will be required of the innovative entrepreneur participating in the economy in the next 25 to 40 years. This phase requires a policy-type Delphi. The objective of this phase is to formulate a profile of the person who will be able to participate successfully as an innovative entrepreneur in the identified sector of the economy.

Having an idea of the profile of the innovative entrepreneur in mind, the focus shifts in the third phase to the preparation and education of these individuals within the Higher Education context of South Africa. The objective of the phase is to identify what Higher Education in South Africa needs to do to prepare and develop students to participate in the economy in 25-40 years as innovative entrepreneurs. Here the policy variation of Delphi is appropriate in that the focus is more on the exploration of alternatives regarding what can be done to prepare and develop innovative entrepreneurs. Three separate Delphi panels can be used with alumni of entrepreneurship education programmes first judging the teaching and learning practices and processes that were used in their education, current academics teaching entrepreneurship in South Africa judging the adequacy of what is currently being done in the light of the requirements identified, and lastly educationalists and academics teaching entrepreneurship in South Africa creating insight into what higher education can do to develop the innovative entrepreneur.

5.2 Member selection

An important practical consideration here concerns who is most qualified as an expert to serve on a particular Delphi panel. Again this decision is influenced by the objective of the particular Delphi.

Phase One requires panel members to be experts on the South African economy. Criteria for membership to the panel will be based on their representation on bodies such as the South African Department of Trade

and Industry (DTI), or the Human Sciences Research Council (HSRC), since they are involved in futures research relevant to the South African economy and the future skills requirements.

Given the objective of phase two, experts can include those knowledgeable in the area of entrepreneurship. Criteria to be used to identify experts include individuals occupying an endowed Chair in the area of entrepreneurship. The task of this panel of experts will initially be that of creating insight into the qualities of an innovative entrepreneur and to judge the appropriateness and importance of the qualities.

Given the objective of phase three, individuals who can assist in this phase include alumni who will be selected on the basis of having graduated from a university programme designed specifically to develop entrepreneurs, educationalists selected on the basis of their role in the South African Higher Education Quality Committee (HEQC) and academics responsible for designing entrepreneurship programmes and teaching entrepreneurship in South Africa universities.

5.3 Panel questions

The future focus of the research is a particular challenge for researchers. The challenge is to get individuals to see into the future, which in itself is difficult. Questions arise as to the appropriate time period in the future, how to get panel members to project themselves into the relevant time period, and how to get them to provide valid and reliable information. Much depends on the formulation of the question for panel members. The question for panel members would be "What do you envisage the economic growth areas to be in 25 to 40 years from now, and what academic disciplines would primarily be required to realise this growth?"

With the results of phase one in mind, the panel members in phase two will need to generate a profile of an innovative entrepreneur who is a graduate from one of the specified academic disciplines, and is able to participate in an innovative way in the specified sector of the economy. The question for panel members would be "What knowledge, understanding, skills, behaviour, attitudes and thinking is required of the innovative entrepreneur?"

The third phase, involving Delphi panels would pose different questions to each panel. Alumni would need to initially describe the teaching and learning activities and processes used in their education and would then be asked to judge these activities and processes. Academics involved in teaching entrepreneurship will describe the teaching and learning activities and processes used to develop entrepreneurs and would be asked to judge the activities and processes in the light of the results generated in the previous phases. Academics teaching entrepreneurship as well as educationalists would be asked "What do Universities in South Africa need to do to prepare and develop students as innovative entrepreneurs?"

6. Conclusion

This paper illustrates a pragmatic approach to research design. In illustrating the use of the Delphi in this paper, it is apparent that the research problem at hand drove research design considerations. Therefore, the research design needs to adapt to the research problem's requirements, rather than being imposed upon and reformulating the problem. The Delphi technique is a versatile research method used for futures research, or for research into areas where knowledge is incomplete. As illustrated above, no other research design seems to offer the same degree of versatility. However, when using the technique, this versatility may lead to superficial consideration being given to its appropriate use, from the perspective of the philosophy of the research, and the overall coherence of the research design. The researcher needs to systematically think through and construct the relationship between the research problem, the appropriate research paradigm and the design of the research. By engaging in the debate regarding the philosophy of the research design, the researcher is able to not only determine the relevance of the Delphi but also to plan the appropriate use of the technique. In considering entrepreneurial education research illustrated in this paper, these considerations were evident in the formulation of the research paradigm and in the design of a three-phase approach.

In planning the use of the Delphi careful attention needs to be paid to practical issues in the design and use of the Delphi. In particular, the researcher needs to carefully consider the specific purpose for which the Delphi is to be used in the research which in turn assists in determining the type of Delphi. In considering the purpose, it is useful to formulate clear objectives for the Delphi in line with the research question. It is also useful to clarify the task of the panel in terms of either judging information and/or creating an understanding, or new knowledge. Attention also needs to be paid to who will be selected and on what basis, to participate as members of the panel. Finally, attention needs to be paid to the questions to be posed to the panel to

elicit information relevant to the research question. The objectives for the Delphi assists in the formulation of questions, but the biggest challenge here is to understand the concept of the future in relation to the research question, and to formulate questions for the panel which will elicit information relevant to the research.

References

- Beech, B. (1999) Go the Extra Mile: use the Delphi Technique. *Journal of Nursing Management*, Vol. 7, No. 5, pp 281-288.
- Bhidè, A.V. (2000) *The Origin and Evolution of New Businesses*, Oxford University Press, New York.
- Binks, M. and Vale, P. (1990) *Entrepreneurship and Economic Change*, McGraw-Hill Book Company, London.
- Brockhaus, R.H. (1991) Entrepreneurship Education and Research Outside North America, *Entrepreneurship Theory and Practice*, Vol. 15, No. 3, pp 77-84.
- Bygrave, W.D. (1997) *The Portable MBA in Entrepreneurship*. 2nd edition. John Wiley & Sons, Inc, New York.
- Chia, R. (1996) Teaching Paradigm Shifting in Management Education: University Business Schools and the Entrepreneurial Imagination, *Journal of Management Studies*, Vol. 33, No. 4, pp 409-428.
- Clayton, M.J. (1997) Delphi: a Technique to Harness Expert Opinion for Critical Decision-Making Tasks in Education. *Educational Psychology*, Vol. 17, Issue 4, pp 373-386.
- Cronje, G.J. de J., Du Toit, G.S. & Motlatla, M.D.C. (2000) *Introduction to Business Management*, 5th Edition, Oxford University Press, Cape Town.
- Dalkey, N and Helmer, O. (1963) An Experimental Application of the Delphi Method to the use of Experts, *Management Science*, Vol. 9, pp 458-467.
- Davidson, P. (2002) What Entrepreneurship Research can do for Business and Policy Practice. *International Journal of Entrepreneurship Education*, Vol. 1, No. 1, pp 2-24.
- Delbecq, A.L., Van de Ven, A.H. and Gustafson, D.H. (1975) *Group Techniques for Program Planning: a Guide to Nominal Group and Delphi Processes*, Scott, Foresman and Company, Glenview, Illinois.
- Denzin, N.K. and Lincoln, Y.S. (1994) *Handbook of Qualitative Research*, SAGE Publications, London.
- Department of Education. (1997) *White Paper on Higher Education 3, a Programme for the Transformation of Higher Education*, Pretoria: Department of Education. http://www.polity.org.za/govdocs/white_papers/highed.html.
- Ellis, R. (1988) Editor. *Professional Competence and Quality Assurance in the Caring Professions*, Chapman and Hall, London.
- Gibson, L.J. and Miller, M.M. (1990) A Delphi Model for Panning "Preemptive" Regional Economic Diversification, *Economic Development Review*, Vol. 8, No. 2, pp 34-41.
- Hull, D.L., Bosley, J.J. and Udell, G.G. (1980) Renewing the Hunt for the Heffalump: Identifying Potential Entrepreneurs by Personality Characteristics. *Journal of Small Business Management*, Vol. 18, No. 1, pp 11-18.
- Jeffery, D., Ley, A., Bennun, I. And McLaren, S. (2000) Delphi Survey of Opinion on Interventions, Service Principles and Service Organization for Severe Mental Illness and Substance Misuse Problems, *Journal of Mental Health*, Vol. 9, Issue 4, pp 371-384.
- Leibenstein, H. (1968) Entrepreneurship and Dvelopment. *The American Economic Review*, Vol. LVIII, No. 2, pp 72-83.
- Linstone, H.A. and Turoff, M. (1975) Introduction. In Linstone, H.A. and Turoff, M. (eds) *The Delphi Method: Techniques and Applications*, Addison-Wesley Publishing Company, London.
- Louw, L., Du Plessis, A.P., Bosch, J.K. & Venter, D.J.L. (1997) Empirical Perspectives on the Entrepreneurial Traits of Undergraduate Students at the University of Port Elizabeth: an Exploratory Study, *Management Dynamics: Contemporary Research*, Vol. 6, No. 4, pp73-90.
- McMullan, W. and Vesper, K.H. (2000) Becoming an Entrepreneur: a Participant' Perspective. *Entrepreneurship and Innovation*, February, pp 33-43.
- McMullen, W.E. & Long, W.A. (1987) Entrepreneurship Education in the Nineties, *Journal of Business Venturing*, Vol. 2, No. 3, pp 261-275.
- Mitchell, V.W. (1991) The Delphi Technique: an Exposition and Application. *Technology Analysis and Strategic Management*, Vol. 3, No. 4, pp 333-357.
- Ronstadt, R. (1985) The Educated Entrepreneurs: a new era of Entrepreneurial Education is Beginning. *American Journal of Small Business*, Vol. 10, No. 1, pp 37-53.
- Saint-Germain, M.A., Ostrowski, J.W. and Dede, M.J. (2000) Oracles in the Ether: Using an e-mail Delphi to Rvise an MPA Curriculum, *Journal of Public Affairs Education*, Vol. 6, No. 3, pp 161-172.
- Schumpeter, J.A. (1934) *The Theory of Economic Development: an Inquiry into Profits, Capital, Credit, Iterest and the Business Cycle*, translated by Opie, R. (1949), Harvard Business Press, Cambridge, Massachusetts.
- Scott, I. (1994) *The Role of Academic Development Programmes in the Reconstruction and Development of Higher Education*, A draft position paper produced for the IDT-sponsored investigation into future funding mechanisms for Academic Development programmes.
- Stewart, D.W. and Shamdasani, P.N. (1990) *Focus Groups: Theory and Practice*, SAGE publications, London.
- Strauss, H.J. and Zeigler, L.H. (1975) The Delphi and its Uses in Social Science Research, *The Journal of Creative Behaviour*, Vol. 9, No. 4, pp 253-259.
- Timmons, J.A. (1999) *New Venture Creation: Entrepreneurship for the 21st Century*, 5th edition, Irwin McGraw-Hill, Boston.
- Van Aardt, I., Van Aardt, C. and Bezuidenhout, S. (2000) *Entrepreneurship and New Venture Management*, 2nd Edition, Oxford University Press, Cape Town.

Williams, P.L. and Webb, C. (1994) The Delphi Technique: a Methodological Discussion. *Journal of Advanced Nursing*, No. 19, pp 180-186.

Undertaking a Structured Literature Review or Structuring a Literature Review: Tales from the Field

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Abstract: The diversity of sources of literature within the management disciplines has resulted in a growing need for a systematic methodology to map the territory of its associated theories and models. As such, when scoping out a doctoral or policy based study the Structured Literature Review (SLR) as espoused by Tranfield *et al* (2003) can be considered as a means by which critical literature central to and underpinning the research can be rigorously and systematically mapped out. However, there is little guidance, or evidence, of this being the case when undertaking small scale projects for example undergraduate or masters degree dissertations.

This paper reports four case studies using semi-structured interviews of master's degree students following management programmes who undertook a Structured Literature Review (SLR) based dissertation and the issues and problems they had to encounter during their journey. The findings from the case studies suggest that Tranfield *et al*'s (2003) approach to SLR's, whilst suited to doctoral level and policy based research is not appropriate when dealing with undergraduate and masters dissertations and projects. The case study findings identified that these students conducting a SLR had to deal with a new set of conceptual, methodological and data collection problems relating to this 'unorthodox' approach to conducting a postgraduate research dissertation. The findings show that students had to confront new paradigms of enquiry that are not normally taught or found in 'traditional' research texts and research methods courses that are taught on degree programmes. However, the findings do reveal that students gained a greater depth and insight into the subject they were researching through a more rigorous and structured approach.

The paper then presents alternative remedies by way of the Rapid Structured Literature Review (RSLR) research strategy which is argued as an appropriate approach in conducting small scale literature based research projects when used with undergraduate and master's degree students rather than the SLR espoused by Tranfield *et al* (2003) which is better suited for other types of research such as doctoral and policy based activities.

Keywords: Literature-based research, systematic literature reviews, synthesis, rapid structured literature reviews

1. Introduction: Overview of current debate

The global economy has meant organisations need to utilise their knowledge management systems more effectively (Eisenhardt and Santos, 2002; Conner and Prahalad, 1996; Spender, 1996; Leonard-Barton, 1995; Davenport and Prusak, 1998), and that those who possess the mechanisms to access this source of information will be able to capitalise on its application. Further that 'it is important that the scholarly and practitioner communities develop processes and methodologies for bringing research evidence together systematically and applying it in practice' (Tranfield and Denyer, 2003).

It can be argued that because of the diversity of sources of literature encompassed by the management disciplines, there is a growing need for a systematic methodology to map the territory of management theory. As such, Structured Literature Review (SLR) can be considered as a means by which any central literature might be considered when scoping out a study. Qualitative research synthesis has developed and been tested across a range of disciplines including management, public health, social care and education (Tranfield *et al*, 2003). According to Denyer and Tranfield (2006) 'Whilst each of the approaches has been used to produce qualitative research synthesis, in most cases examples of their application are limited. However, the use of three approaches, narrative synthesis, meta-ethnography and realist synthesis, has increased rapidly across different disciplines', therefore an SLR can more critically into the contents of a literature review. By undertaking an SLR approach rather 'ad hoc' approaches to literature construction, development and presentation, there is a defence that critical literature may be identified alongside other materials relevant to the study. Petticrew (2001), and Petticrew and Roberts (2006), have argued for a structured approach when reviewing literature. They identify differences between SLR's approach as compared with the 'traditional' type of literature reviews (see Table 1):

Table 1: Differences between Systematic Literature Reviews and traditional literature reviews (adapted from Petticrew, 2001 and Petticrew and Roberts, 2006)

Issues to consider	Good quality systematic reviews	Traditional reviews
Deciding on review question	Start with clear question to be answered or hypothesis to be tested.	May also start with clear question to be answered, but they more often involve general discussion of subject with no stated hypothesis.
Searching for relevant studies	Strive to locate all relevant published and unpublished studies to limit impact of publication and other biases.	Do not usually attempt to locate all relevant literature.
Deciding which studies to include and exclude	Involve explicit description of what types of studies are to be included to limit selection bias on behalf of reviewer.	Usually do not describe why certain studies are included and others excluded.
Assessing study quality	Examine in systematic manner methods used in primary studies, and investigate potential biases in those studies and sources of heterogeneity between study results.	Often do not consider differences in study methods or study quality.
Synthesising study results	Base their conclusions on those studies which are most methodologically sound.	Often do not differentiate between methodologically sound and unsound studies.

Boaz et al (1999) have advocated the use of Systematic Literature Reviews (SLR) concerning policy based practice. They have examined ways in which systematic reviews present a distinctive approach to the synthesis of research and the exploration of challenges faced by researchers who use systematic review outside clinical medicine. Further they identify that SLR is sometimes considered contentious in the social policy and practice field. Boaz et al (1999) investigate where the social sciences can contribute to the development of review methodology, for example, through sharing experience of user involvement and approaches to qualitative research. However, Hammersley (2002:1) notes that 'It is important that the practical use of research takes in the whole range of findings on a topic, not just the results from one or two studies. For this reason, reviews play a crucial role as a bridge between research and related areas of policymaking and practice'. His motivation for this is provided in his sentiments when he states that:

'Indeed, the increasing tendency for the mass media to report evidence from single studies in controversial areas, particularly in the health field, is to be deplored. This can be dangerous in its immediate consequences. Moreover, I suspect that, down the line, it will lead to further erosion in the public authority of scientific research'.

Hammersley (2002:3) challenges the term 'Systematic' and claims that to undertake 'unsystematic' literature review would be folly. The very definition of systematic is 'to produce a systematic review is simply to do the job of reviewing well', but further that 'I have heard it suggested that there are people who would want a review to be unsystematic, even in this sense: those who want to select and interpret research evidence so as to support their own pre-given views or interests, and thereby to claim scientific backing for these'. This presents then a view that the very process of choice in terms of how to conduct a literature review is in fact a systematic approach. Transparency therefore an important aspect when conducting a SLR (see for example Tranfield *et al*, 2003) but Hammersley (2002:4) suggests that this is not without problems. Hammersley (2002) makes three points:

1. First, explicitness is a matter of degree i.e. the way in which they were carried out
2. Second there is a point beyond which it is impossible to make any activity, including reviewing, explicit. The metaphor involved in the word 'transparency' implies that anyone can see, or perhaps can see through, what is going on. In other words, it is assumed that there are no audience requirements for understanding and evaluating an activity other than possession of a pair of eyes.
3. The third point about the notion of transparency can also be derived from Polanyi's work on science. The concept of systematic review seems to imply that transparency can be achieved if the task of reviewing is formulated beforehand in terms of a set of procedures to be followed.

Boaz et al (1999:48) also note that:

'There are a wide variety of approaches to reviewing evidence, from traditional literature reviews, to rapid reviews and systematic reviews. Traditional reviews offer a summary of a number of different studies and sometimes draw conclusions about a particular intervention or policy. Rapid reviews are carried out to meet pressing policy demands or to lay the ground for a more comprehensive, systematic review. Policy makers also use review methods, such as specially commissioned scoping studies and briefing papers, to inform policy developments'

2. Undertaking an SLR: Tales from the field

The foregoing debates concerning SLR's are well developed in the extant literature. However our concerns are with the lack of appreciation for small scale projects conducted by undergraduate and Masters' students. Guidance for Masters and undergraduate students focusing upon literature reviews tends to present it as a mechanism that will underpin a study. This will then allow for the development of a theoretical context or framework in order to frame research questions (see for example Hart, 1998; Fink, 2005; Mertens, 2005) that use inductive, deductive or mixed methods approaches to the collection of primary and secondary data. The notion that the SLR might be appropriate as a research strategy on its own appears to be overlooked by these writers. As such any debate surrounding this approach has not yet developed in the same manner that it has of the SLR for doctoral or post-doctoral research. It should be acknowledged though that Hart (1998), Fink (2005) and Mertens (2005) provide a protocol for undergraduate and master's research projects that can be used when developing and writing a literature review. However, this is firmly placed in a study for the theory development, methodological justification and interpretation of findings within the project. The consequence of this 'traditional' approach to viewing the use of a literature review, therefore, leaves a dearth in the extant literature regarding any debates encircling this area, or the reporting of empirical studies that have attempted to apply the SLR with undergraduate and master's students, which is not considered.

As such, we provide here the experiences from four students who have used the SLR approach as a means conducting a small scale piece of research. These include two master's dissertations and two undergraduate degree students who opted to carry out a SLR for their dissertation. The profiles for each student are as follows:

- Student A: This student was following a full-time Masters Degree programme in Human Resource Management and undertook a SLR in High Performance Working
- Student B: This student was following a part-time MBA programme and undertook a SLR in Corporate Social Responsibility
- Student C: This student was a fulltime student following a BA (Hons) in Business Management and undertook a SLR in Corporate Social Responsibility
- Student D: This student was a full time student following a BA (Hons) in Business Management and undertook an SLR in Marketing

Within their studies all the students had undertaken a taught Research Methodology module, prior to undertaking their dissertation, and for this were required to produce a research proposal (2000 words for the undergraduate students, 4000 for the Master's students) which had been assessed. To progress from this stage then, to formulate a set of research questions, students used Tranfield *et al's* (2003) ten phase approach to undertaking a research project. As researchers, we wanted to explore the experiences of students as they went through the phases and therefore, we adopted a grounded approach to the study in order to generate insights about their research journey. As a result the following questions were formulated and which we asked each student during their supervisory sessions, and also after they had completed the SLR process:

1. Did you have to adopt a different way of thinking about your research problem in order to a SLR?
2. Did you encounter any difficulties locating your study in a research paradigm?
3. Tell us about your experience of creating your literature map
4. Tell us about your experience of mining data from the databases
5. What did you learn from the SLR in terms of the subject, your knowledge of the subject area, the experience of doing the SLR?
6. What difficulties did you encounter when reporting the SLR in your dissertation?
7. Would you recommend the SLR to other students? If yes - why. If no - why?

The findings of the fieldwork were analysed using grounded analysis (Easterby-Smith, 2002) in order to categorise the responses given by the students. This paper provides the experiences of those students. The findings fell under four broad categories which emerged from the data as follows the analysis of which follows in the next section of this paper:

1. The need to do a SLR;
2. Problem identification;
3. Conducting the SLR and mapping the literature;
4. Reporting the study.

2.1 The need

Three of the students decided to do a SLR because they did not have access to an organisational context in which to conduct their research. Their decision to opt of this approach became an 'obvious' choice after they had started to formulate the issues they were interested in researching.

Student A stated:

"I just don't want to do any old project, I want to do a decent job for my dissertation – I want to get something out of the experience of doing my dissertation, but how can I do this if I can't get into an organisation?"

This was also similar to Student C, who voiced their opinion as follows:

"I'm not interested in doing primary data collection – we were told that we had to. I would rather do something I want to rather than be forced to do a dissertation 'just to pass' the module"

Student B though offered a different reason for wanting to do a SLR stating that:

"I want to keep dissertation away from working environment. I might be moving job soon and want to do something that will have wider benefit to me when looking for a new job"

However, all of them did want to extend knowledge of subject to greater depth and they saw the SLR as a means to do this. Student C wanted to extend his knowledge of the material he had learned from his taught modules, noting that:

"I am really interested in my subject area and the SLR seems as though it might offer me to explore some of the issues to a deeper level"

Student D echoed the same sentiments stating that:

"By looking at my topic I can really get to grips with the subject matter in a way that was not possible in my module. Mapping out the issues will be a challenging experience and will help me focus on the subject area and hopefully produce rigorous research"

Student A expressed the need for knowledge in terms of:

"Helping me get my first job when getting my masters as it might help in interview situations"

2.2 The problem definition

The idea of 'consciously' having to consider this aspect of the research process was something that caused concern amongst the students. Whilst they had all produced a research proposal, it became apparent that they had produced a collection of literature that did not necessarily have any clear links. The literature sources did have a connection in as much as it located them in their subject but as they had not mapped these out in any coherent or holistic manner, it lacked linkages as a well defined set of arguments. This caused anxiety amongst all four candidates as they had to re-evaluate their thinking about what constituted a critical literature review that shows threads and connections in its contents. However, when confronted with the requirements of a SLR, it became apparent to the students and they grasped the need to produce a 'more rigorous' landscape of the area they intended to cover in their research. Whilst on the surface SLR has the 'same feel' as a traditional type of dissertation, the problem definition and establishment for the focus of the SLR exposed the students to 'hidden' subtleties in terms of the way they approached their problem definition, and the subsequent research questions to be investigated. This part of the research process took much time and effort for all of the students utilising the SLR approach.

For example, Student A had difficulty coming to terms with the apparent level of specificity of the SLR focus because:

"It means that I need to have a real tight subject focus because when I come to my literature search I will end up with maybe thousands of articles and I won't be able to deal with this amount of data"

The same problem arose also for student B:

"The focus of the study was important because it was so easy to lose focus. The SLR was making me keep a tight focus on my topic area, it kept me questioning my original topic and whether it was the right one"

Student D noted also that:

"The conceptual map I constructed when thinking about my topic was invaluable – it was the most important piece of paper for this part of the SLR. I kept updating it as I went along – it was invaluable as a means to focus my research topic"

The issues of abstracting, 'tight-loose' thinking and making connections across concepts and theories became a real living entity for all the students. As is conveyed by Student D, who said:

"It was really challenging - I would get to what I thought was my focus then I would see other avenues to explore. It was really difficult to see what my focus was, I seemed to be getting further and further away from my original ideas"

Student C found this task quite challenging and noted that:

"I was not sure if I was doing it right – for once I had to decide where I would take my topic rather than having to answer a pre-set assignment question. This was an unusual place for me to be in as I was in control of my work"

Whereas, after the initial traumas of abstracting and finally reaching a tight focus, the construction of research questions did seem easier. Student B's statement was echoed by another student when she noted that:

"Once I had created a really focused conceptual framework I was then in a position to create really focused research questions – which helped me define my literature research strategy. This part of the dissertation was certainly hard and intellectually challenging – but the structure certainly helped me attain a greater level of awareness of my problem"

2.3 Conducting the literature search

This stage was perhaps one of the more straightforward parts of the dissertation process. It did appear to be more time consuming than the traditional approach. Further, it required dedicated application on data bases to extract papers and sift through them using a 'quality' evaluation to access the papers before further sifting. As student A noted:

"The data mining process was a rather time consuming process. Firstly because the subject was new to me and it took me a goodly number of articles to read before I was able to define the key words. In the beginning I kept my mining broad by using only CSR in the title of the articles. The structural part in the review gave me a stringent thread which helped me to sort out connections, similarities and differences within the argumentation of a subject area".

All the students needed help and advice concerning this task. Typical issues that all the students encountered were as follows:

- What strategy shall I use to create strings and Boolean operations to put into the data base?
- How shall I deal with the volume of articles I might find?
- How far back shall I go?

Additionally, after they had undergone this part of the dissertation process, it became apparent that:

- Updating the conceptual map as the literature search progressed was an essential feature
- It was essential also to refer back to the original questions continually to help keep thinking 'on track'
- The SLR did produce more 'rigorous' thought processes.
- The creation of a set of quality criteria for article selection proved a challenge because the students, unlike academic authors, were not aware of the processes for assessment of journal articles for publication.
- There were questions when mapping the literature, connecting themes and issues e.g. should this be by year, subject or author?

- Due to the time constraints there was not a need to use of a quality panel of experts, practitioners and academics (Tranfield *et al* 2003) given the reduced time scale of their research as compared to a doctoral thesis.

3. Reporting

This part of the dissertation caused a few problems. The students had to accept that a SLR is a research strategy in its own right since in a traditional dissertation the research strategy does not start until the research and design methodology chapter. This required them to change their mind-set from their earlier instruction from the research methods module. Further, the reporting stage of the SLR presented them with a new methodology and data analysis approach. Hermeneutics and narrative analysis are not usual areas covered in business research modules and they all needed extra tutorial support for this methodological approach. However, though this might have been an initial obstacle student A typifies the general tenor, when she stated that:

"[Yes] I would highly recommend SLR to other students. I found the combination of structured literature review and the hermeneutic approach a suitable combination. For me as a newcomer into subject area of CSR, the hermeneutic approach gave me the opportunity to interpret texts in regard to my previous knowledge. The structural part in the review gave me a stringent thread which helps to sort out the connections, similarities and differences within the argumentations of the concept".

It was also apparent that the students were unsure as to how to deal with unstructured data i.e. analysing the literature for themes and issues. After been shown the grounded analysis procedure by Easterby-Smith *et al* (2002) for data analysis, the two postgraduate students grasped this fairly easily. They felt more at ease that their undergraduate counterparts, who had been shown the 'usual' questionnaire type of approach in their research module and only a 'sketchy' explanation as to how they might analysis unstructured qualitative data. However, after receiving guidance on this feature of the reporting of the RSLR, they realised that it was 'just the same' as a normal dissertation, where secondary data might have to be used and analysed. After completing her RSLR, student A stated:

"There are two things that I have learned during the process of making up a structured literature review. First, how to read a text in critical way by sorting out the aims, objectives, findings and conclusions of the text. Tracing the argumentation of the author and find the evidence for his/her statements and extracting themes. Second, the structured literature review process as a tool to trace the development of a subject. It is a useful way in gaining knowledge into a new subject area".

In summary, the students required further guidance with the following issues

- The interplay of documentary data and analysis
- Dealing with unstructured data
- Familiarisation with grounded analysis
- Familiarisation with new methodological approaches: hermeneutics and narrative analysis
- Interpretation of the findings: writing narrative to analyse historical linkages across the literature
- Formulating implications for management practice

4. Learning from the field: The Rapid Structured Literature Review (RSLR) as a research strategy

This paper presents then that the Rapid Structured Literature Review (RSLR), which has been developed from our experiences to date of supervising SLR undertaken by masters and undergraduate students. The RSLR has been constructed as three major stages: conceptualisation (the need and problem definition); Operational aspects (conducting the literature search); structuring and reporting the RSLR (reporting). This reflects the categories presented in the previous section. Since the students reported that they could not find the resources and time to include the quality panel stage into a six-month project schedule allocated for their dissertation, the RSLR procedure broadly follows Tranfield *et al's* (2003) ten stage model, but does not include the quality panel stage. However, there is included a suggested epistemological framework in which the RSLR can be located. This does not appear in any literature concerning SLR. Also, included is a suggested data analysis procedure. Again this is drawn from the experiences found when supervising students. The three stages are therefore, based upon 'real experience' from the field and not theoretical or hypothetical 'model making'. The three stage eight step model we suggest is presented within appendix 1.

5. Conclusions

The paper has identified the diversity that the use of SLR addresses within the management sciences and presents that this approach offers a strategy for dealing with the fragmented ontological and epistemological tensions that exist. Within the management field, this is exacerbated further, by the methodological status of management sciences concerning the theory versus practitioner debate that pervade its literature. The subsequent call for a pragmatic melioration of perspectives, that recognises and combines 'soft' and 'hard' issues of the management landscape is perhaps the way forward (Tranfield *et al*, 2003). As Denyer and Tranfield (2006) note:

'Existing management research will not contribute to management practice if individual studies simply accumulate in academic journals. In many social science fields tight coupling of the science base to policy and practice has involved reviewing fields of literature in order to synthesis and convey essential collective wisdom from existing research studies to professional practice'.

Based upon the evidence and experiences to date from the field, however, we are suggesting that the application of SLR to small scale projects at undergraduate and master's level is possible. However, the 'standard approach' to conducting a SLR, as identified by Denier and Tranfield (2006), when applied to studies that involve the single researcher needs to be modified into the more manageable research strategy, for example a Rapid Structured Literature Review (RSLR). Whilst acknowledging the rather 'directive approach' of the RSLR strategy presented in this paper, it is argued that it has produced a more fulfilling and richer experience for students who are frustrated in applying the former SLR since they cannot access primary data sources when completing their dissertation research projects.

The development of the RSLR has also revealed, and encouraged a more rigorous approach to accessing and mapping out a subject area, that goes beyond the 'normal depth' that can be achieved in a taught module. It is suggested that 'forcing' students to follow the RSLR strategy has paradoxically 'freed up' and extended their thinking because it has taken them to places in the literature that they were not aware of, or realised was connected together, within a social context and historical development of their subject. If the strictures of the RSLR strategy presented in this paper should be criticised, that this seems a small price to pay, if it achieves a more 'rigorous' approach when undertaking management research. This is because it provides the foundations and platform upon which to challenge students to become clearer and more critical in their thinking. These are the tenets upon which management research is founded.

References

- Boaz, A. Hayden, C. and Bernard, M. (1999) *Attitudes and aspirations of older people: a British Journal of Management*, Vol. 12 No. 1, special issue, pp. 41-8.
- Conner, K.R. and Prahalad, C.K. (1996) "A resource-based theory of the firm: knowledge versus opportunism", *Organization Science*, Vol. 7 No. 5, pp. 477-501.
- Davenport, T.H. and Prusak, C. (1998) *Working Knowledge*, Harvard Business School Press, Boston, MA.
- Denyer, D and Tranfield, D. (2006) *Using qualitative research synthesis to build an actionable knowledge base*, *Management Decision*, Vol. 44, No. 2, pp.213-227.
- Dixon-Woods, M., Agarwal1, S., Young, B., Jones, D. and Sutton, A. (2004) Integrative Approaches to Qualitative and Quantitative Evidence, Health Development Agency London, [online];: www.hda.nhs.uk.
- Easterby-Smith, M, Thorpe, R. and Lowe, A. (2002) *Management Research: An Introduction*, 2nd ed. London, Sage.
- Eisenhardt, K.M. and Santos, F.M. (2002) "Knowledge-based view: a new theory of strategy?" in Pettigrew, A. (Ed.), *Handbook of Strategy and Management*, London, Sage, pp. 138-64.
- Fink, A. (2005) *Conducting Research Literature Reviews*, London, Sage.
- Hammersley, M. (2002) *Systematic or unsystematic, is that the question? Some reflections on the science, art and politics of reviewing research evidence*. Talk given to the Public Health Evidence Steering Group of the Health Development Agency, October, 2002.
- Hart, C. (1998) *Doing a Literature Review*, London, Sage.
- Leonard-Barton, D. (1995) *Wellsprings of Knowledge: Building and Sustaining the Sources of Innovation*, Boston, MA, Harvard Business School Press.
- Macdonald, G. (1996) "Ice therapy? Why we need randomised controls", *What Works? Effective Social Interventions in Child Welfare*, Barnados, Ilford, UK.
- Mertens, D.A. (2005) *Research and Evaluation in Education and Psychology*, 2nd ed. London, Sage.
- Pattern, M. (1990) *Qualitative Research and Evaluation Methods*, 3rd ed. London, Sage.
- Petticrew, M.A. (2001) *Systematic literature reviews from astronomy to zoology: Myths and misconceptions*, *British Medical Journal*, 13 January 322(7278), pp.98-101, [online], <http://www.bmj.com/cgi/contact/full/322/7278/98>.
- Petticrew, M.A. and Roberts, H. (2006) *Systematic Reviews in the Social Sciences*, Oxford, Blackwell.
- Spender, J.C. (1996) "Making knowledge the basis of a dynamic theory of the firm", *Strategic Management Journal*, Vol. 17, pp. 45-62.

Tranfield, D., Denyer, D. and Smart, P. (2003) "Towards a methodology for developing evidence-informed management knowledge by means of systematic review", *British Journal of Management*, Vol. 14, No.3, pp.207-222.

Rapid Structured Literature Reviews (RSLR)

Stage 1: Conceptualisation

1. Introduction

- a) Justification and rationale of topic and RSLR
Identify and justify the research topic.
Why is the topic important to investigate?
What is the rationale and reasons for doing a RSLR?
Describe the stages of conducting the RSLR Research Strategy
- b) Formulate the research aims, objectives and questions.
- c) Create a conceptual map of topic area and issues (see Appendix 1 for an example)

2. Define the scope and range of the RSLR using the conceptual map to determine:

- Is the RSLR going to focus on interpretive, positivistic or mixed methods studies in the extant literature, or will it consider a combination of these approaches – an inter-disciplinary approach? For example:
 - Personal histories – narrative analysis
 - Culture - ethnographies
 - Events and single cases - case studies
 - The experiences of people – phenomenology
 - Analysis of language – discourse analysis
 - Analysis of behaviour – interaction analysis or symbolic interaction
 - Study of phenomena of mass media communication – internet research
 - Populations - survey's
 - Scientific research – experiments
- Time frame the RSLR will cover
- Type of seminal articles to include in RSLR such as:
 - a) Peer reviewed journals
 - b) Professional journals
 - c) Conference proceedings
 - d) Market research
 - e) Organisational literature
 - f) Official statistics: Government and company sources
 - g) Dissertations/thesis/unpublished papers
- Seminal authors to include in RSLR
- Geographical location the RSLR will cover

Stage 2: Operational Aspects

3. Research Design and Methodology

- Approach: Interpretive
- Paradigm: Hermeneutics
- Methodology: Narrative Analysis of literature chosen for RSLR in Step 2
- Data Collection and quality assessment. Access literature data bases using key words and strings using and /or Boolean operators to create article selection list. Use Refworks (or any other referencing tool) to save references. The following assessment frameworks may prove useful for considering the quality of literature (examples for recording this information are shown in the Appendix 2).

Framework 1

Conceptual framework	<ul style="list-style-type: none"> ▪ What are the aims, objectives, questions /hypothesis identified? ▪ How is the body of knowledge linked to research questions? ▪
Research Design and methodology	<ul style="list-style-type: none"> ▪ Are the following appropriate for the study? ▪ Paradigm ▪ Approach/strategy/Methodology ▪ Research methods and instruments ▪ Findings ▪ Reliability ▪ Internal and external validity ▪ Ethical concerns ▪
Findings and analysis	<ul style="list-style-type: none"> ▪ Are the results presented in a clear fashion? ▪ How is the literature use to interpret the findings? ▪
Conclusions	<ul style="list-style-type: none"> ▪ Does the study re-visit the research questions? ▪ Does the study critique the approach taken? ▪ What implications are there for practice? ▪ What further research is required?

Framework 2

Another example and perhaps more explicit set of issues could also be used to assess the quality of articles is provided by Pattern (1990, cited in Hart, 1998:49):

Issues	Options
What is the purpose of the study?	Basic research, applied research, summative evaluation, formative evaluation, action research, illuminative evaluation, ethnomethodology.
What is the scope of the article contents?	What is included, excluded, why and to what effect?
What is the focus of the study?	People, policy, programme. Breadth versus depth, case study, survey, chronological, comparative and so on.
What are the units of analysis?	Individuals, groups, programme components, whole programmes, organisations, critical incidents, time periods and so on.
What is the sampling strategy?	Purposeful, probability, quota, random, size, representation, significance and level of generalisability
What types of data were collected?	Qualitative, quantitative
How were the data managed?	Organisation, classification, presentation, referenced, indexed and so on.
What analytical approach is used?	Deductive, inductive.
How is validity addressed in the study?	Triangulation, multiple data sources, multiple study
When did the study occur?	Currency of findings, long-term investigation, short and snappy, phased and piloted.
How is the study justified?	Literature review and analysis, problem definition, practical outcomes, intellectual endeavour and so on.
How are ethical issues handled?	Informed consent, confidentiality of information, reactivity, and data protection and so on.
How are logistics handled?	Access to data and respondents, fieldwork, record keeping, data management and so on.

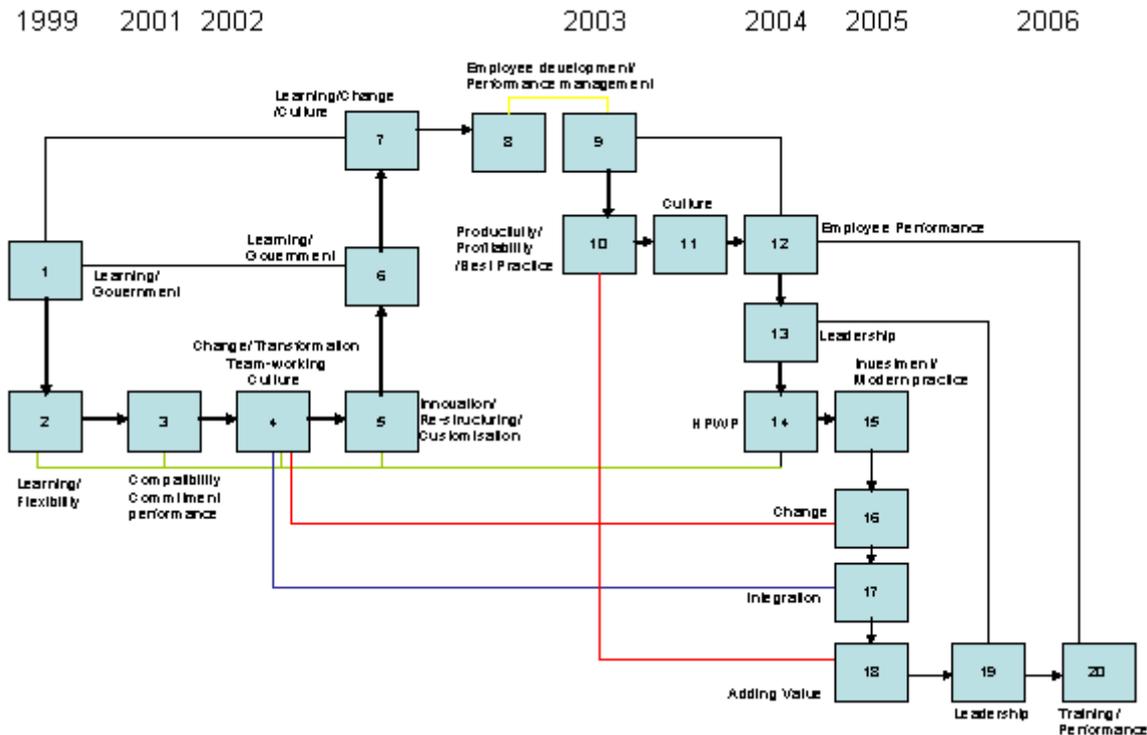
4. Findings from extant literature of the RSLR

- Create tables of descriptive information
- Created thematic relationships and connections Use Grounded Analysis to organise data themes, categories and issues (Easterly-Smith et al, 2002:122-124)
 - a) Formulisation
 - b) Reflection
 - c) Conceptualisation
 - d) Cataloguing concepts
 - e) Recoding
 - f) Linking
 - g) Re-evaluation

5. Create a literature map of extracted literature. Link literature by:

- Theme?
- Author?
- Time series?
- A combination of these approaches?

An example is shown below of how a literature map has been created for High Performance Working.



Evolution of HPW literature showing linkage of themes (Extract by kind permission from Masters Dissertation by Leigh Brown, MA HRM, 2006)

Recommended number of articles for level of programme:

- Undergraduate: 10,000 words 10-20 articles
- Masters : 15,000 words 20-25 articles
- Masters : 20,000 words 25-30 articles
- Masters : 25,000 words 30-35 articles

(N.B. these are not definitive numbers, but might serve as a useful guide)

Stage 3: Sense making

6. Discussions and Interpretations:

Can changing landscapes be identified in RSLR?

- Are there differences between authors' views in RSLR?
- What are key lessons to be learnt from the RSLR in your field of study?
- Are there any insights for practice as a consequence of doing the RSLR?

7. Conclusions:

- Overall findings of the RSLR
- Re-visit: Research aims, objectives, questions of the RSLR
- Critique the RSLR approach: advantages and limitations
- Further work: Further RSLR, formulation of further research questions or hypothesis, design of further empirical work

Tales of an Immersed Researcher: Dealing with an Intimate Experience of Practice, New Perspectives on the Politics of Regulatory Change and Communication

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Abstract: Both Governmentality and accounts of collaborative ethnographic study are well served by the academic literature. However, this discussion focuses upon discourses that circulate around the debate of meat hygiene practice and how it mediates through implementing organizational and regulatory change. This study subtly illuminates the differing expectations and gaze of the researcher and sponsor relationship. It sketches the degrees of control for both, as each search for insights into existing practice, exposing challenging attitudes and communicating the need for change within a watchful public realm. Finally, it also traces how the research objectives evolved from challenges to organizational change to notions of 'Communities of Practice' (Lave and Wenger, 1991).

Keywords: collaborative ethnographic study; communication; communities of practice; selectivity; governmentality

1. Introduction

This research centres upon the implementation of the new European Union 'H123' hygiene legislation in January 2006 and traces the change in the research emphasis which it brought about. In the United Kingdom (U.K.) the 'competent authority' is the Food Standards Agency; its 'executive agent' is the Meat Hygiene Service (MHS) whose primary purpose is to implement meat hygiene policy. Originally, drawing upon the researcher's professional experience of working for the MHS as an inspector and an interest in organizational behaviour, the researcher approached the MHS with a research proposal. It was envisaged the research questions would focus upon three areas: potential challenges at the plant level, specifically, MHS teams themselves, due to pre-existing sub-cultures or even instances of 'organizational misbehaviour' (Ackroyd and Thompson, 1999); was there consistent interpretation and enforcement of the legislation and finally to assess whether project management methodologies, such as PRINCE 2, were helpful to the overall implementation process. However, in consultation with the sponsor, they were particularly keen for a focus on the effectiveness of their communication methods. Communication and in a later revision of the research questions, notions of 'Communities of Practice' (Lave and Wenger, 1991, Wenger, 1998, Wenger *et al*, 2002) came to eventually dominate the research.

Communication methods are crucial to any organizational change strategy. For the MHS and its operational staff, the new legislation represented a significant legislative, cultural and organizational change, as it moved from an 'inspection and enforcement' to an 'audit and verification' framework. This specifically meant that Food Business Operators (FBO) would become far more responsible and accountable for their processes. As with any organizational change, implications began to emerge, such as a potentially reduced inspection workforce. Inevitably, tensions came to the fore between MHS and its non-governmental organization stakeholders. Concerns over the implications for food safety inevitably encouraged the taking of policy 'positions', which in turn created tensions and anxieties at different levels and locations within and between the MHS and UNISON, the operational staff's trade union. Set against this background, these perspectives help explain the views and responses given in the questionnaires and interviews. Given the sensitivities of food policy situated within the public realm, it identifies certain research issues, as such possible restriction of the research process and selectivity of material. This discussion will not preview an in-depth analysis of the results of the questionnaire or interviews, but will discuss how certain research problems were addressed.

2. Literature review

Although many reports and studies are conducted for and on behalf of the civil service and its associated executive bodies, they are often confined to looking at specific issues, policies or implementations. However, the processes of institutional behaviour, policy implementation and Governmentality are well covered (Douglas, 1987, Foucault, 1991, *Journal of Public Sector Management*) in the academic literature. Construction of discourse as a means of communication is very much a product of the language and metaphors used to convey and articulate meaning within that organization; this in turn shapes future discursive activity (Phillips, Lawrence, and Hardy, 2004a, Phillips, and Hardy, 2004b, Manning, 1989,

Alvesson and Karremann 2000). These discursive practices present a way of reading an organization and how its people operate within that environment. Power and power relations (Foucault, 1980, 1997) ultimately shape discursive practice and this in turn informs this discussion.

Communication and engagement are key issues and matter a great deal too many people within an organization. Not surprisingly, there is no lack of material on how best to communicate with employees (Young & Post, 1993, Kegan and Laskow, 2001) often these are prescriptive in nature which can limit their utility for practice. For organizations like the MHS, their situation is far more complex, there is not just the head office, regional and plant structures and communities, but also there is a great deal of inherent diversity to consider. This diversity brings a spectrum of international perspectives, personal working histories, experiences and world views about how meat hygiene should be practiced. These heterogeneous groups and influences are then required to ensure an effective, homogeneous regulatory group. Synchronizing and maintaining the individual's personal needs, sense of self, wants and agendas with that of the organizational objectives are a major ongoing task. Maslow (1970) articulates such tensions between an individual's different conscious motivations and attitudes and organizational expectations. Indeed, partly focusing upon the individuals' situation, membership within multiple communities of practice and the inevitable tensions which this stimulates, Handley *et al*, argues that "the development of identities and practices is not solely *within* a community of practice, but in the spaces *between* multiple communities" (Handley *et al*, 2006, p650, original author's emphasis). Also, individuals can also be divided into 'cosmopolitans and locals' (Haas, 2006), these groups help contribute to their team's organizational goals, but not surprisingly, their roles and contributions are more complex, more subtle, and sometimes harmful rather than helpful. The difficulty for the organization then arises, when one single message is transmitted by what ever mode of communication and is expected to fulfil it's objectives for creating shared meaning.

Given these constituent features and challenges within the various communities in the organization, communities of practice offer possible analytical leverage to this review. Wenger locates communities of practice as a "mid-level" category neither specific, narrowly defined nor that is a broadly defined aggregate that is abstractedly social or historical (Wenger, 1998, p125). The original conception of communities of practice was proposed as a method of explaining and understanding how groups negotiated, situated learning and participation within an organization. Certainly interest has in the concept has continued, Roberts reports that in 1993 there were just four papers and by 2003 this had grown to seventy five (Roberts, 2006, p637) on the subject. Perhaps and not surprisingly, communities of practice have attracted academic examination from multiple subject areas, for instance, knowledge generation and acquisition, organizational learning, structure and agency. Roberts astutely recognises that "one of the strengths of the community of practice approach is that can be applied to a wide number of organizational settings...but it can be a weakness, in terms of inappropriate application" (*ibid* p634/5). Interestingly, in perhaps an attempt to discourage some of the misplaced expectations for organizational study and practice, Wenger *et al* do not claim that communities of practice are a "universal silver bullet to replace teams or business units" (Wenger *et al*, 2002, p14). Indeed they observe that a form of "stickiness" located between boundaries "miscommunication and misunderstandings are commonplace along boundary lines" (*ibid*, p151) which hinders communication and is a feature of communities of practice, although this is not entirely a revelation where human interaction features.

As the introduction made clear, the MHS grappled with the challenges of communications methods, the emerging questionnaire responses appeared to confirm certain aspects of academic literature. For instance, studies showed on a continuum of media richness, face to face communication is the most favoured and effective form (Daft, Lengel & Trevino, 1987) and that the preferred sources of information in organizations are from supervisors and co-workers, as opposed to senior managers or executives (Allen and Griffeth, 1997, Grice *et al*, 2006). However hard an organization tries to convey a single message, people will interpret it within their personal situation. When an author provides a constructed account of reality or a discourse, ultimately, as Wenger (1998) has noted "the reader has jurisdiction over what it comes to mean to them".

For the MHS, the move towards 'all out' auditing and risk assessment represents organizational challenges. According to Du Gay (2000) there has been a dual attempt to 'enterprise up' the state and to move to a 'cultural' reconstruction of management. Some have described it as a response towards the creation of a 'risk society' (Beck, 1992), Strathern (2000) has observed an advocacy of adopting new monitoring 'cultures'. There are other tensions and pressures with such approaches for organizations, Crowther (2002) contends there are 'binary oppositions', for instance, between reporting financial versus environmental performance, and shareholders verses stakeholders, 'the individuals and groups who produce the audit report are the

authors of the script, who are at the same time the managers of the organization, who are the only people with the power to achieve results, who of course, are the authors of the text' (Crowther, 2002, p230). Shore and Wright (2000) have argued that 'psychological insecurities' and the expectation of public scrutiny can put managers and those charged with such activities in a challenging position. In such situations, propriety becomes a central consideration where the potential loss of public confidence is an issue.

It is worth remembering that audit practice in the MHS has developed over time, a process that Power (1997) describes as a 'bedrock of knowledge and practice that becomes codified' and is therefore hardly 'alien' to it. However clearly standards are set out, the potential for subjective and the various forms of heuristic decision making and judgement (Bazerman, 2002) will feature in practice. On the surface, this alludes to specific and targeted training as the solution, ensuring that operational staff are adequately and uniformly trained or conditioned, so that standards are consistently applied and they have the confidence to make decisions. This is difficult to teach, one cannot legislate for the imponderables at plant level, and therefore a degree of latitude must be afforded in the audit process, which requires negotiation and experience. Much of this relates to what is described within auditing as 'epistemic independent knowledge' (Power, 1997), that for auditing to be effective the auditor, in this case MHS staff, must not have to rely on the auditee, the FBO, for information to conduct the audit or react to practices.

3. Methodology

The regulated nature of MHS and the environment that it operates in, coupled with multiple negotiated meanings feature heavily within the background. For the purpose of this discussion the issues that arose from the methodology is the central focus. The research methods were no longer about a detailed commentary of grand theory, triangulation and the merits of qualitative versus quantitative research methodologies, but of selectivity, justification, responsibility and how the research tools might provide analytical leverage. As has already been eluded too, having identified a researchable problem and then narrow it down sufficiently to make it workable were key concerns (Strauss and Corbin 1990). The nature of the material and level of subjectivity, would in the researcher's opinion, be best served by using interpretative perspectives and methods. Alvesson (2002) argues that a 'constructivist' notion, with no direct access to an objective, independent reality, trying to describe it, we create a particular version of it' (2002, p178). 'Reality' is always filtered through the perspective taken and the language used. For the researcher, this means that within this context, reality is constructed by necessity, by power relations, by human actors and agency. In short, there are multiple meanings and perspectives found within the material, which needed to be identified and 'giving voice too'. Much of the organization's work is based upon rational, empirical and scientific knowledge. In this way, how the results, findings and observations of the study were presented was crucial to the MHS because they value and appreciate clear reporting. So 'giving voice too' respondents would need to be approached in a straightforward manner which could be easily understood.

Due to a host of reasons, both academic and personal, a snapshot of the implementation process was deployed. The quantity of all the data sets required a strict refocusing on the research questions. Transcription and coding of the interviews all helped with the process of analysing the interview data sets.

4. Re-evaluation of research questions

As was indicated in the introductory remarks, there was a change in the emphasis of the research questions. This was partly in response to the emergence of the data sets especially from the interviews, along with some initial reflection on them, and a tentative grasp of Glaser and Strauss's 'grounded theory' (1967), it became apparent that:

- It was inevitable with multiple geographically located teams, variation of interpretation and methods of practice would occur.
- The MHS as an organization has at its disposal professional advice on quantitative methods of sampling mass opinion.
- Use of PRINCE2 as an implementation tool had been significantly scaled back by the organization.
- The restrictive nature of an undergraduate dissertation discussion would not fully do justice to the material.

As a result of these preliminary decisions, the focus of the research shifted considerably to people, 'actors' situated within their 'communities of practice' trying in often difficult and pressured circumstances to perform their jobs and tasks, how they made sense, and negotiated the boundaries to make decisions. With this change of emphasis, the revised research questions emerged as follows:

- Using notions of communities of practice, this would provide the analytical leverage and insights into understanding the inherent challenges of managing meat hygiene at different levels within the MHS and multiple locations within the U.K.
- With regard to communicating with the MHS's stakeholders, how permeable is the particular language of communities of practice, for instance in political practice, how is this permeability currently being managed, was the metaphor of 'stakeholder' providing adequate insight into communicating and developing shared understanding.

5. Discussion

Out of the four semi-structured interviews, two particularly lent themselves to answering these revised research questions. To do this, vignettes were selected for providing leverage on understanding the politics underpinnings which surround communities of practice at the headquarters. Also, the question of communication and the challenges of surveying different opinion were discussed. Of particular interest was the acknowledgement that it is relatively straightforward to canvas opinion and to consult staff, but as was noted in the literature review, the challenge from an organizational perspective is how to formulate a credible and directed response to multiple comments from staff. In addition to targeted communicative responses, such as newsletters and informative articles placed on organization's 'portal', the encouragement of individuals to become change 'evangelists' within the organization is crucial. It does assume that some staff are willing to fulfil such as role. However, this takes time and would require further targeted research to measure such sustained influence within groups.

For other parts of the research focus, certain questions contained in the questionnaire were utilised in the analysis. This was done in two ways. The 'no' responses to question seven on the questionnaire (*Will official controls be consistently applied in plants?*) were used in two ways. First, the additional comments were analysed for references which indicated a shared awareness of community, there were some who indicated awareness of a shared community, but not an association with the notion of being a 'stakeholder'. Certainly there was some acknowledgement of being part of a wider team. Second, six respondents who answered 'no' to question seven (this did include one 'yes' response, who made a specific comment) were selected. This called for specific comment and analysis from the researcher. The aim was to 'give voice' to the dissenters and to explore in greater depth what the respondents comments could mean to practice and implementation.

This approach may on the surface seem rather negative or even mischievous in some quarters. But this was certainly not the intention; the analysis of those responses was rigorous to ensure credibility. Rather, it was an attempt to provide a more considered analysis of some of the detractor's comments, in the hope that these comments could be taken in the spirit that they were offered, but then be constructed into valuable contributions for organizational improvement. Although the majority view which confirmed that controls would be consistently applied, in the researcher's opinion 'yes' responses would tell the reader or the MHS very little about what are the issues that concern the 'vocal dissenters'. This should be encouraged, as Kassing (1997, 1998) argues that dissent is in the middle of a continuum of openness that ranges from 'voice' (a broad behaviour) to 'whistle blowing' (a specific behaviour) and can be seen as a form of participation and engagement in organizational daily life. Edmondson (2006) advocates the elimination the adversarial relationship that often exists between management and employees who speak up. They both observe that when employees choose not to share their feedback within the organization, they suffer by forfeiting potentially valuable information; thankfully they did not withhold their opinions which afforded the researcher much room for discussion.

However, the dual research questions and objectives of the researcher and sponsor hindered one another. Attempting to analyse and answer the revised research question of how the communities of practice informs the receiving and contextualising of communication at the plant level was problematic. For instance, at the request of the sponsor the questionnaire primarily focused upon the preferred communications methods, asking specific questions about the effectiveness and level of penetration of previous correspondence. This took up a significant proportion of the questionnaire and coupled with other questions, the opportunity was small. Also, there was always a sense of urgency that the questionnaire had to be produced to coincide with the training days for staff. The pilot testing was perhaps not as rigorous as it should have been. The response rate to those questions with the resulting analysis was straightforward and was particularly informative for the sponsor. However, this reduced the options and space for other questions, the questionnaire was initially intended to focus on communication methods and not communities of practice. Therefore, the questionnaire was perhaps too blunt an analytical tool for the task of providing more nuanced

insights to questions about communities of practice. This emphasis limited its usefulness in this research's context and any further analysis would have therefore been purely speculative. On reflection, one to one semi-structured interviews or perhaps focus groups of operational plant staff may have been preferable.

6. Some comments on collaboration

Obviously to organise the logistics of a questionnaire of this size takes a degree of planning and collaboration within any organization. Although the researcher was partly employed by them, by using the MHS's national and regional networks, infrastructure and resources, both undoubtedly contributed to the high response rate. Moreover, the researcher had made reference to his position as a 'causal' inspector in the opening text of the questionnaire; this may have encouraged some people to complete the questionnaire. Becker (1986) has noted such empathic phenomena. Originally, the sample size would be 300, but for a variety of reasons responses eventually reached 1004, 90% of training day attendees who were given the questionnaire. Operational necessity had a significant influence on the immediate utility of the results, questionnaire responses were still being received by the researcher in March 2006. Ironically, the results were too late for advising the immediate implementation, but what emerged from this extended questionnaire survey period and increased response rate was a more complete comment on communication methods and attitudes by operational staff than had previously expected.

The agreement regarding questionnaire was problematic, whatever its undoubted value as a piece of primary research material for both researcher or sponsor. Differences of opinion over the timing of the release to respondents and the wording of questions needed to be dealt with almost diplomatic sensitivity, so as not to be overly negative in nature towards the MHS or being hijacked as means of protest, thereby questioning its utility for the MHS. It required a telephone conversation between the researcher and the then Chief Executive to remove the impasse; there was an element of brinkmanship, which the MHS was always going to win. There is a balance to be struck between a differing focus of research objectives and potential outcomes (see Cronholm and Goldkuhl, 2004). Even when a rationale was produced for including certain questions within the questionnaire, this could not allay all fears related to specific subjects and issues. It was an illustrative example of custodial power being deployed to protect the interests of the organization and its reputation. As an organization, the MHS exists within an environment in a state of flux and political underpinning; it is all too aware of the potential political nature of methodology. For example, the composition of the questions contained within the questionnaire could influence the type of results that could be ultimately reported.

7. Conclusion

Although Governmentality is well served by the academic literature, published research studies into the workings of government agencies are rare. This discussion does offer a glimpse into the workings and perspectives of organizational daily life, very much at the forefront of implementing public health and food policy, but it has its limitations. Perhaps it should be no surprise that this area of research is problematic, given the political underpinnings of an organization, one especially involved in the public realm. Certainly in terms of providing useful insights for organizational practice, the questionnaire undoubtedly was taken seriously both by the organization and the respondents; the high response rate would indicate such an assertion. The resulting report produced for the MHS, continues to inform communication strategy and method which is satisfying for any researcher. As with any form of collaboration, encouraging trust and credibility is the primary consideration, once this is established and then maintained, as with these results, they have proved to be valuable to both parties producing unexpected insights.

In many ways the act of selectivity is a demonstration of political judgement, the awareness of multiple audiences' demanded restraint and thoughtfulness by the researcher. This is almost as crucial as the selection of research objectives, design or methodology for the research. In this context, being considered and resisting the temptation to emphasise the controversial is not in anyone's best interests. This does of course touch upon the familiar discussion on authorship and power though.

The concept and value of 'communities of practice' as a vehicle and conduit of knowledge generation and transmission certainly fits within and guided this discussion. Although attempting to develop the concept of communities of practice as a methodological research tool to bring understanding of organizational daily life, its application was less evident within this study. Perhaps we should not be surprised by this. The metaphor of 'Stakeholder' is a ubiquitous term, but although 'community of practice' is becoming increasingly familiar topic for academic discussion. Within a wider organizational setting, the concept has some way to go before it is easily recognised by people within organizations, that said, once identified, communities of practice would

be easily recognised and identifiable by staff as members of such groups. In terms of research design, attention should focus upon interviewing groups who belong to specific communities of practice to find out how communication could be improved. By focusing upon what modes of transmission and the type of language which mediates most effectively between the boundaries of different communities of practice and the target communities of practice, this could significantly improve organizational effectiveness and commitment of such groups.

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9. References

- Ackroyd, S and Thompson, P. (1999). *Organizational Misbehaviour*. Sage Publications, London.
- Allen, D.G. and Griffeth, R.W. (1997). 'Vertical and Lateral Information Processing: The Effects of Gender, Employee Classification Level and Media Richness on Communication and Work Outcomes'. In *Human Relations*, Volume 50. pp 1239-1260.
- Alvesson, M. (2002). *'Postmodernism and Social Research'*. The Open University, Buckinghamshire.
- Alvesson, M and Karremann, D. (2000). 'Varieties of Discourse: On the study of organizations through discourse analysis'. *Human Relations*. Volume 53, Number 9. pp 1125-1149.
- Bazerman, M. H. (2002). *Judgement in Management Decision Making*. 5th Edition. Wiley and Sons, New York.
- Beck, U. (1992). *Risk Society: Towards a New Modernity*. Sage Publications, London.
- Becker, H. S. (1986). *Writing for Social Scientists: How to Start and Finish Your Thesis, Book, or Article*. The University of Chicago and London Press, Chicago.
- Cronholm, S and Goldkuhl, G. (2004). 'Conceptualising Participatory Action Research-Three Different Practices'. *European Journal of Business Research Methods*, Vol 2, Issue 2, pp47-58, available online at www.ejbrm.com
- Crowther D. (2002). 'Psychoanalysis and Auditing'. In *Management and Organization Paradoxes*. Clegg, S (Editor). John Benjamins Publications Company, Amsterdam.
- Daft, RL, Lengel, RH, & Trevino, KL. (1987). 'Message Equivocality, Media Selection and Manager Performance: Implications for Information Systems'. *MIS Quarterly*, Volume 11, pp 355-366.
- Douglas, M. (1987) *How Institutions Think*. Routledge and Kegan Paul, London.
- du Gay, P. (2000) *In Praise of Bureaucracy: Weber, Organization, Ethics*. Sage Publications, London.
- Edmondson, C. (2006) 'Organizational Surveys: A System of Employee Voice' *Journal of Applied Communication Research*, Vol 34, No 4, pp 307-310.
- Foucault, M. (1980). 'Two Lectures, (14 January 1976)'. In *Power/Knowledge: Selected Interviews and Other Writings 1972-1977*. Gordon, C (Editor). Pantheon Books, New York.
- Foucault, M. (1980). *Power/Knowledge: Selected Interviews and Other Writings 1972-1977*. Gordon, C (Editor). Pantheon Books, New York.
- Foucault, M. (1991). 'Politics and the Study of Discourse'. In *The Foucault Effect: Studies in Governmentality Two Lectures By and With an Interview Michel Foucault*. Burchell, Gorgon and Miller (Editors). Harvester Wheatsheaf, London.
- Foucault, M. (1997). *Power. Essential Works of Foucault 1954-1984, Volume Three*. Faubion, J (Editor). The New Press, New York.
- Glaser, B.G and Strauss, A.L. (1967). *The Discovery of Grounded Theory: Strategies for Qualitative Research*. Aldine de Gruyter, New York.
- Grice, T. A., Gallois, C., Jones, E., Paulsen, N and Callan, V.J. (2006) '“We Do It, but They Don’t”: Multiple Categorizations and Work Team Communication'. *Journal of Applied Communication Research*, Volume 34, Number 4. pp 307-310.
- Haas. R. M. (2006) 'Acquiring and Applying Knowledge in Transnational Teams: The Roles of Cosmopolitans and Locals'. *Organizational Science*. Volume 17, Number 3, pp 367-384.
- Handley, K, Sturdy, A, Fincham, R and Clark, T. (2006). "Within and Beyond Communities of Practice: Making Sense of Learning Through Participation, Identities and Practice". In *Journal of Management Studies*. Volume 43, Number 3. pp641-653.
- Kassing, J.W. (1997) 'Articulating, Antagonizing and Displacing: A Model of Employee Dissent'. *Communication Studies*, Volume 48, pp 311-332.
- Kassing, J.W. (1998). 'Development and Validation of the Organizational Dissent Scale'. *Management Communication Quarterly*, Volume 12, Number 2, pp183-229.
- Kegan, R. and Laskow-Lahey, L (2001). *Seven Languages for Transformation: How the way we talk can change the way we work*. Jossey-Bass, California
- Lave, J and Wenger, E. (1991). *Situated Learning: Legitimate Peripheral Participation*. Cambridge University Press, Cambridge.
- Manning, P, K. (1989). 'Studying Policies in the Field'. In *The Politics of Field Research beyond Enlightenment*. Gubrium, J. F. and Silverman, D. (Editors). Sage Publications, California.
- Maslow, A. H. (1970). *Motivation and Personality*. (2nd edition). Harper Row Publications, New York.

- Phillips, N., Lawrence, T.B. and Hardy, C (2004). 'Discourse and Institutions'. *Academy of Management Review*, Volume 29. Number 4. pp635-652.
- Phillips N and Hardy C (2004b). 'Discourse and Power'. In *The Sage Handbook of Organizational Discourse*. Grant, D, Hardy C, Putnam L and Osrick C. (Editors). Sage Publications, London.
- Power, M. (1997). *Audit Society: Rituals of Verification*. Oxford University Press, Oxford.
- Roberts, J. (2006). "Limits of Communities of Practice". In *Journal of Management Studies*. Volume 43, Number 3. pp6223-6239.
- Shore C and Wright S. (2000). 'Coercive Accountability'. In *Audit Cultures: Anthropological Studies in Accountability, Ethics and the Academy*. Routledge, London.
- Strathern, M (2000). "New Accountabilities" In *Audit Cultures: Anthropological Studies in Accountability, Ethics and the Academy*. (Editor). Routledge, London.
- Strauss, A and Corbin, J. (1990). *Basics of qualitative research: grounded theory, procedures and techniques*. Sage Publications, California.
- Wenger, E. (1998). *Communities of Practice: Learning, Meaning, Identity*. Cambridge University Press, Cambridge.
- Wenger, E, McDermott, R and Snyder, W. (2002). *Cultivating Communities of Practice: A Guide to Managing knowledge*. Harvard Business School Press, Massachusetts.
- Young, M. & Post, J.E. (1993). 'Managing to Communicate, Communicating to Manage: How Leading Companies Communicate with Employees'. In *Organizational Dynamics*, Volume 22, pp31-43.

Scale Development Process: Service Quality in Car Rental Services

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Abstract: This paper aims to provide an example for developing a measurement scale by using car rental services as a case. To do so, both qualitative and quantitative methods are utilized in three fundamental stages recommended by Churchill (1979) and Parasuraman, Zeithaml & Berry (1988). In following their footsteps, the first qualitative research was undertaken in the form of 23 in-depth interviews which produced 61 items that described user perceptions. Then, a quantitative study was undertaken to purify the scale items, examine dimensionality, reliability, factor structure and validity. After a rigorous statistical analysis an 18-itemed scale with six factors emerged. The paper also introduces the setting of the research and presents need for scale development briefly which is followed by discussion, implications and limitations.

Keywords: Scale development, measurement, fundamental stages, value of fit measures, models, car rental services, North Cyprus.

1. Introduction

Questionnaires are the most commonly used method of data collection in field research and over past several decades hundreds of scales have been developed to assess various attitudes, perceptions and opinions of customers, employees, managers so on to examine hypothesized relationships with other constructs or behaviors (Hinkin, 1995). Some of these scales had validity and reliability problems thus were not accepted and used in literature. On the other hand, some scales like SERVQUAL developed by Parasuraman, Zeithaml and Berry (1988) are widely cited and replicated, yet had criticized by some researches (for instance, Cronin and Taylor, 1992; 1994). For a scale to be successful, it should have a sound literature support and should survive various rigorous statistical tests like validity and reliability. To do so, this study utilizes both qualitative and quantitative methods in three fundamental stages recommended by Churchill (1979) and Parasuraman, Zeithaml & Berry (1988).

Tourism is one of the most thriving sectors in the world. World Tourism Organization (UNWTO, 2006) has reported that international arrivals have reached an all time record of 808 million tourists, with a 5 percent increase, in 2005. Especially among the other means of transport systems such as railway, air and water 45% of tourists preferred to use land as a means which suggests around 350 million tourist arrivals were correspond to trips, visiting friends and relatives, health, leisure, recreation reasons with available rent-a car services, buses, taxies and so forth (UNWTO, 2006). The transportation services have an important role in tourism since the essence of tourism requires some sort of movement from - to or in between locations. Car rental agencies, along with many other factors, have played a vital role in increasing the ease of transportation by providing a service where tourists can easily travel within their destinations. In this sense, car rental service is important for tourist satisfaction, retention and the expansion and capacity of rent a car business in the tourism industry in the international markets. Thus, the car rental service is preferred as an example to show the steps of scale development process. Besides, there is a need for both an industry specific and a country/culture specific quality measurement for different services (Churchill & Peter, 1980; Mattila, 1999; Hofstede, 2001; Yavas & Konyar, 2002; Ozer, 1999), which is also valid for rent a car business as an important part of the tourism and travel processes.

There will be five sections in this study. First, conceptualization and operationalization of service quality measures in literature will be discussed briefly. Second, the steps in developing new scale will be specified. Third, methodology used in the study will be explained in detail. Fourth, results and discussion of the findings will be given. Finally, recommendations, limitations and future research implications will be provided.

2. Relevant literature

Over the past several years, there have been a variety of debates in the literature in consideration of service quality conceptualization and measurement. The reason was apparent that service quality may achieve two important crucial goals for a service organization that are finding and retaining satisfied or repetitive

customers. In fact, service quality can be defined as a customer's perception of the overall superiority of an organization's excellence in providing service (Zeithaml, 1998).

Parasuraman et al. (1985; 1988) suggested that the customers' appraisal of the overall service quality depend on the gap between the actual performance and their expectations. Also, they claimed that customers evaluate service quality by using five criteria such as tangibles, reliability, responsiveness, assurance, and empathy. Among these tangible dimensions could be the least important and the reliability dimension was of most concern to customers. After that these authors developed an instrument called SERVQUAL that has been the most widely used tool in measuring customer's perception of service quality. Numerous researchers conducted the five dimension model in different sectors in different countries that some researches confirmed the five dimension model (e.g. Gabbie & Neill, 1996; Bojanic & Rosen, 1994; Mehta & Durvasula, 1998; Lam & Zhang, 1998) but some others failed (e.g. Carman, 1990; Babakus & Boller, 1992; Brown, Churchill & Peter, 1993; Ryan & Cliff, 1996). In consideration of other significant studies in the literature, it seems that service quality concept includes technical and functional quality (Grönroos, 1984); service product, service environment, and service delivery (Rust & Oliver, 1994); and interaction quality, physical environment quality, and outcome quality (Brady & Cronin, 2001).

Although, a lot of studies have been examined and practiced SERVQUAL model as a framework in measuring service quality, there has also been extensive criticism directed towards this measure in the marketing literature. These criticisms have mainly revolved around the interpretation and implementation of the instrument in the service industry (Newman, 2001; Arasli et al., 2005). One of the biggest problems in the usage of SERVQUAL measurement is its dimensional structure that the researchers in different contexts reported different factors for expectations, perceptions and gap scores. Thus, shortcomings concerning its universality and divergent and convergent validity issues were have also been questioned (Buttle, 1996; Carmen, 1990; Cronin & Taylor, 1994). Despite the criticism, SERVQUAL has been widely used since it "...provides the basic skeleton...which can be adapted or supplemented to fit the characteristics or specific research needs of a particular organization..." (Parasuraman et al., 1988, p. 31). While there are some practitioners, scholars and academics who believe that this topic seems to come to the end of its life in the literature in the 2000's, still there are some opponent researchers who thinks that some industries did not hear the siren call of this concept and more adaptations and theoretical applications are required in their field. For example, Khan (2003) suggested ECOSERV for measuring quality expectations in ecotourism. Actually, it seems that this concept would not lose its attractiveness in all fields yet and will be able to continue to attract many researchers in the next several years.

Even though, several scales have been replicated, adapted and developed to measure services such as SERVQUAL (Parasuraman et al., 1985; 1988), SERVPERF (Cronin & Taylor, 1992; 1994) in hotels, clubs and travel agencies, DINESERV (Stevens, Knutson & Patton, 1995) in food and beverage establishments, LODGSERV (Knutson, *et al.*, 1990) in hotels, and SERVPERVAL (Petrick, 2002) in airlines, SYSTRA-SQ (Aldlaigan & Buttle, 2002) in bank services, SITEQUAL (Yoo & Donthu, 2001) in internet shopping, E-S-QUAL (Parasuraman, Zeithaml & Malhotra, 2005) in electronic services, SELEB (Toncar et al., 2006) in education services and scale not named (Law & Hsu, 2006) in hotel web sites. However, less attention has been paid to the development of measures of service quality in car rental services. Extensive investigation of the literature, on services in general, tourism in particular, such as keyword search on major academic data bases like Proquest, Elsevier, Ebsco, Science Direct, etc. and search engines like Scholar Google, Yahoo and Google, revealed that there was no previous validated scale about quality of car rental services.

In fact, no scale currently exists to assess rent a car quality in the tourism industry as a whole. To date, relatively little is known about car rental business of the tourism industry, including how it may influence tourism and hospitality industry. This study aims to fill this gap in the relevant literature. Ozer (1999) recommended the development of industry specific quality measurements for a better fit to the nature of the industry. In echoing to this, the current study attempts to develop a new multi-item measurement scale for assessing the perceived quality in car rental services. To do so, eight steps approach proposed by Churchill (1979) and modified and used by Parasuraman, *et al.* (1988) will be followed by using the tourists visiting North Cyprus. These eight steps are in turn: "specify domain of construct, generate sample of items, collect data, purify the measure, assess reliability with new data, assess construct validity and finally develop norms" (Churchill, 1979, p. 66).

To operationalize these steps, grounded approach (Tabachnick & Fidell, 1996) will be employed by the use of both quantitative (in form of in-depth interview) and qualitative (in form of close ended survey instrument) techniques. In grounded approach, the concept is developed according to the collected data and the

hypotheses related to this concept are improved in the research process. The hypotheses are then tested in the research process to come up with some conclusions (Ozen, 2000). The reason of using both data collection techniques is to get the advantages of both techniques, quantitative (collecting data from large samples, expressing research findings in numerical terms and being more objective) and qualitative (exploring the research topic in greater depth, getting the bigger picture of reality and being more familiar with the subject area). The development of a scale measuring rent a car quality will facilitate studies investigating the prevalence, causes, and affects of car rental business of the tourism industry in North Cyprus.

Churchill & Peter (1980, p. 538) concluded that "...although measures in social sciences are never universally valid for all applications and in fact, the development of valid measures is a never-ending process, better measurement can only increase the quality of marketing research and theory...".

In echoing Churchill & Peter's (1980) recommendation and considering the lack of previously developed scale exclusively for car rental services, it was deemed valuable to develop a measurement scale, in accordance with the procedure for scale development recommended by Churchill (1979). This procedure is found to be useful and adopted in various studies (most recently; Caro & Garcia, 2007; Chu & Murrmann, 2006; Toncar et al., 2006; Karatepe, Yavas & Babakus, 2005; McMullan, 2005; Millan & Esteban, 2004).

3. Methodology

Churchill (1979) stressed the necessity of constructing a sound conceptual specification while developing a new measurement scale. In this sense, researchers benefit from the existing scales as starting point in their development efforts such as emotional labor (Chu & Murrmann, 2006), travel agency services (Millan & Esteban, 2004), service quality perceptions (Caro & Garcia, 2007) and SERVQUAL (Frochot & Hughes, 2000). Due to the lack of such a luxury, qualitative research was carried out to identify the factors which determine the service quality perceptions of car rental customers.

Twenty three in depth interviews were conducted in February and March 2006 with tourists visiting North Cyprus where a judgmental sampling approach was used. Judd, Smith, & Kidder (1991, p. 136) defined judgmental sampling or purposive sampling as "picking cases that are judged to be typical of the population in which we are interested, assuming that errors of judgment in the selection will tend to counterbalance one another". Interviewees asked open-ended questions about their expectations, criteria and past experiences about car rental services. Moreover, additional add-hoc questions were asked to clarify the given responses and enhance the productivity of the interview process. Interviewees were selected from three tourist destinations of North Cyprus; Kyrenia, Nicosia and Famagusta. Each interview last between 15 - 20 minutes and tape recorded. No incentive given to respondents.

Recorded interviews were studied by following the guidelines of a content analysis (Hinkins, 1995; Petrick, 2002; Millan and Esteban, 2004) to create compositions of all answers. Subsequently statements related to the respondents' quality expectations from car rental services were carefully highlighted. Researchers generated 61 distinctive statements for the content categorization. In order to form the factors statements with similar characteristics were grouped. The grouping process was carried out individually and collectively and resulted with the identification of seven factors.

Initial purification of the scale started with the assessment of content and face validity through a panel of experts as recommended by Caro & Garcia (2007). Sixty-one items, under seven factors reviewed by five experts, two car rental company owners and three academics knowledgeable in services marketing field. Experts suggested deletion of twelve items and rewording of some items. No recommendation was made concerning the labeling of the factors.

4. Analysis and results

4.1 Quantitative research: first stage purification

Resulting 49-items transformed into pilot questionnaire and used to collect data for first stage purification. This stage is mainly serving the confirmation purpose of newly developed scales' psychometric properties (Chu & Murrmann, 2006). A five-point Likert scale (Likert, 1932) ranging from (1) 'strongly disagree' to (5) 'strongly agree' was used.

The sample of the pilot study consisted of tourists staying in 4 and 5 star hotels in Kyrenia region during March 2006 with non-probability judgmental sampling technique. 320 questionnaires were distributed to respondents and they were requested to fill out the questionnaires in a self-administered manner. 213 questionnaires were returned and found to be useful, which represents a 66.6% response rate. This number is close (4.35 times) to the adequate rule of thumb sample size of five folds the number of items. More than half (54.9%) of the respondents were male, between the ages of '18-37' (40.8%) and had a minimum of an undergraduate degree (44.1%). Moreover, majority of the respondents were Turkish (74.2%) and more than one third of them (34.3%) reported that in last two years they rented at least 3 cars.

Churchill (1979) and Parasuraman et al. (1988) suggested that the purification of an instrument begins with the computation of Cronbach's alpha coefficient, item-to-total correlation and exploratory factor analysis (EFA). The value of the coefficient alpha ranged from .43 to .78 for seven factors which necessitate the removal of some items to improve the alpha values. Nunnally (1970) recommended omission of the items (<.30) with low corrected item-to-total correlations. Factor loadings obtained from EFA with Varimax rotation were further considered to test the factors and eliminate the poor performing items. As suggested by Chu & Murrmann (2006, p. 1183) after each omission "...alpha values were recomputed for the remaining items and the new corrected correlations were evaluated for further deletion of items". Totally twenty-five items were deleted from the instrument; see Table 1 for the results of pilot study with remaining 24 items. Factors and item numbers of RENTQUAL scale at this initial stage, were as follows; security (3 items), handing over (4 items), policy (3 items), comfort (4 items), ergonomics (3 items), delivery (4 items), accessibility (3 items).

Table 1: Results of pilot study: scale items, corrected item-to-total correlations, factor loadings, Cronbach's alpha scores (n=213)

Items	ITTC*	Factor loadings						
		F1	F2	F3	F4	F5	F6	F7
The car should have air condition	.490	.837						
The seats of the car should be comfortable	.439	.776						
The cars' interior should be spacious	.408	.685						
The car should have electrical windows	.359	.555						
Company should deliver the car to where I want	.523		.758					
Company should allow me to return the car to where I want	.522		.754					
Employee of the company should inform me about the cars' functions and accessories	.521		.635					
Employee of the company should inform me about previous accidents of the car, if any	.496		.677					
Car should be very clean when I receive it	.452			.815				
Car should have enough gas when I receive it	.440			.713				
Local maps and tourist information should be provided when I receive the car	.390			.635				
Additional information about the location should be provided while receiving the car	.336			.572				
Car should have no technical problem	.451				.873			
Car should have necessary safety features like ABS, Airbags...	.367				.734			
Car should have insurance and collusion damage waiver	.340				.710			
Car should have ergonomic features for customers with disabilities or special needs	.501					.820		
Car should have manual and automatic gear option	.490					.794		
Car should have hydraulic or electrical steering system	.439					.631		
Company should easily be accessible	.533						.857	
Employee of the company should be reachable at anytime	.492						.733	
Employee of the company should be available to meet with me in case of extraordinary situations like accident, technical problem...	.343						.591	
I should be allowed to choose method of payment	.370							.653

Items	ITTC*	Factor loadings						
		F1	F2	F3	F4	F5	F6	F7
Company should allow one day renting	.345							.636
Company should be tolerant towards unlikely delays in the return of the car	.302							.560
Cronbach's α		.78	.63	.68	.67	.84	.79	.47
Variance explained (%)	27.44		9.37	8.46	6.25	5.70	5.18	4.44
Kaiser-Meyer-Olkin Measure of Sampling Adequacy		.72						
Bartlett's test of sphericity (significance level)		.000						
Eigenvalue		6.59	2.25	2.03	1.50	1.38	1.24	1.07

Note: * Item-to-total correlations, Overall Cronbach's $\alpha = .743$, Approx. $\chi^2 = 1038.07$, $df = 276$, total variance explained (%) = 66.84, F1 = comfort, F2 = delivery, F3 = handing over, F4 = security, F5 = ergonomics, F6 = accessibility, F7 = policy.

4.2 Quantitative research: initial scale

Second stage purification of the RENTQUAL scale was carried out with a new data set. For this purpose modified version of pilot instrument was used. The sample of the main study consisted of tourists staying in 3, 4 and 5 star hotels in Kyrenia, Famagusta and Nicosia regions during May and June 2006 with non-probability judgmental sampling technique. 1000 questionnaires were distributed to respondents and they were requested to fill out the questionnaires in a self-administered manner. 726 questionnaires were returned and found to be useful (72.6% response rate).

Table 2: Demographic breakdown of the final stage respondents (n= 726)

	F	%
Age		
18-27	366	50.4
28-37	157	21.6
38-47	114	15.7
48 and above	89	12.3
Gender		
Female	190	26.2
Male	536	73.8
Education		
Secondary / High School	268	36.9
Vocational School	124	17.1
Undergraduate / Graduate	334	46.0
Country of origin		
Turkey	449	61.9
Cypriot	112	15.4
Other	165	22.7
Motivation of travel		
Holiday / relaxation	393	54.1
Professional / business travel	169	23.3
Visiting friends / relatives	109	15.0
Other motivations	55	7.6
Frequency of renting car in last 2 years		
None	42	5.8
1 - 3 times	418	57.6
4 - 6 times	211	29.0
More than 6 times	55	7.6

Overwhelming majority (73.8%) of the respondents were male, between the ages of '18-37' (72.0%) and had an undergraduate or graduate degree (46.0%). Moreover, majority of the respondents were Turkish (61.9%) and visiting North Cyprus with holiday purpose (54.1%). Finally, more than half of them (57.6%) reported that in last two years they rented one to three cars. Only minor group (5.8%) among the respondents stated that they did not rent any car within last two years.

In order to further refine the initial scale, the purification procedure followed same steps as those used in the first stage (computation of coefficient alpha, item-to-total correlation and factor analysis, but this time confirmatory factor analysis (CFA) used (Nunnally & Bernstein, 1994; Churchill, 1979). The value of the coefficient alpha ranged from .42 to .78. The results of CFA of initial scale established the attainment of seven factors. Nunnally (1978) suggested factor loading of .40 as cutoff value for new scale development studies. As can be seen from Table 3 most of the items had factor loadings greater than Nunnally's (1978) recommendation, except three items, which later omitted from the final scale.

Table 3 also lists the measurement error, t-values and coefficient of determination (R^2) scores. Millan & Esteban (2004) reported R^2 scores as relative measure of fit for each structural equation. Hair *et al.* (1995) recommended the deletion of items whose R^2 scores lower than .50. In echoing Hair *et al.*'s (1995) recommendation following items deleted: 'the car should have electrical windows' from comfort factor ($R^2 = .45$) and 'employee of the company should inform me about previous accidents of the car, if any' from delivery factor ($R^2 = .42$) and 'additional information about the location should be provided while receiving the car' from handing over factor ($R^2 = .43$).

Table 3: Confirmatory factor analysis of initial scale

Factors and items	Factor loading		Measurement error		R^2
	λ_i	t	E_i	t	
Factor 1. Comfort (COM) ($\alpha = .757$)					
The car should have air condition	.66	6.80	.49	5.42	.57
The seats of the car should be comfortable	.74	7.46	.46	4.95	.54
The cars' interior should be spacious	.78	6.16	.91	5.76	.60
The car should have electrical windows	.74	6.94	.58	5.34	.45
Factor 2. Delivery (DEL) ($\alpha = .782$)					
Company should deliver the car to where I want	.50	5.25	.51	5.66	.64
Company should allow me to return the car to where I want	.41	3.55	.79	6.35	.57
Employee of the company should inform me about the cars' functions and accessories	.58	6.18	.42	4.91	.55
Employee of the company should inform me about previous accidents of the car, if any	.35	4.87	.29	5.86	.42
Factor 3. Handing over (HAN) ($\alpha = .701$)					
Car should be very clean when I receive it	.63	6.58	.43	4.95	.68
Car should have enough gas when I receive it	.71	7.73	.29	3.47	.63
Local maps and tourist information should be provided when I receive the car	.46	4.01	.85	6.32	.54
Additional information about the location should be provided while receiving the car	.40	4.93	.40	6.02	.43
Factor 4. Security (SEC) ($\alpha = .752$)					
Car should have no technical problem	.80	13.43	.40	4.70	.69
Car should have necessary safety features like ABS, Airbags...	.43	5.97	.38	6.77	.63
Car should have insurance and collusion damage waiver	.76	6.58	.50	6.50	.56
Factor 5. Ergonomics (ERG) ($\alpha = .726$)					
Car should have ergonomic features for customers with disabilities or special needs	.84	10.07	.22	5.68	.62
Car should have manual and automatic gear option	.74	8.41	.34	4.92	.57
Car should have hydraulic or electrical steering system	.68	7.50	.43	5.64	.52
Factor 6. Accessibility (ACC) ($\alpha = .728$)					
Company should easily be accessible	.72	9.94	.17	3.99	.65
Employee of the company should be reachable at anytime	.65	6.27	.38	4.21	.63
Employee of the company should be available to meet with me in case of extraordinary situations like accident, technical problem...	.47	3.84	.84	6.84	.54
Factor 7. Policy (POL) ($\alpha = .426$)					
I should be allowed to choose method of payment	.51	4.81	.48	4.92	.43
Company should allow one day renting	.32	3.24	.57	6.29	.52
Company should be tolerant towards unlikely delays in the return of the car	.36	3.86	.80	5.99	.51

Note: All loadings are significant at $p < .01$

4.3 Quantitative research: final scale

The final stage for scale development was to reevaluate the factor structure of the RENTQUAL using CFA with maximum likelihood estimation in LISREL 8.54 (Jöreskog & Sörbom, 2003). Although, the CFA results for initial RENTQUAL scale, composed of 21 items under 7 factors, generate reasonable fit (CFI = 0.92, IFI = 0.92, NNFI = 0.91), yet there was still room for further improvement of the fit indices (GFI = 0.89, AGFI = 0.85, NFI = 0.90, RFI = 0.89, RMSR = 0.05, RMSEA = 0.072). The data were subsequently subjected to a purification process which first led some items of the policy factor and then deletion of the factor itself. As a result, final RENTQUAL scale, consisting of 18 items loaded onto six factors emerged (Table 4).

Table 4: Confirmatory factor analysis of final scale

Factors and items	Mean scores	Factor loading		Measurement error		R^2
		λ_i	t	E_i	t	
Factor 1. Comfort ($\alpha = .758$)	4.04					
The car should have air condition	4.14	.81	25.70	.15	4.91	.81
The seats of the car should be comfortable	4.04	.71	20.85	.40	12.74	.56
The cars' interior should be spacious	3.95	.68	15.78	.34	17.11	.74
Factor 2. Delivery ($\alpha = .745$)	4.44					
Company should deliver the car to where I want	4.45	.74	25.65	.18	6.73	.76
Company should allow me to return the car to where I want	4.37	.60	16.04	.44	16.64	.66
Employee of the company should inform me about the cars' functions and accessories	4.50	.56	19.32	.32	14.31	.55
Factor 3. Handing over ($\alpha = .709$)	4.22					
Car should be very clean when I receive it	4.28	.78	25.93	.20	9.28	.73
Car should have enough gas when I receive it	4.21	.75	26.24	.19	8.80	.75
Local maps and tourist information should be provided when I receive the car	4.17	.61	18.40	.42	16.87	.52
Factor 4. Security ($\alpha = .752$)	4.54					
Car should have no technical problem	4.55	.75	23.07	.14	7.82	.70
Car should have necessary safety features like ABS, Airbags...	4.48	.68	20.23	.27	12.34	.63
Car should have insurance and collusion damage waiver	4.58	.52	16.23	.31	16.27	.57
Factor 5. Ergonomics ($\alpha = .746$)	3.98					
Car should have ergonomic features for customers with disabilities or special needs	4.08	.78	21.66	.35	9.58	.74
Car should have manual and automatic gear option	4.03	.70	18.33	.38	14.02	.67
Car should have hydraulic or electrical steering system	3.83	.66	17.12	.32	15.11	.62
Factor 6. Accessibility ($\alpha = .728$)	4.40					
Company should easily be accessible	4.52	.79	18.20	.14	16.61	.81
Employee of the company should be reachable at anytime	4.38	.76	27.21	.34	6.31	.62
Employee of the company should be available to meet with me in case of extraordinary situations like accidents, technical problems...	4.30	.66	22.33	.31	13.38	.59

Note: Overall $\alpha = .862$, all loadings are significant at .01 level.

The final RENTQUAL scale provided and reasonable fit for the data ($\chi^2 = 564.68$, $p = 0.00$, CFI = 0.94, IFI = 0.94, NFI = 0.93, NNFI = 0.93, GFI = 0.92, AGFI = 0.89, RFI = 0.91, RMSR = 0.04, RMSEA = 0.072). Table 4 lists the factor loadings, measurement error, t-values and R^2 scores. Detailed analysis of Table 4 shows that all factor loadings are statistically significant and show a value higher than the recommended .40 level (Gerbing & Anderson, 1993; Hair *et al.*, 1995; Jöreskog, 1993; Millan & Esteban, 2004).

Table 5: Goodness of fit measures comparison of RENTQUAL scales at each stage

	Pilot scale	Initial scale	Final scale
Absolute fit measures			
Value of the χ^2 and significance level	1102.70 ($p= 0.00$)	564.68 ($p= 0.00$)	417.55 ($p= 0.00$)
Noncentrality parameter (NCP)	871.70	466.68	186.55
Goodness of fit index (GFI)	0.73	0.89	0.92
Root mean square residual (RMSR)	0.11	0.05	0.04
Root mean square of approximation (RMSEA)	0.094	0.072	0.071
Expected cross-validation index (ECVI)	6.04	1.71	0.92
Incremental fit measures			
Adjusted goodness of fit index (AGFI)	0.64	0.85	0.89
Normed fit index (NFI)	0.76	0.90	0.93
Non-normed fit index (NNFI)	0.83	0.91	0.93
Comparative fit index (CFI)	0.86	0.92	0.94
Incremental fit index (IFI)	0.86	0.92	0.94
Relative fit index (RFI)	0.72	0.89	0.91
Parsimony fit measures			
Normed χ^2 (χ^2 / df)	1.81	4.71	4.77
Parsimony goodness of fit index (PGFI)	0.56	0.68	0.75
Parsimony normed fit index (PNFI)	0.64	0.69	0.79
Akaike information criterion (AIC)	1240.70	666.68	555.55
Critical N (CN)	56.48	178.45	199.98

Table 5 is a replica of Millan & Esteban’s (2004, p. 542) Table 9, where they compare initial and final versions of their multiple-item scale measuring customer satisfaction in travel agencies services in Spain. More recently, Chu & Murrmann (2006) followed a similar analysis to compare alternative models (null, two and three factor models) with their HELS scale. By following their steps, various goodness of fit measure listed in order to create a comparison base for three stages of newly developed RENTQUAL scale (Table 5). More specifically, absolute, incremental and parsimony fit measures of pilot scale (n=213), initial and final scales (n=726) are provided.

The criteria for assessing the indices were established following the recommendations of; Aaker & Bagozzi (1979) (Normed $\chi^2 = \chi^2/df$, higher is better, p closer to .00), Jöreskog (1993) and Jöreskog & Sörbom (1996) (GFI and AGFI > .90, RMSEA and RMSR = values closest to zero taken as good fit), Nunnally & Bernstein (1994) (NFI and NNFI > .90), Widaman & Thompson (2003) (IFI and RFI > .90), Kelloway (1998) and Chow (1987) (NCP and ECVI = values closest to zero taken as good fit), Kaplan (2000) (AIC = model with lowest score shows better fit, Critical N = critical number of observation) Gerbing & Anderson (1993), (CFI = values closest to zero taken as good fit), Tanaka (1993) (PGFI and PNFI = model with higher score shows better fit).

The overall evaluation of the goodness of fit measures shows significant increase from pilot to initial and from initial to final scales. When compared to the pilot scales’ results, there is a significant improvement in initial scale in terms all fit measures (for instance GFI, AGFI, NFI and CFI leaped from .73, .64, .76 and .86 to .89, .85, .90 and .92 respectively). This can be explained by the radical increase in sample size, from 93 to 726. Although resulting scores initial scale might indicate acceptable fit, there was still room for improvement. Thus through the systematic deletion of low performing items was necessary to further improve the fit measures. Omission of one factor and three items resulted in moderate increases in fit measures (for instance GFI, AGFI, NFI and CFI leaped from 89, .85, .90 and .92 to .92, .89, .93 and .94 respectively).

In order to provide support for discriminant validity, Pearson product-moment correlations among the study factors were computed. For this purpose, composite scores for each factor were calculated by averaging scores representing that dimension. Table 6 shows the significant correlations among the factors. The highest correlation occurred between ‘delivery’ and ‘handing over factors’ (0.65) and reversely, the lowest correlation was found between delivery and comfort factors (0.37). Bauer, Falk and Hammerschmidt (2006) recently assessed their newly developed scales’ discriminant validity by utilizing conservative Fornell/Larcker

test. Fornell & Larcker (1981) recommended that shared variance among any two constructs should be less than the average variance extracted (AVE) of each factor (Table 6). Means and standard deviations of dimensions composite scores were also calculated. Overall, these results provide additional support for the discriminant validity of the RENTQUAL scale (Anderson & Gerbing, 1988).

Table 6: Construct correlation matrix (Φ), means and standard deviations of the RENTQUAL scale

Factors	COM	DEL	HAN	SEC	ERG	ACC
Comfort (COM)	<i>.87*</i>					
Delivery (DEL)	.37	<i>.84</i>				
Handing over (HAN)	.46	.65	<i>.87</i>			
Security (SEC)	.49	.58	.57	<i>.89</i>		
Ergonomics (ERG)	.50	.49	.64	.60	<i>.76</i>	
Accessibility (ACC)	.50	.49	.64	.60	.60	<i>.74</i>
Means	4.04	4.44	4.22	4.54	3.98	4.40
Standard Deviations	.77	.62	.61	.57	.72	.66

Note: Composite scores are calculated by averaging items representing that factor. Responses range from 1 to 5. Higher scores indicate favorable responses. *AVE shown as italic on diagonal. All correlations are significant at the $p < 0.001$.

To sum up, the RENTQUAL scale, when assessed as a whole, shows a good fit, as in general the items show convergent validity and reliability in their underlying factors (Tables 4 and 5). Final version of RENTQUAL scale has 18 items under six factors with three items each. Table 5 lists the mean scores for each item and factor, given italic. Mean scores were calculated by averaging respondents ratings of the scale items on five point Likert scale, ranging from 1 = 'strongly disagree' to 5 = 'strongly agree'.

5. Discussion and conclusion

This paper aims to provide an example for developing a measurement scale by using car rental services as a case. To do so scale development steps recommended by Churchill (1979) and Parasuraman et al. (1988) followed. Qualitative study in form of in depth interviews was undertaken to develop items, after that quantitative study was employed to purify the scale items, examine dimensionality, reliability, factor structure and validity. Finally, 18-item RENTQUAL scale with 6 factors comfort, delivery, safety, handing over, ergonomics and accessibility, emerged, please see Appendix.

Analysis of findings revealed that security, with the mean score of 4.54 out of 5.00, is the most important factor in car rental services. Furthermore, respondents ranked the necessity of having insurance and collusion damage waiver as the most important item under the security factor in particular and scale in general (mean score 4.58). This result is consistent with destination marketing literature findings (Law, Cheung & Lo, 2004).

Second most important factor found to be the delivery procedures of the car, mean score is 4.44. Respondents stated that they need particular technical instructions about the car during the delivery, mean score 4.50. Cronin & Taylor (1992) underline the importance of delivery process in the customers' overall service quality perception. In the light of this finding, management/owners should ensure that the condition of car rentals, services offered to the tourists in delivery activities on time and as promised. In addition, once a desired rent a car service quality is provided to satisfy the expectations of tourists, efforts should be exerted to maintain it over repeated service encounters, since satisfaction over time result in perception of service quality (Parasuraman, Berry & Zeithaml, 1986).

The next highest factor appeared to be the accessibility, in other words respondents reported that they want to contact the car rental company without having problem, mean score 4.40. More specifically, they want to reach the company and the employee of the company anytime they want (mean score 4.52). Accessibility factor, with similar statements, received considerable attention and many researchers found significant relationship between accessibility and both service quality perception and post purchase attributes (Parasuraman et al., 1988; Johnston, 1995).

Handing over the rented car found to be the next most important factor (mean score 4.22). Receiving clean car reported to be the most important item under this factor with mean score 4.28. Although meaning may sound close to the delivery factor, yet items under this factor are differ from delivery by being more tangible. A careful comparison between these two factors shows that delivery is more process related while handing over about the condition of the rented car (cleanliness), having enough petrol and inclusion of local maps or

tourist information in the car. Although the factor successfully survived from the harsh purification stages, it calls for replication to further assess the robustness.

Comfort of the rented car found to be one of the least important factors (mean score 4.04). The reason for this low ranking can be the fact that majority of the car rental companies purchasing newest models not to lose their competitive edge and left behind their competitors. This perhaps created an environment where majority of the cars are new and comfortable models, which in return might increase the expectations of the customers from the rental car to be air conditioned, comfortable and spacious. Among comfort items, the availability of the air conditioning stated to be the most important feature (mean score 4.14) which is not a surprising result when the hot climate of Cyprus is considered.

Finally ergonomics judged to be the least important factor while renting a car (mean score 3.98). However, having special features for customers with special needs stated to be the most important item in the factor. Although it is ranked as the least important factor, yet some ergonomics measures that can be practiced to satisfy the service quality expectations of the rent a car users.

With the growth in international tourism and interest in quality improvement and assurance models and measures, the quality of rent a car services look more promising in the future than present. Concerning the role and the importance of these services regarding their capacity and contribution to the tourism phenomena, there are a very few number of studies that report empirical findings. Most of these studies are either conceptual or qualitative in nature and are focused on the surfaced parts of the service industry such as banks, hotels, insurance with limited emphasis on the international tourist's demand factors. However, it would not be an exaggeration if it is suggested that a destination's success in the eye of the tourist is totally depends on both core and sub industry's performances. This study contributed to the conceptual and methodological advancement of service quality and rent a car businesses literature by developing RENTQUAL, a scale to measure the service quality perceptions of the tourists.

5.1 Limitations and implications for future study

The findings of this research should be interpreted in the light of the following limitations. There is continuing debate on using either gap scores that is perception minus expectation (Parasuraman et al., 1986; 1991) or just perceptions (Cronin & Taylor, 1992). The first limitation is with a tourist sample distribution, having the respondents fill out two questionnaires; one before the car rental usage and another after was not possible due to budgetary and follow up constraints. As Carman (1990) cogently discussed both; expectation and perception measures most of the time cannot be used simultaneously. Regarding the limitations of the study in this respect, only the perception items were conducted.

After purifying their HISTOQUAL scale, Frochot & Hughes (2000) analyzed possible relations between scale factors and overall quality perception, revisit intention (again) and cost of service (price). Similarly, Karatepe, Yavas & Babakus (2005) assessed the relationships between newly developed bank service quality scale, customer satisfaction and purchase intention. The second limitation of this paper is only service quality perceptions were studied so inclusion of dependent factors like; overall perceived quality (Brady & Cronin, 2001), customer satisfaction (Nash, Thyne & Davies, 2006), repurchase intention (Janga & Feng, in press) and word-of-mouth intention (Yuksel, Kilinc & Yuksel, 2006) can provide further insights, thus highly recommended.

The third limitation is the use of judgmental sampling technique as one of the non-probabilistic sampling techniques. Perhaps the use of one of the probabilistic techniques would provide the chance of generalizing the results more confidently. As a closing note, replication studies with large sample size elsewhere would be fruitful for further generalizations of the newly developed RENTQUAL scale.

References

- Aaker, D. A. & Bagozzi, R. P. (1979). Unobservable variables in structural equation models with an application in industrial selling. *Journal of Marketing Research*, 16(May), 147-158.
- Aldlaigan, A. H. & Buttle, F. A. (2002). SYSTRA-SQ: A new measure of bank service quality. *International Journal of Service Industry Management*, 13(3/4), 362-381.
- Anderson, E. W. & Sullivan, M. V. (1993). The antecedents and consequences of customer satisfaction for firms. *Marketing Science*, 12(2), 125-143.
- Anderson, J. C. & Gerbing, D. W. (1988). Structural equation modeling in practice: A review and recommended two-step approach. *Psychological Bulletin*, 103(May), 411-423.

- Arasli, H., Mehtap-Smadi, S. & Katircioglu, S. T. (2005). Customer service quality in the Greek Cypriot banking industry. *Managing Service Quality*, 15(1), 41-56.
- Babakus, E., Boller, G. W. (1992). An empirical assessment of the SERVQUAL scale. *Journal of Business Research*, 24(3), 253-268.
- Bauer, H. H., Falk, T. & Hammerschmidt, M. (2006). eTransQual: A transaction process-based approach for capturing service quality in online shopping. *Journal of Business Research*, 59(7), 866-875.
- Bojanic D. C. & Rosen, L. D. (1994). Measuring service quality in restaurants: An application of the SERVQUAL instrument. *Journal of Hospitality and Tourism Research*, 18(1), 3-14.
- Brady K. M. & Cronin, J. J. (2001). Some new thoughts on conceptualizing perceived service quality: A hierarchical approach. *Journal of Marketing*, 65(July), 34-49.
- Brown, T. J., Churchill Jr, G. A. & Peter, J. P. (1993). Improving the measurement of service quality. *Journal of Retailing*, 69(1), 127-139.
- Buttle, F. (1996). SERVQUAL: review, critique, research agenda. *European Journal of Marketing*, 30(1), 8-32.
- Carmen, J. (1990). Consumer perceptions of service quality: An assessment of the SERVQUAL dimensions. *Journal of Retailing*, 66(1), 33-35.
- Caro, L. M. & Garcia, J. A. M. (2007). Measuring perceived service quality in urgent transport service. *Journal of Retailing and Consumer Services*, 14(1), 60-72.
- Chen, J. S. & Gursoy, D. (2001). An Investigation of tourists' destination loyalty and preferences. *International Journal of Contemporary Hospitality Management*, 13(2), 79-85.
- Chow, M. S. (1987). A complete class theorem for estimating a noncentrality parameter. *The Annals of Statistics*, 15(2), 800-804.
- Chu, K. H. L. & Murrmann, S. K. (2006). Development and validation of the hospitality emotional labor scale. *Tourism Management*, 27(6), 1181-1191.
- Churchill Jr., G. A. & Peter, P. (1980). Measurement abstracts: purpose, policy, and procedures. *Journal of Marketing Research*, 17(4), 537-538.
- Churchill, G. (1979). A paradigm for developing better measures of marketing constructs. *Journal of Marketing Research*, 16(February), 64-73.
- Cronin, J. J. & Taylor, S. A. (1992). Measuring service quality: A reexamination and extension. *Journal of Marketing*, 56(July), 55-68.
- Cronin, J. J. & Taylor, S. A. (1994). SERVPERF versus SERVQUAL: Reconciling performance-based and perceptions-minus-expectations measurement of service quality. *Journal of Marketing*, 58(January), 125-131.
- Davidow, M. (2000). The bottom line impact of organizational responses to customer complaints. *Journal of Tourism and Hospitality Research*, 24(4), 473-490.
- Durvasula, S., Lysonski, S. & Mehta, S. C. (1999). Testing the SERVQUAL scale in the business-to-business sector: The case of ocean freight shipping service. *Journal of Services Marketing*, 13(2), 132-150.
- Fornell, C. & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research*(February), 18, 39-50.
- Frochot, I. & Hughes, H. (2000). HISTOQUAL: The development of a historic houses assessment scale. *Tourism Management*, 21(2), 157-167.
- Gabbie, O. & Neill, M. A. (1996). SERVQUAL and Northern Ireland hotel sector: a comparative analysis - part 1. *Managing Service Quality*, 8(5), 306-311.
- Gerbing, D. W. & Anderson, J. C. (1993). Monte Carlo evaluations of goodness-of-fit indices for structural equation models, In Bollen, K. A. & Long, J. S. (Eds.) *Testing structural equation models* (pp. 40-65). California: Segal Publications Inc.
- Grönroos, C. (1984). A service quality model and its marketing implications. *European Journal of Marketing*, 18(4), 36-44.
- Hair Jr., J. F., Anderson, R. E., Tatham, R. L. & Black, W. C. (1995). *Multivariate data analysis with readings*. (4th ed). New Jersey: Prentice Hall Inc.
- Hinkin, T. R. (1995). A review of scale development practices in the study of organizations, *Journal of Management*, 21(5), 967-988.
- Hofstede, G. (2001). *Culture's consequences: comparing values, behaviours, institutions and organisations across nations*, Thousand Oaks: Sage Publications.
- Janga, S. C. S. & Feng, R. (in press). Temporal destination revisit intention: the effects of novelty seeking and satisfaction. *Tourism Management*, 28(2), forthcoming.
- Johnston, R. (1995). The determinants of service quality: satisfiers and dissatisfiers. *International Journal of Service Industry Management*, 6(5), 53-71.
- Jöreskog, K. G. (1993). Testing structural equation models. In Bollen, K. A. & Long, J. S. (Eds) *Testing structural equation models* (pp. 294-316). California: Segal Publications Inc.
- Jöreskog, K. G. & Sörbom, D. (1996). *LISREL 8: User's reference guide*. Chicago: Scientific Software International Inc.
- Jöreskog, K. G. & Sörbom, D. (2003). *LISREL 8.54*. Chicago: Scientific Software International.
- Judd, C. M., Smith, E. R. & Kidder, L. H. (1991). *Research methods in social relations*. (6th ed). Fort Worth, Holt: Rinehart and Winston Inc.
- Kaplan, D. (2000). *Structural equation modeling: foundations and extensions*. California: Segal Publications Inc.
- Karatepe, O. M., Yavas, U. & Babakus, E. (2005). Measuring service quality of banks; scale development and validation. *Journal of Retailing and Consumer Services*, 12(5), 373-383.
- Kelloway, E. K. (1998). *Using Lisrel for structural equation modeling*. Thousand Oaks, California: Sage Publications Inc.
- Khan, M. M. (2003). ECOSERV: Eco-tourists' quality expectations. *Annals of Tourism Research*, 30(1), 109-125.

- Knutson, B., Stevens, P., Wullaert, C. & Yokoyoma, F. (1990). LODGSERV: A service quality index for the lodging industry. *Hospitality Research Journal*, 14(2), 227-284.
- Lam, T. & Zang, H. Q. (1998). Service quality of travel agents: the case of travel agents in Hong Kong. *Journal of Tourism Management*, 20(3), 341-349.
- Law, R., Cheung, C. & Lo, A. (2004). The relevance of profiling travel activities for improving destination marketing strategies. *International Journal of Contemporary Hospitality Management*, 16(6), 355-362.
- Law, R. & Hsu, C. H. C. (2006). Importance of hotel website dimensions and attributes: perceptions of online browsers and online purchasers. *Journal of Hospitality and Tourism Research*, 30(3), 295-312.
- Likert, R. (1932). *A technique for the measurement of attitudes*. Archives of Psychology, 140, (eds) Woodworth, R.S., New York University.
- Mattila, A. S. (1999). The role of culture in the service evaluation process. *Journal of Service Research*, 1(3), 250-261.
- McMullan, R. (2005). A multiple-item scale for measuring customer loyalty development. *The Journal of Services Marketing*, 19(7), 470-481.
- Mehta, S. C. & Durvasula, S. (1998). Relationship between SERVQUAL dimensions and organizational performance in the case of a business-to-business service. *Journal of Business and Industrial Marketing*, 13(1), 40-53.
- Millan, A. & Esteban, A. (2004). Development of a multiple-item scale for measuring customer satisfaction in travel agencies services. *Tourism Management*, 25(5), 533-546.
- Nash, R., Thyne, M. & Davies, S. (2006). An investigation into customer satisfaction levels in the budget accommodation sector in Scotland: A case study of backpacker tourists and the Scottish youth hostels association. *Tourism Management*, 27(3), 525-532.
- Newman, K. (2001). Interrogating SERVQUAL: A critical assessment of service quality measurement in a high street retail bank. *International Journal of Bank Marketing*, 19(3), 126-139.
- Nicosia Municipality Office (2006). *Statistics on vehicles*, Nicosia: Municipality Office Publishing.
- Nunnally Jr., J. C. (1970). *Introduction to psychological measurement*, New York: McGraw-Hill Book Company.
- Nunnally Jr., J. C. (1978). *Psychometric theory*, New York: McGraw-Hill Book Company.
- Nunnally Jr., J. C. & Bernstein, I. H. (1994). *Psychometric theory*. (3rd ed). New York: McGraw-Hill Book Company.
- Ozen, S. (2000). Turk yonetim / organizasyon yazininda yontem sorunu: kongre bildirileri uzerine bir inceleme. *EMU Journal of Tourism Research*, 1(1), 89-118.
- Ozer, L. S. (1999). Musteri tatmini ve tatmin teorilerine yonelik literaturedeki kuramsal tartismalar. *Working Paper*, Ankara: Hacetepe University.
- Parasuraman, A., Berry, L. & Zeithaml, V. A. (1986). SERVQUAL: A multiple-item scale for measuring customer perceptions of service quality. *Working Paper*, Cambridge: Marketing Science Institute.
- Parasuraman, A., Berry, L. & Zeithaml, V. A. (1991). Refinement and reassessment of the SERVQUAL scale. *Journal of Retailing*, 67(4), 420-447.
- Parasuraman, A., Zeithaml, V. A. & Malhotra, A. (2005). E-S-QUAL: A multiple-item scale for assessing electronic service quality. *Journal of Service Research*, 7(3), 213-233.
- Parasuraman, A., Zeithaml, V. A. & Berry, L. (1988). A multi item scale for measuring consumer perception of service quality. *Journal of Retailing*, 64(Spring), 12-40.
- Parasuraman, A., Zeithaml, V. A. & Berry, L. (1985). A conceptual model of service quality and its implications for future research. *Journal of Marketing*, 49(Fall), 41-50.
- Petrick, J. F. (2002). Development of a multi-dimensional scale for measuring the perceived value of a service. *Journal of Leisure Research*, 34(2), 119-134.
- Rust, R. T. & Oliver, R. L. (1994). *Service quality insights and managerial implications from the frontier*. In Rust R. T. & Oliver R. L. (Eds). *Service quality: new directions in theory and practice*. (pp. 1-19). Thousand Oaks, CA: Sage Publications.
- Ryan, C., & A. Cliff (1996). Users and non-users on the expectation item of the SERVQUAL scale. *Annals of Tourism Research*, 23(4), 931-934.
- Stevens, P., Knutson, B. & Patton, M. (1995). DINESERV: A tool for measuring service quality in restaurants. *Cornell Hotel and Restaurant Administration Quarterly*, 36(2), 56-60.
- Tabachnick, B. G. & Fidell, L. S. (1996). *Using multivariate statistics* (3rd ed). New York: Harper Collins College Publishers.
- Tanaka, J. S. (1993). Multifaceted conceptions of fit in structural equation models. In Bollen, K. A. & Long, J. S. (Eds) *Testing structural equation models*. (pp. 10-39). California: Sega Publications Inc.
- Toncar, M. F., Reid, J. S., Burns, D. J., Anderson, C. E. & Nguyen, H. P. (2006). Uniform assessment of the benefits of service learning: the development, evaluation, and implementation of the SELEB Scale. *Journal of Marketing Theory and Practice*, 14(3), 223-238.
- UNWTO (2006). Statistics and economic measurement of tourism, [Online], *World Tourism Organization*, Retrieved September 14, <http://www.world-tourism.org/statistics.html>.
- Widaman, K. F. & Thompson, J. S. (2003). On specifying the null model for incremental fit indices in structural equation modeling. *Psychological methods*, 8(1), 16-37.
- Yoo, B. & Donthu, N. (2001). Developing a scale to measure the perceived quality of internet shopping sites (SITEQUAL). *Quarterly Journal of Electronic Commerce*, 2(1), 31-47.
- Yavas, B. F., Konyar, K. (2002). Cultural and economic determinants of managerial perceptions of quality. *Journal of Asia-Pacific Business*, 4(4), 3-23
- Yuksel, A., Kilinc, U. K. & Yuksel, F. (2006). Cross-national analysis of hotel customers' attitudes toward complaining and their complaining behaviours. *Tourism Management*, 27(1), 11-24.

Zeithaml, V. A. (1988). Consumer perceptions of price, quality and value: A means-end synthesis of evidence. *Journal of Marketing*, 52(3), 2-22.

Appendix. The RENTQUAL questions

1. The car should have air condition.
2. The seats of the car should be comfortable.
3. The cars' interior should be spacious.
4. Company should deliver the car to where I want.
5. Company should allow me to return the car to where I want.
6. Employee of the company should inform me about the cars' functions and accessories.
7. Car should be very clean when I receive it.
8. Car should have enough gas when I receive it.
9. Local maps and tourist information should be provided when I receive the car.
10. Car should have no technical problem.
11. Car should have necessary safety features like ABS, Airbags etc.
12. Car should have insurance and collusion damage waiver.
13. Car should have ergonomic features for customers with disabilities or special needs.
14. Car should have manual and automatic gear option.
15. Car should have hydraulic or electrical steering system.
16. Company should easily be accessible.
17. Employee of the company should be reachable at anytime.
18. Employee of the company should be available to meet with me in case of extraordinary situations like accidents, technical problems.

Building Knowledge – Developing a Grounded Theory of Knowledge Management for Construction

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Abstract: As part of an on-going doctoral study, a constructivist approach to grounded theory is being used to develop an integrated model of knowledge management (KM) for the leading Irish construction organisations. Using multiple data collection methods; employees in a number of these organisations have participated, from recent graduates through to senior managers. While the need to effectively manage knowledge within large construction organisations is well recognised, a gap exists between the theory of KM and its implementation in practice. This paper considers the research in terms of its philosophical position, the use of grounded theory and the research methods utilised, from theoretical and practical perspectives. Progress in the study thus far is presented and future directions considered in achieving theoretical saturation and a well developed model. It is anticipated that the study will contribute to the field of construction management where further empirical research into KM is required. Much previous research in the area of KM in construction has focussed solely on technological, cultural or strategic issues in the development of KM models. The developed integrated model will form the basis of education and guidance resources on KM for the leading Irish construction organisations. As a traditional and pragmatic industry, the rationale for using grounded theory is provided from the viewpoint that it requires researchers to focus upon developing theory which produces explanations that are recognisable to the subjects of the research. In order to ensure the credibility of the developed model, it will be evaluated by industry as part of a pilot KM education programme, with further refinement if necessary.

Keywords: Construction, constructivism, grounded theory, knowledge management, mixed methods.

1. Introduction

There are numerous challenges facing today's construction industry. These include economic swings, new markets emerging in the global economy, increasing competition, the impact of technology, new and increasing demands from clients, customers and society, and the requirement to maintain a highly skilled workforce at all levels. The industry is recognised as being poor at learning on a consistent basis and improving performance and is notoriously slow in adapting to progressive change. The project-based, fragmented and unstable nature of the industry has led to significant knowledge loss compared with other industries. Knowledge Management (KM) has been promoted as a means of harnessing and utilising intellectual resources to address these challenges, as well as improving innovation, business performance and client satisfaction. However there is uncertainty about how to devise and implement a viable and cost effective KM initiative. KM has received significant attention from the construction management academic community in recent years and this is evidenced in numerous recent publications and conferences (Walker, 2005). KM is considered to be in its infancy in the construction industry and is seen as a recent and evolving practice for construction organisations (Robinson et al., 2005). The lack of a working definition of knowledge within construction organisations and awareness of the importance and potential advantages of KM reflects an informal approach. It also indicates the need for further exploration of knowledge and KM-related issues (Robinson et al., 2005). There is a lack of empirical research and integrated KM models for construction, resulting in the continuing need for the development and testing of such models (Walker and Wilson, 2004). One such integrated KM model, the K-Adv model, was judged to be too difficult to implement by the organisations involved. A draft industry guidance document was produced and tested as part of the research. This was found to be conceptually too complex to understand, even by some KM specialists within the contributing organisations. Participants in the research indicated that a less complicated and shorter guidance document was preferable (Walker and Wilson 2004).

This paper reports upon an ongoing doctoral study the aim of which is to develop an integrated model of KM for the leading Irish construction organisations through grounded theory. In considering a study's research methodology, Schwandt (2001) highlights the need to discuss the philosophical stance of the research and the methods adopted. A theoretical discussion on the philosophical nature of research and the grounded theory methodology is presented, with a specific focus upon the challenges facing a novice researcher in positioning this methodology within a constructivist paradigm. To fit with the emergent nature of grounded theory, multiple data collection methods have been utilised including interviews, focus groups and questionnaires and their adoption is presented and discussed. In concluding, the paper reflects upon the rationale for the chosen methodology and how identified challenges have been overcome.

2. Research philosophy and knowledge

In conducting research, Dainty (2007) emphasises the importance of constructing a philosophical position and orientation towards the inquiry. McCallin (2003) recommends reviewing the philosophical background and considering the paradigm of inquiry, early in the research process. A paradigm is defined as *“the basic belief system or worldview that guides the investigator, not only in choices of method but in ontologically and epistemologically fundamental ways (Guba and Lincoln, 1994: 105).”* The definition of research paradigms requires the consideration of ontology, epistemology and methodology. Ontology is concerned with the form and nature of reality, a theory of what exists and how it exists. Epistemology is concerned with the nature of knowledge and considers the relationship between the knower and what can be known (Guba and Lincoln, 1994; Schwandt, 2001). In terms of methodology, Clough and Nutbrown (2002: 31) view its task as uncovering and justifying *“research assumptions as far and as practicably as possible, and in doing so to locate the claims which the research makes within the traditions of enquiry which use it.”* Ignoring such issues, according to Amaratunga and Baldry (2001) can have a detrimental effect on the quality of the research.

The study of knowledge has always been controversial throughout the history of philosophy and science, leading to a lack of clarity and numerous positions along a continuum with two extremes: knowledge is ascribed a purely objective or a purely subjective existence (Sousa and Hendriks, 2006). For the novice researcher, the adoption of a philosophical position can be a difficult task, with much of the literature focusing on the dichotomy between positivism and interpretivism. These two distinct paradigms have been the subject of a long-standing debate in science, with many authors aligning positivism with quantitative, and interpretivism with qualitative research (Dainty, 2007). This position, according to Guba and Lincoln (1994: 105) is somewhat misleading as *“both qualitative and quantitative methods may be used appropriately with any research paradigm.”* Fundamentally positivism is concerned with explaining human behaviour, while interpretivism places emphasis on understanding it, although there is call to view these *“approaches as complementary rather than as two opposite extremes (Amaratunga and Baldry, 2001: 96).”* There have been extensions and additions to the ‘basic’ paradigms of positivism and interpretivism for social and business research including postpositivism, critical inquiry, symbolic interactionism, and constructivism (Guba and Lincoln, 1994; Schwandt, 1994)."

A relatively new field of enquiry, construction management is viewed by Dainty (2007) as being firmly rooted within the positivist tradition, leading him to question the ability of the construction management research community to provide a rich and nuanced understanding of industry practice. This view is reinforced by Guba and Lincoln (1994) who identify a number of critiques of positivism including: loss of context, exclusion of meaning and purpose, disjunction from local contexts, inapplicability of general data to individual cases and exclusion of the discovery dimension in inquiry. In order to redress the myopic approach to construction management research, Dainty (2007) proposes that methodological pluralism be embraced, whereby multiple theoretical models and methodologies are used to further knowledge. He states that *“a more expansive outlook towards mixing methodologies and research paradigms could yield deeper insights into, and understanding of, the way that practitioners ‘do’ management in the construction sector (Dainty, 2007: 9).”*

3. Grounded theory

The grounded theory methodology first appeared in the seminal text *The Discovery of Grounded Theory* (Glaser and Strauss, 1967). Through a set of highly developed procedures, the main aim of grounded theory is to produce formal, substantive theory about the behavioural patterns that shape social processes as people interact together in groups (Schwandt, 2001, McCallin, 2003). The philosophy of grounded theory lies in symbolic interactionism which posits that meaning is socially constructed, is negotiated and changes over time through the reflexive interaction of individuals (Mansourian, 2006, Goulding, 2005, Loosemore, 1999). With the passing of time the originators of grounded theory have adopted differing approaches to this methodology, leading to an ensuing academic debate over the characteristics and definition of grounded theory. The contrasts between and within the Glaserian and Straussian schools of grounded theory lie in their methodological procedures for coding data and developing categories, memoing and sampling, emergence, researcher distance and theory development (Jones and Noble, 2007; Mansourian, 2006). The main features of grounded theory include: using empirical research as its starting point; an iterative process of data collection and analysis; producing explanations that are recognisable to the subjects of the research; being geared to modest localised explanations based on the immediate evidence; an emergent design and being linked with qualitative research, exploratory investigations, small-scale studies and research focusing on human interaction in specific settings (Denscombe, 2003).

In terms of organisational research, grounded theory can be particularly useful in examining in exploring a wide range of issues about people, their behaviour, relationships and communications (Locke 2001, Goulding 2002). The focus on remaining grounded can be useful when dealing with the concept of knowledge management in organisations, particularly in conceptualising manager's practices and opinions (Sousa and Hendriks, 2006). The grounded theory approach is now proving popular within the construction management research domain, with a number of recent research projects being undertaken in the area of KM (Hunter et al., 2005).

3.1 Grounded theory and constructivism

Grounded theory has been adapted by researchers to fit with a variety of philosophical positions such as constructivism, feminism, critical thinking and postmodernism (Mills et al., 2006). A constructivist approach to grounded theory, which has been adopted in this study, posits that knowledge is constructed to make sense of experience and is continually modified and tested in light of new experiences (Schwandt, 1994). Despite its relatively recent popularity in the social sciences, the roots of constructivism can be traced back to the earliest philosophical arguments over a rational foundation for knowledge. Constructivism is discussed by Guba and Lincoln (1994: 110-111) in terms of ontology, epistemology and methodology as follows:

- Ontology: reality is constructed by individuals or groups "in the form of multiple, intangible mental constructions, socially and experientially based, local and specific in nature."
- Epistemology: the researcher and research participants interact "so that the 'findings' are literally created as the investigation proceeds."
- Methodology: through interaction and continuous refinement of the researcher's and participants individual constructions, the aim "is to distil a consensus construction that is more informed and sophisticated than any of the predecessor constructions."

In adopting a constructivist approach to grounded theory, Mills et al. (2006) discuss the need for a sense of reciprocity between the researcher and participants which facilitates the co-construction of meaning, leading to the use of participants stories framed within the written theory. Strauss and Corbin (1994) reinforce these considerations citing the importance of interplay between the researcher and the participants and the incorporation of multiple perspectives in writing the emerging theory. The inclusion of practitioner insights through a recursive sense-making process capitalises on a rich practitioner knowledge base (Leonard and McAdam, 2001). This has led Mills et al. (2006: 9) to remark that "clearly, Strauss and Corbin's evolved grounded theory has some constructivist intent."

3.2 Selecting a version of grounded theory

With more than one version of how researchers can go about implementing grounded theory, Chiovitti and Piran (2003) highlight the need for rigour in its use, with the process by which theory was generated being explained properly. Jones and Noble (2007) criticise the free-for-all manner in which grounded theory has been used citing the need for more discipline in the methodology. Goulding (2005) confirms this position, reporting that many research papers which purport to use grounded theory are nothing more than purposive sampling and interviews, lacking any level of theoretical sensitivity. In a review of empirical studies that have reported using grounded theory, Jones and Noble (2007) found a number had omitted theoretical sampling, leading to a theory lacking in density and variability. This may be due to researchers not understanding the important aspects of the methodology, concentrating only on coding (Strauss and Corbin, 1994). In attempting to restore integrity to grounded theory, Jones and Noble (2007) recommend that the researcher should clearly state the version of grounded theory they intend to use and adhere to its procedures. While Strauss and Corbin's version of grounded theory has been viewed as being too rigid by some, they counter that the "suggested guidelines and procedures allow much latitude for ingenuity and are an aid to creativity (Strauss and Corbin, 1994: 273)." Given the debate regarding integrity, the present study adopts the version of grounded theory developed by Strauss and Corbin (1998), a key feature of which are the detailed open, axial and selective coding procedures. In order to facilitate analysis of the data, the qualitative data analysis software, NVivo is being utilised as, "the design of NVivo was strongly influenced by grounded theory and therefore the program gives good support for the method (Gibbs 2002: 165)."

3.3 The novice researcher and grounded theory

There are significant challenges for a novice researcher in adopting this approach, which can prove to be quite frustrating (McCallin, 2003). In attempting to overcome anxiety of 'doing it right,' Mansourian (2006) recommends adherence to the key principles of constant comparison, theoretical sampling and emergence.

Based on his experience of Strauss and Corbin's method, Allan (2003) found the micro analysis to be very time consuming and confusing. However, he reports that *"confidence in the process of coding grew and uncertainty subsided with experience of the method (Allan, 2003:3)."*

There has been much debate about the level of a priori knowledge with which the researcher enters the field (Goulding 2002). While it is impossible to begin research with no preconceived ideas, Eisenhardt (1998) highlights the importance of being as close as possible to having no theory under consideration or hypotheses to test in order to reduce bias. However, it is accepted that some prior reading is required to identify initial ideas and concepts, with the extant literature being incorporated into the emerging theory as the research progresses (Denscombe 2003). The timing of the literature review in grounded theory can prove problematic for novice researchers. An initial literature review was conducted by McCallin (2003) as a base for comparison with emerging concepts. The identification of similarities between the grounded theory and the literature can help to improve the transferability, validity, and generalisability of the theory (Eisenhardt, 1989, Chiovitti and Piran, 2003). While conflicting literature can force the researcher *"into a more creative, framebreaking mode of thinking than they might otherwise be able to achieve (Eisenhardt, 1989: 544)."* Apart from literature Goulding (2005) cites the researcher's life experiences, research and scholarship as knowledge which cannot be erased prior to conducting their research.

There are two general strategies for selecting participants (such as people, organisations, locations etc.) in research; statistical or theoretical strategy. While a statistical strategy is concerned with sample sizes, theoretical sampling should focus on samples which are large enough to provide meaningful data of depth and quality (Leonard and McAdam, 2001, Birley and Moreland, 1998). With theoretical sampling it is essential to establish the criteria upon which the selection of participants will be based (Schwandt, 2001; Eisenhardt, 1989). In the case of grounded theory, Goulding (2005) suggests initially talking to informants who are most likely to provide information which may lead to provisional concepts and *"direct the researcher to further 'theoretically' identified samples, locations, and forms of data."* As concepts emerge from the initial field research, further sites are selected based upon developing categories and emerging theories (Goulding 2002). The rationale being that the selected sites best support the development of the theoretical framework (Locke 2001). In concluding the theory development, theoretical saturation should occur whereby additional analysis no longer contributes to discovering anything new about a category and is vital if a theory of substance is to be developed (Denscombe 2003, Locke 2001).

In writing grounded theory it is recommended that the style of presentation should move back and forward between extensive theoretical presentations and illustrative live excerpts from the research setting (Locke 2001). The use of diagrams can also aid the illustration of points being made (Goulding 2002). Once written, the proposed theory should be reviewed in terms of whether it is pragmatically useful and credible. To check the credibility of the developing theory, the researcher should return to the original informants and obtain their opinions (Goulding 2002).

4. Data collection

The chosen methodology, the scope of the study and type of information required will dictate the types of methods used (Clough and Nutbrown, 2002, Birley and Moreland, 1998). While Loosemore (1999) places emphasis upon developing grounded theory through qualitative data, Sousa and Hendriks (2006) view it as a fundamental distortion to argue that grounded theory is a qualitative research method. Indeed, Eisenhardt (1989) states that research focussed on theory building, will typically combine multiple data collection methods. The mixing of qualitative and quantitative methods can be viewed as complementary, echoing the call for methodological pluralism in construction management made by Dainty (2007). The use of multiple methods allows for triangulation, the purpose of which is to confirm findings through convergence of different perspectives, check the integrity of inferences drawn and ensure validity (Jack and Raturi, 2006; Schwandt, 2001). The following section provides an overview of the methods used for data collection in the research, moving from an initial literature review through the various stages of theoretical sampling that have been completed to-date. At all stages of the data collection and analysis, literature relevant to the emerging concepts has been reviewed.

4.1 Initial literature review

An initial literature review was performed which involved some general reading on KM in construction, which led to a working definition of KM, and the identification of strategic, technological and cultural issues as key concepts.

4.2 Survey of the twenty leading construction companies

A survey was then conducted concentrating on the leading twenty construction organisations in the Republic of Ireland, based on 2004 turnover. It was decided to send a questionnaire to both the Managing Director and ICT Manager, in order to explore the strategic and technological perspectives of KM.

4.3 Senior management interviews

Senior managers from ten of these organisations were then interviewed in order to get an overview of current approaches to managing knowledge from both strategic and operational perspectives. Based on the survey results and further review of literature, a number of key themes relating to KM formed the basis for the interview questions at individual, project and organisational levels. A number of concepts emerged as important to managing knowledge, including the development of a knowledge sharing culture, Continuing Professional Development (CPD), the level of experience and role of the individual, and the need to overcome geographical barriers to KM.

4.4 Case study 1

An interview with one of the senior managers, led to an opportunity to conduct further research within their organisation. The organisation's involvement in a CPD accreditation scheme had led them to considering the implementation of KM practices. The first part of the case study involved a questionnaire which was distributed to 180 professional and management staff based in the Dublin region, achieving a 36% response. The questionnaire sought to examine staff's attitudes towards CPD and KM activities within the organisation. Follow-up interviews were then conducted with thirteen staff members on a large commercial development project. Findings from the case study were presented to the company's CPD and KM team, with an unstructured focus group used to discuss and evaluate them. A number of recommendations were made regarding improving KM practices which have since been successfully implemented. Commitment of staff to their relevant professional bodies as opposed to the organisation emerged as being an important motivator for continually learning and acquiring knowledge.

4.5 Engineers Ireland CPD accreditation manager interview

With KM as part of their CPD accreditation scheme, the country's largest professional body, Engineers Ireland, was the next location considered for data collection. An unstructured interview was arranged and conducted with their CPD Accreditation Manager, to discuss KM in relation to construction organisations. With twelve of the top twenty organisations engaged in the accreditation process, it was found that they "*are struggling with the concept of KM.*" The prospect of developing guidance documentation and training resources aimed specifically at construction organisations was discussed as a possibility of raising awareness and understanding of KM, and ultimately improving its implementation.

4.6 Case study 2

The opportunity emerged to conduct a second case study of another leading Irish construction organisation who had participated in earlier phases of the research. The focus was on addressing the need to share specialist knowledge between practising construction managers on geographically dispersed projects. Action research was adopted as the research strategy, as it is based on a collaborative approach between the researcher and the practitioner and is normally associated with 'hands-on', small-scale research projects where practitioners wish to use research to improve their practices (Denscombe, 2003). In order to identify common problems on the various projects, each of the six managers were initially interviewed on their own to consider their individual experiences. Following analysis of the interviews, a focus group comprising all six managers was used to share knowledge and build consensus. Subsequently, all participants were then given a questionnaire to complete in order to consolidate learning from the focus group and to evaluate the effectiveness and future potential of such a forum for sharing. A number of recommendations emerged from this phase of the study, including the need to review all construction projects upon their completion and document the good and bad experiences for future use. With the continuing collaboration of these practitioners, research is continuing into the adoption of lessons learned practices as the second phase of the action research.

4.7 CPD specialist interviews

Following the interview with Engineers Ireland CPD Accreditation Manager, and in parallel with Case Study 2, interviews were conducted with identified CPD specialists in five of the leading construction organisations

and five non-construction organisations. The purpose of which was to explore the role of CPD, particularly the Engineers Ireland scheme and how the KM criteria is being addressed. At the time of writing this paper, these interviews are being transcribed and will be incorporated into the emerging theory.

5. Discussion

With a recognised need for empirical research and KM models that are relevant to construction organisations, this paper has proposed the use of a constructivist approach to grounded theory. The adoption of such an approach will ensure that the developed model is recognisable to the research participants. Indeed, grounded theory has been shown to be useful for research focussed on interaction and human behaviour in specific settings, particularly in organisational settings and KM research. A constructivist approach to the research ensures that the research participants are actively involved in building the model at all stages, resulting in consensus on KM in construction. This is particularly evident in the two case studies where close collaboration and a sense of reciprocity are critical. From a novice researcher's perspective, using grounded theory can prove challenging and a poor understanding of its features can lead to a poorly developed theory. By selecting Strauss and Corbin's version and adhering to their guidelines on coding, prior knowledge, use of literature and sampling, integrity and rigour can be achieved. In terms of data collection, grounded theory transcends the debate surrounding positivism and interpretivism, allowing for the incorporation of multiple methods. The use of interviews, questionnaires and focus groups with differing participants such as senior managers, middle managers, engineers, quantity surveyors, CPD specialists and IT managers should provide deeper insights into and understanding of KM in construction organisations. Furthermore, the use of multiple methods facilitates triangulation, thus improving the integrity of research.

6. Conclusions

Having considered an on-going PhD study into KM within the leading Irish construction organisations, there are a number of conclusions which can be drawn:

- **There is a gap between the theory and practice of KM in construction.** While the adoption of KM is strategically important for construction organisations, much uncertainty exists surrounding its implementation.
- **A constructivist approach to grounded theory can facilitate the development of a KM model for construction that bridges the gap between theory and practice.** A focus on building knowledge of the novice researcher, participants and KM in construction can be achieved through the adoption of a constructivist approach to grounded theory.
- **The selection of, and adherence to, a specific version of grounded theory is important in ensuring rigour and integrity.** By selecting a specific version of grounded theory, adhering to its guidelines and being aware of the challenges involved, a well-developed theory can be achieved by a novice researcher.
- **Multiple data collection methods can contribute to a well-developed and credible grounded theory.** The use of multiple data collection methods within grounded theory facilitates triangulation and has the potential to gain deeper insights into and understanding of KM than would be possible in a single method study.

Upon completion of Case Study 2 and analysis of the CPD specialist interviews, it is anticipated that there will be a need to explore the technological aspect of KM. A number of IT managers from participating organisations have agreed to participate in either interviews or a focus group. Dependent on theoretical saturation being reached, further primary research may be required. Once the theory has been developed it will form the basis of a training programme which will be piloted with a number of the research participants to ensure that it is understandable and credible. The constructivist approach to developing a grounded theory of KM for construction should lead to improved awareness, understanding and implementation of KM within the leading Irish construction organisations, whilst contributing to the body of construction management knowledge.

References

- Allan, G. (2003) "A critique of using grounded theory as a research method", *Electronic Journal of Business Research Methods*, Vol. 2, No. 1, pp. 1-10.
- Amaratunga, D. and Baldry, D. (2001) "Case study methodology as a means of theory building: performance measurement in facilities management organisations", *Work Study*, Vol. 50, No. 3, pp. 95-104.
- Birley, G. and Moreland, N. (1998) *A Practical Guide to Academic Research*, London: Kogan Page.

- Chiovitti, R. F. and Piran, N. (2003) "Rigour and grounded theory research", *Journal of Advanced Nursing*, Vol. 44, No. 4, pp. 427-435.
- Clough, P. and Nutbrown, C. (2002) *A Student's Guide to Methodology: Justifying Inquiry*, London: Sage Publications.
- Dainty, A. (2007) "A Call for Methodological Pluralism in Built Environment Research", *Proceedings of the Third Scottish Conference for Postgraduate Researchers of the Built and Natural Environment*, Glasgow Caledonian University, November 20-22, pp. 1-10, PProBE.
- Denscombe, M. (2003) *The Good Research Guide: For Small-Scale Research Projects*, Second Edition. Buckingham: Open University Press.
- Eisenhardt, K. M. (1989) "Building Theories from Case Study Research", *The Academy of Management Review*, Vol. 14, No. 4, pp. 532-550.
- Gibbs, G. (2002) *Qualitative Data Analysis: Explorations with NVivo*, Understanding Social Research Series, Berkshire: Open University Press.
- Glaser, B. and Strauss, A. (1967) *Discovery of Grounded Theory: The Strategies for Qualitative Research*, New York: Aldine Transaction.
- Goulding, C. (2002) *Grounded Theory: A Practical Guide for Management, Business and Market Researchers*, London: Sage Publications.
- Goulding, C. (2005) "Grounded theory, ethnography and phenomenology: A comparative analysis of three qualitative strategies for marketing research", *European Journal of Marketing*, Vol. 39, No. 3/4, pp. 294-309.
- Guba, E. G. and Lincoln, Y. S. (1994) Competing Paradigms in Qualitative Research, In Denzin, N. K. and Lincoln, Y. S. (Eds.), *Handbook of Qualitative Research*, Thousand Oaks: Sage Publications, pp. 105-117.
- Hunter, K., Hari, S., Egbu, C. and Kelly, J. (2005) "Grounded Theory: Its Diversification and Application through Two Examples from Research Studies on Knowledge and Value Management", *The Electronic Journal of Business Research Methodology*, Vol. 3, No. 1, pp. 57-68.
- Jack, E. P. and Raturi, A. S. (2006) "Lessons learned from methodological triangulation in management research", *Management Research News*, Vol. 29, No. 6, pp. 345-357.
- Jones, R. and Noble, G. (2007) "Grounded theory and management research: a lack of integrity?" *Qualitative Research in Organizations and Management*, Vol. 2, No. 2, pp. 84-96.
- Leonard, D. and McAdam, R. (2001) "Grounded theory methodology and practitioner reflexivity in TQM research", *International Journal of Quality & Reliability Management*, Vol. 18, No. 2, pp. 180-194.
- Locke, K. (2001) *Grounded Theory in Management Research*, London: Sage Publications.
- Loosemore, M. (1999) "A grounded theory of construction crisis management", *Construction Management and Economics*, Vol. 17, pp. 9-19.
- Mansourian, Y. (2006) "Adoption of grounded theory in LIS research", *New Library World*, Vol. 107, No. 9/10, pp. 386-399.
- McCallin, A. M. (2003) "Designing a grounded theory study: some practicalities", *Nursing in Critical Care*, Vol. 8, No. 5, pp. 203-208.
- Mills, J., Bonner, A. and Francis, K. (2006) "Adopting a constructivist approach to grounded theory: Implications for research design", *International Journal of Nursing Practice*, No. 12, pp. 8-13.
- Schwandt, T. (1994) "Constructivist, Interpretivist Approaches to Human Inquiry", In Denzin, N. K. and Lincoln, Y. S. (Eds.), *Handbook of Qualitative Research*, Thousand Oaks: Sage Publications, pp. 118-137.
- Schwandt, T. A. (2001) *Dictionary of Qualitative Inquiry*, Second Edition, London: Sage Publications
- Selden, L. (2005) "On Grounded Theory – with some malice", *Journal of Documentation*, Vol. 61, No. 1, pp. 114-130.
- Sousa, C. A. A. and Hendriks, P. H. J. (2006) "The Diving Bell and the Butterfly: The Need for Grounded Theory in Developing a Knowledge-Based View of Organizations", *Organizational Research Methods*, Vol. 9, No. 3, pp. 315-339.
- Strauss, A. and Corbin, J. (1994) "Grounded Theory Methodology: An Overview", In Denzin, N. K. and Lincoln, Y. S. (Eds.), *Handbook of Qualitative Research*, Thousand Oaks: Sage Publications, pp. 273-285.
- Strauss, A. and Corbin, J. (1998) *Basics of Qualitative Research: Grounded Theory Procedures and Techniques*, Second Edition, Thousand Oaks: Sage Publications.
- Walker, D. and Wilson, A. (2004) "The Knowledge Advantage (K-Adv) Concept", *Proceedings of the Twentieth Annual Conference, Association of Researchers in Construction Management*, Heriot Watt University, September 1-3, 2004, pp. 767-775, ARCOM.

Grounded Suggestions for Doing a Grounded Theory Business Research

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Abstract: This paper provides suggestions of doing a grounded theory business research. The main intention is to provide guidelines and suggestions for novice researchers, students and their supervisors in conducting a grounded theory business research. The main discussion of this paper will focus on the principles driving a grounded theory research, the choice between the two versions of grounded theory, the research problem, the purpose of the study, the research questions, and the place of literature review in a grounded theory study. In addition, an example of how a grounded theory was induced from data is illustrated. Its purpose is to illustrate how the procedures of data analysis, theoretical memoing and theoretical sampling were used to progressively to generate a grounded theory. In conclusion, the specific skills required by the researchers attempting a grounded theory study are suggested.

Keywords: grounded theory, supervision, research

1. Introduction

Grounded theory is a systematic, inductive approach to developing theory to help understand complex social processes (Glaser 1978). The goal is to develop a substantive theory from data that is collected in natural settings. Grounded theorists support the view that each group experiences a basic social psychological problem not usually made explicit or articulated by the group (Wilson & Hutchinson 1991). By developing theory, the researcher sought to understand the problem situation experienced by a group of participants and how they dealt with this problem (Glaser 1992, 1998). Grounded theory is well-established, widely recognized, credible and rigorous methodology (Glaser 2001) used in business research (such as Burchill & Fine 1997; Lang 1996; Ng 2005a, 2005b, 2005c; Schroeder & Congden 1995). Martin and Turner (1986) advocate that grounded theory is proficient to examine complexities due to its ability to generate a comprehensive account of organizational action in context. In a similar vein, Locke (2001, p.95) argues grounded theory is "particularly appropriate to researching managerial... behavior" as it captures the complexity of the managerial process.

The intent of grounded theory, as explained by Creswell (1998) and Dick (2002) was to generate theory close to data that relates to a particular situation. The insights that grounded theory reveals is the contextual explanations rather than descriptions what is going on. Therefore it provides a theoretical lens for both researchers and practitioners to improve workplace practices. The main purpose of this paper is intended to provide suggestions required for novice researchers, students and their supervisors in conducting a grounded theory research.

Enthusiastic novice researchers are encouraged to examine intuitively the intricacies before embarking on a grounded theory study. While grounded theory provides a systematic procedure for inducing theory, Glaser (2003, p.62) recognizes that novice researchers must have an ability "to conceptualize, to organize, to tolerate confusion with some incident depression, to make abstract connections, to remain open, to be a bit visual, to thinking multivariately and most of all to trust to preconscious processing and to emergence."

Prior experience working on researches (Ng 2005a, 2005b, 2005c) aroused a need to thoroughly study the methodology. Understanding improved mentoring doctoral students, presenting grounded theory seminars to colleagues struggling to better this challenging methodology and teaching and supervising masters' students using grounded theory for research projects. While students of extensive grounded theory studies typically set out to discover theory, the systematic procedures and techniques also provides a practical framework for smaller studies where theory will not be generated. As such, the grounded theory methodology is worth considering for examining managerial phenomena, what Locke (2001, p.95) labels as linking well with practice. Partington (2000) echoes a similar sentiment by contending that the grounded theory approach has practical value to practitioners in assisting them to better read and manage their setup.

2. The guiding principles of grounded theory

In commencing any study, considerations of methodological principles is essential. Grounded theory has a set of established principles for conducting research and interpreting data. These guidelines will offer a

sense of security when delving into the unknown area that became the research. Sarantakos (1998) further iterates the strict adherence of these principles to maintain the integrity and methodological rigour of grounded theory. The systematic data collection of note taking, coding, memoing, sorting and writing allowed categories to emerge. These categories allowed the interpretation of variations in behaviour. Grounded theory is thus able to account for variation in behaviour in the action scene with as few categories and properties as possible (Glaser 1992). In the sections that follow, the fundamental principles that govern the use of Glaser's grounded theory are outlined.

2.1 Theory emergence from data

According to Chenitz and Swanson (1986, p. 3), the objective of generating theory is to further our understanding of "*basic human patterns common in social life*". This objective of theory generation implies a focus not just on description but also rather on analysis and conceptualisation. Therefore there is an implication about how the researcher analyses data and conceptualises theory. As such, the interpretation of the data is an iterative process linked to the researcher's own worldviews. However, in acknowledging the intimate relationship between the researcher and the analysis of the data, the principle is to let the theory emerge from the data as part of the research process, rather than being preconceived or forced onto the data.

Grounded theory is not preconceived theory or a priori theory. It is theory grounded in data that is methodically acquired during the course of the research (Glaser & Strauss 1967). To add on, Glaser and Strauss (1967, p. 32) point out that grounded theory is capable of generating two major types of theory, "*substantive*" and "*formal*". According to them, substantive theories are developed from work in a specific area and do not endeavor explanations outside the existing area of inquiry. On the other hand, a formal theory has explanatory power across a range of situations. In short, these two types of theory are differentiated by the degree of generalisability. In Glaser and Strauss's opinion, substantive theories are used as "*a springboard or stepping stone to the development of a grounded formal theory*" (Glaser & Strauss 1967, p. 79).

2.2 The need to avoid preconceptions

As theory was to be 'discovered from the data', the main point here was to avoid 'preconceived' ideas. In grounded theory, Glaser and Strauss stress that "*initial decisions are not based on a preconceived theoretical framework*" (Glaser & Strauss 1967, p. 45). In other words, grounded theory requires a researcher to approach the problem situation with an open mind and allow the evidence accumulated to dictate the 'emerging' theoretical agenda. Although it is commonly thought that grounded theory requires the researcher to enter the problem situation with limited knowledge (Goulding 2002), this is not what Glaser and Strauss intended. No researcher would enter the field with a totally blank sheet but rather would have their own disciplinary trainings that provide perspectives from which to investigate the problem. These bodies of knowledge provide theoretical sensitivity that support understanding of data collected during the research process (Glaser 1978). Thus, the importance to avoid preconceptions and to be open mindedness enables the researcher to be "*theoretically sensitive so that he can conceptualise and formulate a theory as it emerges from the data*" (Glaser & Strauss 1967, p. 46).

2.3 The need to be theoretically sensitised

In the context of Glaser's approach to grounded theory, theoretical sensitivity refers to the conceptual ability of the researcher to recognize the patterns of behaviour discovered in data (Glaser 1992; Glaser & Strauss 1967). They emphasize that "*the root sources of all significant theorising is the sensitive insights of the observer himself*" (Glaser & Strauss 1967, p. 252). Glaser (1978, p. 1) further underscores the importance that researchers using grounded theory methodology need to develop the necessary theoretical sensitivity to discover "*substantive, grounded categories*." This is a necessary prerequisite in the process of transcending from description to conceptual theory (Guthrie 2000).

As point out by Locke (2001), the grounded theorist's ability to apprehend their data depends on their disciplinary training, personal experiences and experiences of others. These sources of theoretical sensitivity orient researchers and provide a perspective for theoretical insights. Further advice from Goulding (2002) is that the novice researcher should also read for ideas and conceptually link these to the developing theory to enhance theoretical sensitivity.

2.4 The constant comparative method of data analysis

In addition, the process of data analysis in this study relied on the constant comparison method. This involves comparing like with like to look for emerging themes and patterns. According to Spiggle (1994), constant comparison explores similarities and differences within the data collected and offer a guide for collecting other data. Incidents are compared with incidents, incident with category, and category with category to generate concepts (Glaser 2001). By constant comparison analysis, the basic properties of each category are defined, the relationships between the categories are identified and the identification of patterns is facilitated (Glaser 2001). This process of constant comparison continues until the core category, that which accounts for most of the variation in the patterns of behaviour is identified. The discovery of the core category is critical in Glaser's method because it is the category around which the emergent theory will revolve (Glaser 2001; Goulding 2002). This represented the fundamental method of data analysis throughout a grounded theory study.

2.5 An iterative research progression

Embedded within the principles of constant comparison and theoretical sampling of data analysis, is that iteration is a feature of the approach (Glaser & Strauss 1967; Locke 2001). The researcher who adopts a grounded theory approach, does not follow a linear path of research progression. The process of coding and analysis are in operation throughout the research process. Glaser and Strauss (1967) describe the research process as constantly moving back and forth from data collection to analysis, from open coding to theoretical coding and back to data collection and so on. This is an essential principle of grounded theory; it is "*self-consciously and intentionally non-linear and iterative*" (Martin & Turner 1986, p. 150).

3. Which version of grounded theory – Glaser or Strauss?

At the beginning of a grounded theory study, it is worthwhile to review the underlying methodological assumptions critical to the study. Researchers are now compelled to state the grounded theory approach they adopt due to the intellectual and methodological differences of the two original authors of grounded theory (Wilson & Hutchinson 1996). The division was largely the result of Strauss and Corbin's 1990 publication of "*Qualitative Research: Grounded Theory, Procedures and Techniques*". The main difference between the original "*Discovery of Grounded Theory*" (Glaser & Strauss 1967) with Glaser's (1978) *Theoretical Sensitivity* and Strauss and Corbin's (1990) "*The Basics of Qualitative Research*" illustrates the divergent distinctions between the two authors since their first writing. Not only are there dissimilarities in approach and the use of terminologies, Strauss' (1990) version of the method have been altered to embrace a regimental and convoluted method of systematic coding. Glaser's response to these developments was vociferously accounted in the publication of "*The Basics of Qualitative Research*" (Glaser 1992) and referred to these changes as "*non scholarly*" (p. 123). The first two pages of that publication detailed implorations from Glaser to Strauss to rescind his text version on grounds that what it contained was a methodology but it was not grounded theory. The main argument was that it disregarded 90 percent of the original version and began a detailed analysis of the differences between their version and what has become widely labelled in the literature as Glaserian grounded theory (Andriopoulos & Gotsi 2001; Andriopoulos & Lowe 2000; Brooks 1998; Stern 1994; Walton & Molzahan 2002). This latter form of grounded theory rigorously follows the principles described in the original 1967 work of Glaser and Strauss and given further detail by Glaser (1978, 1992, 1998, 2001).

The major differences between the two versions of grounded theory relate mainly to the coding paradigms each adopts. The crux of the dichotomy is that Strauss, as he analyses the data, stops at each word to ask 'What if?' Glaser maintains attention on the data and asks, '*What do we have here?*' (Stern 1994, p. 220). Strauss brings to bear each likely incident that could relate to the data, whether it emerges from the data or not (Strauss & Corbin 1998, p. 77). Glaser focuses his attention on the data to allow the data to tell their own story. Glaser argues his approach is interpretive, contextual and emergent whilst that of Strauss and Corbin is more likely to lead to the forcing of perceived notions on the data. Strauss and Corbin (1990) also emphasised highly complex and systematic coding techniques by listing all possible meanings from data. This overemphasis on the mechanics of research has been criticised for reducing the degree of theoretical sensitivity and insightful meaning (Glaser 1992). Yet another coding difference lies in the use of the "*conditional matrix*", a "*device to stimulate analysts' thinking about the relationships between macro and micro conditions/consequences*" (Strauss & Corbin 1998, p. 181). Glaser objects to this device on the basis that it leads to an over reliance on a narrow family of codes and therefore is a less emergent process in comparison. Given the clear differences between classical grounded theory and the Strauss and Corbin's

version, novice researchers will have the arduous task of selecting one that could be appropriate for their study.

4. The research problem or the main concern?

In any grounded theory study, it begins with a research situation. What distinguishes grounded theory with other methodologies is that it is explicitly emergent i.e. it does not set out to test a hypothesis (Dick 2002). The general focus of the research is to discover the main concerns about what is happening in the research situation and build theory from the ground (Moghaddam 2006). While initial ideas may be fuzzy, the approach is data driven and enables explanations on the phenomenon under study. It sets out to find out what theory accounts for the research situation (Dick 2002). The main concerns of participants may simply be issues or dilemmas, or how they went about resolving their main concerns (Glaser 1992, 2001). This resolution is the prime mover and interaction of the study. Whatever the interests may be, the study is exploratory and aims to seek out the research situation as it is. This means that the problems are difficult to identify given the multi-complex issues prevalent in the research area. For example, in Ng's (2005a) study of business collaboration in the context of heavy-industry equipment manufacturers where managers of businesses were juggling common interests of parties involved, meeting corporate deadlines and making decisions that might influence career prospects amidst a changing environment. What was the main concern? Variable attributing to the phenomena examined were multifaceted. Anecdotal literature accounts of business relationships and collaborations (such as Huxham 1996; Batt & Purchase 2004; Mudambi & Aggarwal 2003; Spina & Zotteri 2000; Stiles 2001) elevating sensitivity and making the researcher apprehensive about issues that aided unsubstantiated presumptions. Nonetheless, the research problem should be stated clearly, supported by some general literature.

5. What is the purpose of the study?

The intent of grounded theorists is the discovery of underlying behavioral patterns that are contextual to the research situation. It sets out to provide insightful meanings that fit the research context where the purpose is to develop a substantive theory about the area of inquiry (Glaser 1998; Glaser 2003). However, it is noteworthy that grounded theory has varying research purposes depending on the size and nature of the research study. Not every grounded theory study will begin with an objective of generating a substantive theory. While Glaser (1998) iterates that grounded theory is a package, many researchers chose to use the grounded theory techniques such as constant comparative analysis to jump-start a qualitative piece of work (such as Tay 2003; Goh 2004; Vasudeva 2005).

Whatever the reasons may be, Creswell (1998) suggests that the purpose statement is essential to provide a clear road map of the study. Ng (2008) suggests that purpose should be straightforward and immediately capture the attention and interest of the readers. It should draw on words such as 'generate', 'develop' or 'process' that encapsulates the central focus of the study. It is useful to determine the scope of the study to separate it from similar studies already undertaken in terms of period studied, personnel consulted or to be consulted, functions or departments of interest, geographical areas covered, particular initiatives to be made.

6. What is the research question?

Given the complex nature of the research situation, it is not unusual that grounded theorists find difficult to locate the research question. The questions are typically kept general, flexible and open; with what is happening here? (Dick 2002). Glaser (1998) recommends that the researchers may ask what the main concern is and how is that concern continually resolved or managed? For example, Ng (2005a) asked 'What are the main concerns that confront key decision makers working at the interface between Principal and Distributor firms and how can these resolutions be managed to assist practitioners enhance the success of a Principal-Distributor relationships?'

The main issue in writing the research question in a grounded theory study is the need to be explicit about the research questions early on in the study. Typically in preparing for submissions to the research review committees either for dissertation work or when applying for grants, there is a need to convince that committee that the researcher is capable of undertaking the intended research project (Kilbourn 2006). However given the nature of a grounded theory study is typically data driven and therefore emergent, the research questions may be evasive early on in the study. Dey (1999) suggests that novice researchers begin with a general subject or problem conceived only in terms of the disciplinary perspective as a starting point. In the case of Ng (2005a), the adoption of the causal model as suggested by Glaser (1978) was adopted to write supporting interviewing questions. General questions related to the context were used as a guide; for

example Tell me your experience working as the distributor for this organization? How would you suggest this organization improve the relationship? What would you like to see more of in the relationship?

7. The place of literature in a grounded theory study?

In a grounded theory study, the literature review has the specific purpose of minimizing literature distortion of emergent categories (Glaser, 2001). Hence this should be concise. By restricting the literature, there is a reduced likelihood that the data will be manipulated to support existing theory and findings (Glaser & Strauss 1967; Strauss & Corbin 1990). However there is not universal agreement amongst grounded theorists about the extent and depth of the initial literature search. Others suggest the importance of making explorations of the literature, in order to identify knowledge gaps or aspects of the area of interest that warrants further study. For example, Schreiber and Stern (2001, p. 58) suggested “plunging into the field research without delving into the relevant literature would be folly”. Indeed, no one would claim to enter the field completely free from the influence of past experience and reading. The focus is the use of data as yet another source of data in according to what Glaser (1998 p. 8) calls ‘all is data’.

In researching principal-distributor relationships, Ng (2005a) have taken a pragmatic approach by reporting readings that set the boundaries for the research questions and analysis of findings, rather than providing a complete summative analysis at this stage. The literature review on principal-distributor relationships was completed once data collection was finished and the core category identified. Literature was used to interpret data collected and subsequently assimilated into the study as deemed fit. The crux is to continuously staying open for underlying issues that may provide disconfirming evidence to existing data. Indeed literature reviews provide another avenue for more questioning for further idea generation.

8. What is the sample size required?

A fundamental principle of Glaser’s approach to grounded theory is that the emerging theory itself should determine who next to talk to or where to go for information. Thus letting the data determine the next set of questions to be asked. Glaser and Strauss (1967, p. 45) labelled this process as “*theoretical sampling*”. The basic question in theoretical sampling is “*What groups or subgroups does one turn to next... and for what purpose?*” (Glaser & Strauss 1967, p. 47). With theoretical sampling, initial decisions about what data to collect are based on the research topic or problem under investigation. In short, the important principle is that the emerging theory governs the process of data collection (Glaser 1992, p. 101).

One of the main benefits of theoretical sampling is it allows for flexibility in the research process. It provides the researcher the opportunity to change the emphasis early on so that data gathered are a reflection of what is occurring in the field rather than speculation about what is observed (Coyle 1997; Glaser 1978; Strauss & Corbin 1990). A researcher who uses the principle of theoretical sampling cannot know in advance what to sample for and where it will lead (Coyle 1997; Glaser 1992). Samples are chosen as and when they are needed rather than before the research. Only when no new patterns, or possible categories, emerging from the data could be found, a point labelled as “*theoretical saturation*” (Glaser 1992, p. 102; Glaser & Strauss 1967, p. 61), is the process of theoretical sampling ceased and sample size completed.

9. Data analysis methods – the emergent theory

A primary principle of grounded theory generation is that data is analyzed using the constant comparative method. The basic intent of the constant comparative method of analysis in grounded theory is the identification of a core category as a key part of the process. Glaser (1978, p. 93) asserts that “*the generation of theory occurs around a core category*” and represents the main theme of the substantive area of inquiry. So the core category captures the main concerns of participants in a study and accounts for most variation in a pattern of behaviour. It explains, “*what is going on in the data*” (Glaser, 1978, p. 94) and becomes the basis for the emerging substantive theory. The core category is identified through an iterative process of coding, memoing, theoretical sampling and theoretical sorting.

9.1 Coding the data

Coding is the process of breaking down data into distinct units of meaning for analysis and thereafter systematically re-evaluating them for their inter-relationships enabling the researcher to move the data to a higher level of abstraction (Descombe, 1998; Goulding, 2002; Martin & Turner, 1986). It is aimed at identifying as many tentative categories and their properties as possible. The researcher examines words,

phrases, sentences and paragraphs of field notes, and then compares with other indicators in the data which display similarities or differences (Glaser & Strauss, 1967; Strauss & Corbin, 1990).

Categories and their properties were identified using a coding process suggested by Glaser (1978) that involves 'open coding', 'selective coding' and 'theoretical coding'. This coding process used by many grounded theorists (e.g. Andriopoulous, 2000; Andriopoulous & Lowe, 2000; Guthrie, 2000; McCallin, 1999 and Parry, 1997) is capable of systematically generating the higher levels of abstraction required for an integrated, parsimonious grounded theory.

9.2 Open coding

Open coding, as suggested by Glaser (1978, 1992) and Strauss and Corbin (1990), is the first step of a theoretical analysis towards the discovery of categories and their properties. It is done to highlight data that the researcher believes may have an importance beyond the simple description of the context of the data (Lowe, 1996). Although the open codes presented above were descriptive, they set the initial stage to move conceptualisation to a higher level. This was achieved by the constant comparison method described earlier by comparing code-to-code, incident-to-incident looking for similarities and differences. Further details of how this open coding was done was applied is illustrated in Appendix A.

Glaser (1992, p.51) argues that at this stage of open coding, the researcher should compare all codes by asking key questions of the data:

- What is this data a study of?
- What category or property does the incident indicate?
- What is the basic process that "processes the main problem that makes life viable in the action scene"?

Through the process of constantly questioning that the identification of categories occurs during open coding and the process moving beyond description to conceptualization begins. It is imperative that the researcher combines the open coding process with theoretical memo writings that record emerging categories. Details regarding the use of theoretical memos are discussed in later section.

9.3 Selective coding

As analysis proceeded, understanding deepened and some characteristics will be merged together. A time will come when the researcher will cease open coding and begin to selectively code for a core category (Glaser, 1978). The identification of the core category at this stage acts to delimit coding "to only those variables that relate to the core category in sufficiently significant ways to be used in a parsimonious theory" (Glaser, 1978, p.61). In short, during selective coding the researcher will begin to code in relation to the core category. This in turn means that theoretical memos become focused on aspects of the core category, and theoretical sampling becomes guided by these aspects of the core category.

It is not unusual that once the basic category is discovered, participants will be asked specific questions to further saturate the category. These questions to seek out disconfirming evidence have led to the researcher staying in the field longer by visiting other sites.

9.4 Theoretical coding

According to Glaser (1978, p. 72), theoretical codes "conceptualise how the substantive codes may relate to each other as hypotheses to be integrated into a theory. They, like the substantive codes, are emergent; they weave the fractured story back together again... Theoretical codes give integrative scope, broad pictures and a new perspective". In other words, theoretical coding generates meaning and scope to the theory that is emergent and involves conceptualizing the relationship between categories. He further states that researchers must be sensitive to "the myriad of implicit integrative possibilities in the data" and accordingly sets out a range of "18 coding families" of theoretical codes to assist in the process of theoretical coding (Glaser, 1978, p. 73). Accordingly, these coding families sensitize the researcher to the array of behavioural patterns by which they may weave their data back together into a parsimonious grounded theory. Glaser further stresses that whichever coding family is adopted during the process of theoretical coding, it is vital to allow the data to determine which coding family best fits the data. Details on how the inductive theoretical coding process was applied are contained in Appendix A.

9.5 Theoretical memos

Memos are the written notes or records of analysis related to the development of the theory (Chenitz & Swanson, 1986). Memos are vital as they provide a bank of ideas that map the emerging theory and are used to identify categories and their properties. Glaser (1978) suggests that memos are a core stage in the process, and without using them theoretically to write up an idea, the researcher is not in fact doing grounded theory. Haslam (2002) describes memos as the building blocks of theory development in the grounded theory process. Goulding (2002, p. 65) further mentions that memos are used as “*part of the process of abstraction, and therefore, when writing memos, ideas should be expressed in conceptual terms, not necessarily in people terms*”. Memos are also used to continuously increase the level of abstraction, enabling the researcher to systematically move from description to conceptualisation of the main concern of participants with the discovery of the core category. This process of moving from description to conceptualisation further requires the integration of theoretical concepts into a conceptually complex integrated theory (Spiggle, 1994). In addition, memos are used to illuminate the research process by allowing the researcher to reflect on their experiences in both an analytical and personal sense (Norton, 1999). Martin and Turner (1985) recommend that the researcher should try to perceive themes and then write a theoretical memo in a free-flowing manner. The goal is to represent conceptually what the data reflect empirically in a systematic manner.

Another key aspect of grounded theory is that of theoretical sorting, which is a conceptual act designed to integrate categories together as well as their relation to the emergent category (Glaser, 1978). In other words, it involves sorting memos into batches and linking them to create a theoretical outline that explains most of the behavioural variation evident in the data. The next section looks at the nature of theoretical sorting in order to clarify this fundamental feature of grounded theory.

9.6 Theoretical sorting

Glaser (1992) points out that theoretical sorting is the key to formulating the theory. It is the act of arranging a huge pile of memos into an integrated theory, what Glaser labels as the epitome of the theory generation process (Glaser, 1998). As the research headed toward theoretical saturation and the emergence of a core category, theoretical memos were sorted by similarities, connections and conceptual orderings (Glaser, 1978). This became the theory outline, an outline that Glaser (Glaser, 1978, p. 120) labelled a “*parsimonious set of integrated concepts*”.

The central theme of any grounded theory methodology is that the pattern by which how categories relate to one another should emerge from data. In other words, it is not preconceived. My preference for theoretical sorting is to lay out all theoretical memos on the floor and ask questions relating to the notion of process. Over time, how concepts were linked to each other became clear. This became the basis for writing up the study. In the next section, pre-requisite skills required by researcher are described.

10. Skills required to do a grounded theory study

According to Stern (1994), grounded theory is described as half art and half science and as such it is sometimes difficult to fully describe the procedures of grounded theory to novice researchers. Glaser (2001, 1998) recognizes that a novice researcher may experience this difficulty if supervised by others who themselves do not have a good understanding of this methodology. Accordingly it is a methodology that can only be learned, as Glaser (1998, p.19; 2003, p. 92) puts it “*just do it*”. Previous encounters supervising novice researchers at postgraduate and doctoral levels indicated that the results are typically affirmative when the researchers were able to cope with the following challenges:

10.1 Understanding the intricateness of grounded theory procedures

One of the primary concerns of research committees is the ability of the research candidate to complete the study successfully. While Glaser (2001, p. 119) suggests that Grounded Theory enables a “know-nothing to an expert and that takes the GT researcher from the very beginning of data collection, coding and analysis through many steps to a publication”, the need for researchers to adhere rigorously to the systematic procedures of the method is antecedent. Novice researchers should therefore read in-depth the methodological know-how of Grounded theory prior to a journey of emergence.

10.2 Staying relevant to latent patterns

One of the greatest challenges is determining the level of conceptualization needed. Glaser (2001) is clear on the fact that classical grounded theory is about conceptualization rather than description. However, an issue that is yet to receive the attention it deserves is the depth of conceptualization expected in a grounded theory study. A review of recent classical grounded theory PhD theses (e.g. Ng 2005a; Andriopoulos 2000; Guthrie 2000; McCallin 1999a, Brooks 1998) shows considerable variation in the level of conceptualization they contain. Therefore the ability to recognize pattern is primal to conceptualization. This requires the researcher to be sensitive to data emergence by constantly comparing data to data and incident to incident.

10.3 Pacing the research

The other challenge that the novice grounded theorists would face is what Glaser (1978) terms as pacing. Far too often academic researchers are hard pressed to meet deadlines with short lead time. Generating grounded theory takes time and is a delayed action phenomenon (Glaser 1986). This delayed phenomenon may lead to emotional boredom and seemingly getting nowhere (as in Lofland 1996), thus giving it up altogether in view of other preconceiving research methodologies (Glaser 1998). In short, these researchers short-changed themselves by not allowing the GT methodology to yield the desired results. Accordingly, the researcher must learn to be pace his patience, and not just his patient, accepting nothing until something happens.

10.4 Ending the data collection process early

The last challenge facing the researcher using grounded theory methodology is early closure of the data collection process. According to Glaser and Strauss (1967, p. 67) "*theoretical saturation*" is the criterion used to judge when to stop collecting data. In addition, Strauss and Corbin (1990) state that theoretical saturation can occur at three junctures in the research. Firstly, when no new data reveals new categories; secondly, when each category is richly and densely described and all of its properties have been revealed; and thirdly, when the relationships between categories are well established and validated by data. It is therefore suggested that researcher avoid premature closure by looking out for the point of diminishing returns where the data add nothing to what the researcher already knows about a category, properties and its relationship to the core category (Dick 2002).

11. A final suggestion

In this paper, suggestions required for research using the grounded theory methodology study have been presented. While Glaser (1998) iterates that researchers should stop talking about grounded theory and start doing it, it is usual that researchers need to be familiar with the intricacies of the methodology. The novice researcher is therefore advised to adhere to the principles of constant comparison, theoretical sampling and emergence; the research outcome can be both rewarding and stimulating for those who persevere. Theory will emerge not only from the grappling of analytical perceptions but also the way in which participants' resolve their main concern. It is critical that students and supervisors consider cautiously the germane skill sets of the novice researcher prior to the use of the methodology. The guidelines provided here would serve as a stepping stone to a journey of lifelong learning.

References

- Andriopoulos, C & Gotsi, M 2001, 'Living the corporate: Case studies from the creative industry', *Corporate Reputation Review*, vol. 4, no.2, pp.144-154.
- Andriopoulos, C & Lowe, A 2000, 'Enhancing organisational creativity: The process of perpetual challenging', *Management Decision*, vol. 38, no. 10, pp.734-742.
- Andriopoulos, C 2000, *Mind Stretching: A grounded theory for enhancing organisational creativity*. PhD thesis. University of Strathclyde.
- Batt, PJ & Purchase, S 2004, 'Managing collaboration within networks and relationships', *Industrial Marketing Management*, vol. 33, pp.169 – 174.
- Brooks, IJ 1998, *Weighing up change: A grounded theory of explaining the response of middle managers to the organisational change*. PhD thesis, University of Canterbury.
- Burchill, G & Fine, C 1997, 'Time versus market orientation in product concept development: empirically-based theory generation', *Management Science*, vol. 43, no. 4, pp. 465 – 478.
- Charmaz, K 1990, Discovering chronic illness: Using grounded theory, *Sociology of Health and Illness*, 30, pp.1161-1172.
- Chenitz, C & Swanson, C 1986, *From practice to grounded theory: Qualitative research in nursing*, Menlo Park, CA: Addison – Wesley.

- Coyle, IT 1997, 'Sampling in qualitative research: purposeful and theoretical sampling; merging or clear boundaries?', *Journal of Advanced Nursing*, vol. 26, no. 3, pp. 623 – 630.
- Creswell, JW 1998, *Qualitative Inquiry and Research Design: Choosing among five traditions*, Thousand Oaks, Sage Publications.
- Denscombe, M 1998, 'The Good Research Guide for Small-Scale Social Research Projects' in NK Denzin & YS Lincoln (eds.), *Handbook of Qualitative Research*. Thousand Oaks, CA: Sage.
- Dey, I 1999, *Grounding Grounded Theory: Guidelines for Qualitative Inquiry*. San Diego, USA: Academic Press.
- Dick, B 2002, 'Grounded theory: a thumbnail sketch', viewed 1 February 2008, <http://www.scu.edu.au/schools/gcm/ar/arp/grounded.html>.
- Glaser BG & Strauss AL 1967, *The Discovery of Grounded Theory: Strategies for Qualitative Research*, Aldine, Chicago.
- Glaser, BG 1978, *Theoretical Sensitivity: Advances in the Methodology of Grounded Theory*, Mill Valley, CA: Sociology Press.
- Glaser, BG 1992, *Basics of Grounded Theory Analysis: Emergence Versus Forcing*, Mill Valley, CA: Sociology Press.
- Glaser, BG 1998, *Doing Grounded Theory: Issues and Discussions*, Sociology Press, Mill Valley, CA.
- Glaser, BG 2001, *The Grounded Theory perspective: Conceptualisation contrasted with description*, Sociology Press, Mill Valley, CA.
- Glaser, BG 2003, *The Grounded Theory perspective II: Description's Remodeling of Grounded Theory Methodology*, Sociology Press, Mill Valley, CA.
- Goh, SM 2005, Using Action Research to develop a dimensionally enhanced approach to project cost modeling, Ph.D. Thesis, Graduate College of Management, Southern Cross University, Australia.
- Goulding, C 2002, *Grounded Theory: A Practical Guide for Management, Business and Market Research*, Thousand Oaks, CA. Sage
- Haslam, S 2002, 'Personal Legitimizing: a Perspective of Marketing Management, Grounded Theory Analysis and interpretation of qualitative data in consumer research', *Journal of Consumer Research*. 21(3), pp. 491-503.
- Hutchinson, S 1986, 'Grounded Theory: The method', In PL Munhall & CJ Oiler (eds.), *Nursing Research: A Qualitative Perspective*, Appleton-Century-Crofts: Norwalk.
- Huxham, C 1996, *Creating Collaborative Advantage*, Thousand Oaks, Sage, CA.
- Kilbourn, B 2006, 'The Qualitative Dissertation Doctoral Proposal', *Teachers College Record*, vol. 108, no. 4, pp. 529-576.
- Lang, JW 1996, 'Strategic alliances between large and small high-tech firms', *International Journal of Technology Management*, vol. 12, no. 7/8, pp.796-807.
- Locke, K 2001, *Grounded Theory in Management Research*, Sage Publications, London, Thousand Oaks.
- Lowe, A 1996, 'An explanation of grounded theory', *Swedish School of Economics and Business Administration - Working Paper*.
- Martin, PY & Turner, BA 1986, 'Grounded Theory and organizational research', *The Journal of Applied Behavioural Science*, vol. 22, no. 2, pp. 141-157.
- McCallin AM 1999a, *Pluralistic Dialogue: A Grounded Theory of Interdisciplinary Practice*, PhD dissertation. Palmerston North, New Zealand: Massey University.
- Moghaddam, A 2006, 'Coding Issues in Grounded Theory', *Issues in Educational Research*, vol. 16, no. 1, pp. 52-66.
- Mudambi, S & Aggarwal, R 2003, 'Industrial distributors – Can they survive in the new economy?', *Industrial Marketing Management*, vol. 32, pp. 317-325.
- Ng, YN 2005a, *A Principal-Distributor Collaboration Model in the Crane Industry*, Ph.D. Thesis, Graduate College of Management, Southern Cross University, Australia.
- Ng, YN 2005b, 'Managing Collaborative Synergy', *The Grounded Theory Review*, vol. 4, no. 3, pp. 81-103.
- Ng, YN 2005c, 'An Exploratory Study of Principle-Distributor Collaboration' Proceedings from Australian New Zealand Marketing Academy Conference, ANZMAC, Perth, Australia, pp. 83-90.
- Ng, YN, 2008, 'Pitfalls in Research Proposal Writing', Viewed 1 January 2008, <http://www.kdn.com.sg/Writing%20Proposals.html>
- Parry, K 1997, *Enhancing Adaptability: A Grounded Theory of Organisational Leadership as a Social Process*, PhD Thesis. Department of Management, Monash University, Melbourne.
- Partington, D 2000, 'Building grounded theories of managerial action', *British Journal of Management*, vol. 11, pp. 91 – 102.
- Schreiber, RS & Stern PN 2001, 'The "how to" of grounded theory: Avoiding the pitfalls', in RS Schreiber & PN Stern (eds.), *Using grounded theory in nursing*, New York: Springer Publishing Company.
- Schroeder, DM & Congden, C 1995, 'Linking competitive strategy and manufacturing process technology' *Journal of Management Studies*, vol. 32, no. 2, pp. 163 – 189.
- Spiggle, S 1994, 'Analysis and interpretation of qualitative data in consumer research', *Journal of Consumer Research*, vol. 21, no. 3, pp. 491 – 503.
- Spina, G & Zotteri, G 2000, 'The implementation process of customer-supplier partnership: lessons from a clinical perspective', *International Journal of Operations & Production Management*, vol. 20, no. 10, pp. 1164-1182.
- Stern, PN 1994, 'Eroding Grounded Theory', in JM Morse, (ed.), *Critical Issues in Qualitative Research Methods*, Sage, Thousand Oaks.
- Stiles, J 2001, 'Partner Selection: Motivation and Objectives', in MH Tayeb & FJ Contractor (eds.), *International Business Partnership*, Palgrave, Hampshire, U.K.
- Strauss, AL & Corbin, J 1990, *Basics of Qualitative Research: Grounded Theory Procedures and Techniques*, Sage, London.
- Strauss, AL 1987, *Qualitative analysis for scientists*. University of Cambridge Press: Cambridge.

- Tay, BH 2004, Using Action Research to develop a social technical diagnostic expert system for an industrial environment, Ph.D. Thesis, Graduate College of Management, Southern Cross University, Australia.
- Vasudeva, R 2006, *A Professional Practice model for speech-language therapy in Singapore*, Ph.D. Thesis, Graduate College of Management, Southern Cross University, Australia.
- Walton, J & Molzahan, AE 2002, 'Finding a balance: A grounded theory study of spirituality in hemodialysis patients / Commentary', *Nephrology Nursing Journal*, vol. 29, no. 5, pp. 447 – 456.
- Wilson, HS & Hutchinson, SA 1991, 'Triangulation of qualitative methods: Heideggerian hermeneutics and grounded theory', *Qualitative Health Research*, vol. 1, no. 2, pp. 263 – 276.

Appendix A – Applying the principles of Grounded Theory

Introduction

The purpose of this appendix is to provide the reader with an explanation of how grounded theory was induced from the data. This section is not intended to provide lengthy demonstration of how the theory was induced. Its purpose is to illustrate how the procedures of data analysis, theoretical memoing and theoretical sampling were used to progressively to generate a grounded theory. This section will begin by illustrating how data was analysed using Glaser's coding paradigm of open, selective and theoretical codes. Following this is a discussion of how theoretical memoing was used in conjunction with coding to facilitate in the generation of the core category.

In order to avoid and forestall early judgements, I have followed Glaser's (1978, p. 134) recommendations by stating the method with "*an example of how one went about grounding a code and an hypothesis*". In the sections that follow, a series of short extracts from early interviews are outlined to illustrate how the category of 'engaging exclusivity' was induced from raw data. There was no particular reason for the choice of this category as the generation of all other categories followed the same systematic process. Names were replaced with pseudonyms and their company identified by acronyms to maintain their confidentiality.

Open Coding

Interview with Luke – SR1, HRR (160899)

HRR is one of the four leading crane manufacturers in Singapore. Luke, director and manager of operations, is discussing the possibilities of distributing KI products.

Luke: You know that we have been representing Montel electric wire rope hoists, Goltsmith electric chain hoists, Steinert mobile electrification systems and Tonato radio control pendant stations for many years now. We are interested in products that could be integrated into our current systems.

Ng: Can you tell me about your requirements for taking on KI products?

Luke: Obviously, pricing is one of the most important factors. To survive in today's environment, the Principal must do more in order to enable us to compete. For us to be able to compete in the market, one of the strategies is to look at our cost and availability of our products. We are prepared to make initial investments in marketing and stocks. However, we want to have control of the market and marketing of the products in the long haul. This includes the servicing of products and provision of spare parts. We believe that this way will allow us to be profitable in the long run. As you already know, we have been in the business for 15 years and so are the representations of those products.

This small interview extract gave rise to a number of open codes. Open codes specific to the discovery of the category of engaging exclusivity have been underlined. These include: "pricing"; involvement of Principal; improved cost; availability of products; "initial investments in marketing and stocks"; "want to have control of market"; limiting competition; providing after-sales service; ability to provide spare parts; Principal's commitments; experience in industry; long term commitments by both parties.

The natural language of the research participants was used where possible. Those "*in-vivo*" codes (Hutchinson, 1986, p. 120) were expressions that conjured up a rich picture, a vivid picture of what was happening in a particular context.

Interview with Conner – SR2, QD (160899)

QD is one of the newly established crane manufacturers in Singapore. At the time of interview, this company just celebrated its second anniversary. Most of the members of QD's management team were former employees of a leading crane company in S.E. Asia. In this interview, Conner, the sales director is describing his experience with a particular Principal firm.

We were promised these lines of products at that point of time. Though there were market confusions that two Distributors were carrying the same lines of products, we were assured by Mr Glamor, the regional manager, that this was just the interim period where there is a change of Distributorship. It was his words that we had taken at face value that started the beginning of our massive marketing efforts. I mean we were everywhere, on the newspapers, trade magazines and exhibitions. You know these things take a lot of investment and time. To be honest, we did our best to do our part for this range of products in this small industry. We did manage to get a fair share of the market but so did our competitor. They were riding on our work without even spending much on advertisements. If I recounted correctly, in that year, we have lost at least half a million worth of projects to these guys. And yet, our Principal did nothing. By the time it came for the Distributorship to be transferred, we were told that the other company did as well as we did and thus made the decision making difficult. We were told to continue what we did for another year. By then, our internal management had decided to pursue another brand but this time we made sure that we were the only ones marketing it in Singapore.

This extract gave rise to a number of open codes. Again, open codes specific to the discovery of the category of engaging exclusivity have been underlined. Amongst the open codes generated from this extraction were: avoid market confusion; assurance by Principal; “takes a lot of investment and time”; “did our best to do our part”; “small industry”; obtained fair share of market; “Principal did nothing”; unfulfilled promise; only company marketing the products.

Interview with Gorzen – SR85, ZATR (081100)

Gorzen is the export sales manager of a Principal firm. In this extract of a longer discussion, he is describing his workings with his Distributor in Singapore.

About 15 months ago, they came to see us and expressed their desire to represent our products in Singapore in their new set up. Having worked in Singapore for the past 3 years allowed me to understand and appreciate the local situation better. And I know these guys, they have the relevant experience in the industry and I believe they can do a good job with our products. But there are many things to consider before awarding them the Distributorship. Every potential Distributor would want to work in a way that benefits them and they will promise you the world in order to secure a stable working relationship. I recognised that it is easier for me to work through Distributors than doing it alone. After all, they are the ones that have the market knowledge and are in direct contact with the customers. We probably need to be very sure that the party that we work with is capable of producing the desired results that is beneficial for us. I mean there is a lot at stake for us too. Putting in resources for product training and after sales service program. We must be very sure that we too can fulfil and meet their requirements. I find it better to give both parties the chance to prove the worthiness mutually. In a tight market where there are only so many ‘experienced’ Distributors, we probably must make do what is currently available. As I keep telling my boss, in this way we will not lose out on every opportunity. Obviously, when the time comes, we will play our part.

This interview extract gave rise to a number of open codes. Again, open codes specific to the discovery of the category of engaging exclusivity have been underlined. Amongst the open codes generated from this extraction were: express desire for representation; ability to understand and appreciate local situation; “relevant experience in the industry”; many considerations prior to award of Distributorship; security of a stable working relationship; work to benefit; market knowledge; direct contact with customers; capable of producing beneficial results; allocation of resource for training; internal assessment; meet requirements; proof of worth; make do with situation; “not lose out”; “play our part”.

At this stage, it became obvious from the data itself that achieving market control had some impact on the behaviour of key decision makers and potentially on the progress of the Principal-Distributor relationship. Gradually, as more data were collected and analysed, moving this to a higher conceptual level, the managerial issue that appeared to link these open codes together was one of engaging exclusivity. This inductive process was assisted through the use of theoretical memos, which will be described more fully in later sections.

Using the process of constant comparison, with other related incidents a number of related properties or “*sub patterns*” emerged within the category of engaging exclusivity. (Glaser 2001, p. 10). Again simply from the three interview extracts above, achieving market control was essential for the management of Principal-Distributor relationships. This was indicated by the open codes of:

- Long term commitments from both parties

- Improvement of Profits
- Control of market
- Limiting competition
- Security of a stable working relationship

Likewise, the performance beneficial to both Principal and Distributor emerged as a sub-pattern of successful Principal-Distributor relationship. At this stage, the open codes that gave rise to this hypothesis were:

- Capable of producing beneficial results
- Proof of worth
- Unfulfilled promise
- Considerations for award of Distributorship

Open coding, as suggested by Glaser (1978, 1992) and Strauss and Corbin (1990), is the first step of a theoretical analysis towards the discovery of categories and their properties. It is done to highlight data that the researcher believes may have an importance beyond the simple description of the context of the data (Lowe, 1996). Although the open codes presented above were descriptive, they set the initial stage to move conceptualisation to a higher level. This was achieved by the constant comparison method described earlier in this chapter by comparing code-to-code, incident-to-incident looking for similarities and differences. For example, from just the interview extracts above, the researcher would compare all the underlined codes by asking Glaser's (1992, p. 51) key questions:

- What is this data a study of?
- What category or property does the incident indicate?
- What is the basic process that "processes the main problem that makes life viable in the action scene"?

Selective coding

As analysis proceeded, understanding deepened and some characteristics were merged together. Once the basic category of engaging exclusivity was discovered through the constant comparison of all data in similar incidents, participants were asked specific questions to further saturate the category. Questions were focused on the participants' perceptions of exclusive arrangements between Principals and Distributors. For example, some decision makers of both Distributor and Principal firms were specifically asked what impact exclusive arrangements had on their relationships. The following is an extract of the interview that was conducted late in the data collection process where the emphasis was on saturating the category of engaging exclusivity.

Repeat Interview with Steve – SR82, LLG (271000)

Steve is the director of a UK hoist and crane manufacturer based in Singapore. He has 15 years experience in the industry and has been involved in the appointment of Distributors within Asia.

Ng: Does having exclusive relations with your Distributors benefit LLG?

It depends. Every Distributor that comes our way is always looking for an exclusive relationship with us. This is quite normal. They see us as possibilities in assisting them in improving their current situation. However, we see Distributors as our extended sales offices in that country. Therefore, we need time to assess them. It is for us to assess if this potential Distributor is the kind of partner that we want. The last thing you want is to appoint someone as your Distributor who turns out to be indifferent about your products and requiring you to switch Distributor down the road. I had one of those when I first joined the company. This Distributor promised us heaven and earth but for the next 3 years sold nothing for us citing market conditions as their predicament. It was a disaster. We trained their sales teams and service crew, gave them the basic designs for cranes and supported them in every inquiry but no cigars. I learnt from that. 3 years of work down the drain. We recognised that by working exclusively with the Distributor is giving assurance that we are there for them and to motivate them to do much more for us. But we need to be assured that the Distributor that works with us exclusively also keeps their promise. That's why I make sure that the Distributor works just as much and brings in the business like any of our local sales people. There is no free ride. Though we are considered the largest UK manufacturer of hoists and cranes, we recognised that it is not feasible for us to operate in every country ourselves. We see working with Distributors as a good way of reaching customers, providing technical support and after sales service to those that buy our products. Distributors allow

the multiplication effect of sales and they know it too. We cannot lose the opportunity to better increase our market shares.

At this stage, the above interviews together with other interviews involved a certain level of selective coding. At the same time, the notion of synergy gradually emerged as a possible core category. Next, participants were asked specifically about how the basic categories might relate to the issue of managing synergy between Principal and Distributor firms. These questions added to the formation of, and association amongst, the categories. However, it must be pointed out that this was an implicit process as the core category had not been pre-determined at this stage, and the main objective of these questions was to further the researcher's understanding of the category of engaging exclusivity.

The interview with Steve generated the following codes in relation to the basic category of engaging exclusivity: exclusivity perceived as assurance from Principal; exclusivity as motivations; need to assess Distributor; profile of ideal Distributor; Distributors need to fulfil promise; exclusivity involved responsibilities; recognized limitations of one's company; exclusivity improved market share. When all the above codes and those from other similar interviews failed to inform or add any new dimension, that is "*no new properties... emerge*" to the category of engaging exclusivity, this category was considered as saturated (Glaser, 2001, p. 191). While there were no clear-cut rules as when saturation will occur, it must be mentioned that attempts were made to avoid early 'closure' (Glaser, 1978; 1992; Strauss, 1987). This included seeking out disconfirming evidences in order to further saturate the category. For example, the repeat interview with Steve led the Researcher to ask:

- To what extent do distributors favour exclusive relationships?
- What distinguished those who want it from those who do not?
- When is exclusivity desirable and when isn't it?

These questions to seek out disconfirming evidence has led to the researcher staying in the field longer by visiting other sites that will be explained in later sections.

Theoretical coding

It became clear that what was linking all of the elements into an integrated theory was a 'process' in theoretical coding. As pointed out by Glaser (1978, p. 74), a process "*must have at least two stages*" and he refers to "*getting something done which takes time or something happening over time*". In this study, each of the linked sub-core categories, and the core category of 'managing collaborative synergy', were 'phases' in the management of the Principal-Distributor relationship. As such, Glaser's 'process' coding family seemed appropriate for use in the study. In addition, the term 'phases' were used by many participants in their description of Principal-Distributor relationship and as such supported the use of the process coding family in this study. These participants would use phrases such as "*during this phase, we were interested in...*", "*...at the beginning phase of the partnership*", and "*it became a problem during that phase...*", to describe their experience regarding PDC.

The above-mentioned illustration of the coding process is, to a certain degree, a simplified view of the process for the discovery and saturation of the category of engaging exclusivity. However, in reality, each and every interview, field note and company's record was constantly compared for the generation of each category, its properties and its relationship to other categories. At the heart of the process of discovery and saturation of each category, and to the relationship linking each category, was the use of theoretical memos. This will be explained in the next section.

Theoretical memos

A prerequisite of any grounded theory study is the need to write memos. In this study, memos were written throughout the research process and were pivotal in "*breaking the categories into components and elaborating the codes. By writing memos, the researcher moved directly into analysis of the data. Bits of data and early codes were systematically examined, explored, and elaborated*" (Charmaz, 1990, p. 1169). Memo writing compelled the researcher to reason through, in order to verify categories, their integration, fit, relevance and work within the theory. Initially in the early phases of this study, memos were often labelled with simple, descriptive titles. For example, the early interview with Luke, discussed earlier in this paper, produced over 10 memos, amongst them one titled 'Limiting Competition'. This memo is illustrated in Figure 1.0 that follows. In this particular example, the memo was used to record an incident which sparked the researcher's thoughts on Distributors, including the relevant open coding shown earlier in this paper.

The process in deciding what represented an incident worthy of a memo depends on the researcher's intuition. While this early memo captures the researcher's notions, reflections and conflicting thoughts, it also enabled the questioning of the emerging data. In addition, suggestions/ recommendations for further data collection were noted with further sources of information it might be useful to pursue. Memoing continued in parallel with data collection, note taking and coding.

Memo: Interview with Luke – SR1, HRR (160899)

Limiting Competition

Obviously, pricing [pricing] is one of the most important factors. To survive in today's environment [competitive environment], the Principal must do more in order to enable us to compete [involvement of Principal]. One of the strategies is to look at our cost [improved cost] and availability of our products [availability of products]. We must be prepared to make initial investments in marketing and stocks [initial investments in marketing and stocks]. However, we need to have control of the market [want to have control of market] and marketing of the products [limiting competition] in the long haul. This includes the servicing of products [providing after-sales service] and provision of spare parts [ability to provide spare parts]. In this way, it will allow us to be profitable in the long run [Principal's commitments]. As you already know, we have been in the business for 15 years [experience in industry] and so are the representations of those products [long term commitments by both parties].

1. It appears that limiting competition in a competitive environment is the main concern in Principal-Distributor relationship. This seemed to be the behaviour in committing to a relationship involving investments in marketing efforts and stocks.
2. In an effort to remain competitive, Distributor's strategy is to limit the availability of goods to competitors by obtaining Principal's involvement. Hence improving cost and limiting competition. In the long term, Distributor is profitable by providing after sales service and spare parts.
3. It seems that the overall strategy adopted by Distributor is advantageous to them and largely ignored the goals of the Principal firm. Given the current competitive nature of the industry, limiting competition would only seem to have immediate benefits for the Distributor.
4. Since the environment is competitive and price sensitive, would limiting competition be beneficial for the Principal? If it is not, then what other ways to work with Distributors? To what point, do we consider limiting competition?
5. From this initial discussion with Distributor, I don't know if limiting competition is the only motivation for collaboration. I can only speculate. What we don't know from this initial discussion is the Distributor's agenda. I must be more in tune in our next discussion, what cues they are responding to, and what responses if these cues are met?

Figure 1: Memo titled "Limiting Competition"

Using the same procedures described above, many memos were generated in each interview in the early phases of this research. These included interviews with Conner, a memo titled 'Avoidance of Market Confusion' and with Gorzen, a memo titled 'Security of a Stable working relationship'. These two memos included the paragraph shown earlier in this chapter from interviews with each of these participants. Furthermore, the generation of theoretical memos was primary in the process of grouping together various incidents and related open codes into basic categories. As the analysis proceeded, further insights were built-up and some memos were merged. In addition, memos were used to continuously increase the level of abstraction by grouping basic categories together into higher order categories, for the discovery of new categories and for the discovery of the core category of Managing Collaborative Synergy.

For example, memos titled 'Limiting Competition', 'Avoidance of Market Confusion', 'Security of a Stable working relationship' together with memos from other interviews, seemed to have something in common. Many became interconnected to form common themes. Based on the above illustration, the theme that connected these three memos and other similar memos together was the notion of 'exclusive relations'. From here, this was the title given to a new theoretical memo.

Upon receiving a new label, this theoretical memo was used to conceptualise and account for commonalities of these memos. It was not unusual that these theoretical memos would appear to be more descriptive than conceptual at this point of time. Using the memo 'Exclusive Relations' as an example in Figure 2.0, this memo was more descriptive than conceptual. Descriptive analysis was unsatisfactory, as the point of memo writing was to move beyond description to conceptualisation. However, as more data were examined and collected, the concept of 'exclusive relations' was continuously refined by the increase in conceptualisation skills of the researcher. Figure 3.0 summaries the final memo relating to this category, by this stage titled

engaging exclusivity, which became a theoretical element of the final theory of Managing Collaborative Synergy.

Exclusive Relations
<p>Memo: Exclusive relations have implications on both Principal and Distributor.</p> <ul style="list-style-type: none"> ▪ They can lead to stability of sales and profits in the long term. ▪ They can impact survivability in the long term. ▪ They provide a sense of certainty for the market. ▪ They can improve the overall perception of the brands. ▪ They can create problems. ▪ The need to assess partner's capabilities prior to establishing exclusive relations. ▪ The need to assess internal capabilities to compliment working partner. ▪ It takes time to establish exclusive relationships. ▪ They must be capable of producing beneficial results for both parties. ▪ It takes commitment from both parties to make the relationship work. ▪ Both parties must fulfil the promises made to each other.

Figure 2: Early Memo titled 'Exclusive Relations'

Final memos such as depicted in Figure 3.0 became the foundation for the process of theoretical sorting. These memos were sorted according to their similarities and relationships with each category and to higher order categories (for example, confidence building and conformance setting) and to the core category. The process of theoretical sorting became the basis for writing up the grounded theory.

<p>Engaging Exclusivity (SR-M-A-C1-1)</p> <p>Memo</p> <p>The term 'exclusivity' means rights given to Distributors that are not divided or shared with others. These rights are complete, undivided and not shared by others. In other words, exclusivity can be viewed as the highest selling right awarded to a Distributor by a Principal. Every Distributor wants to be the exclusive Distributor and adopting this position means turning away other potential Distributors. It is a managerial issue that occurs early in the Principal-Distributor relationship.</p> <p>Theoretical construction/hypothesis</p> <p>In engaging exclusivity early in the Principal-Distributor relationship, the Principal firm must be careful and assess the potential capabilities of the Distributor and the market environment prior to the award of exclusive Distribution rights. While not working exclusively with the Distributors may be perceived as non-committal on the Principal's side, the wrong selection would impede Principal's objective of increasing market share and place the Principal at a competitive disadvantage. The Principal firm may lose opportunities if the Distributor is not giving its exclusive commitment in its marketing efforts. Mutual respect and trust must be established between Principal and Distributor firms. This takes time and can slow the process of collaborative synergy.</p> <p>Distributors looked for assurances in the relationship with the Principal. In marketing Principal's products, Distributors wanted to be assured that it is worth their while to incur marketing expenses. Hence, Distributors wanted to be able to reap the benefits of their labour for long-term survivability. As such, the Principal needed to assess its internal requirements to help Distributors effectively market these products by allocating resources in training, product knowledge, installation, techniques and after sales service maintenance. This often increased the levels of synergy between managers of both Principal and Distributor firms.</p> <p>Properties/Dimensions:</p> <p>Exclusivity can impede or advance Principal-Distributor relationships.</p> <p>Working exclusively with a Distributor could improve the overall performance of both Principal and Distributor. However, this could also lead to stalling of the relationship.</p> <p>Parties suffered from 'unfulfilled expectations'.</p> <p>There are often high expectations of performance by either party to the relationship. If performances are met, managers are able to establish credentials and work to their advantage by increasing trust and respect. Conversely, if targets were not met, this could lead to mistrust and unfulfilled expectations.</p>
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Figure 3: Final Memo of 'Engaging Exclusivity'

Theoretical sorting

In the study of principal-distributor relationship in Ng's (2005a, b & c) works, theoretical sorting was performed simultaneously with theoretical coding. According to Glaser (1998, p. 163), theoretical codes "*weave the fractured story turned into concepts back to an organized whole theory*". The use of Glaser's "process" family codes was instrumental in the grouping of categories (Glaser, 1978, p. 74). This was due to the constant referrals by participants on the word 'phases' in interviews that enabled the conceptualisation of the relationships between categories in terms of their sequence in a process of managing Principal-Distributor relationships. For example, it was apparent that the theoretical memo of engaging exclusivity described above was often a management issue early in the development of Principal-Distributor relationship in the 'confidence building' phase. The category of engaging exclusivity also turned out to be an action sequence in the sub sub-category of 'Distributor-based strategies'. It was through this kind of inductive reasoning together with the use of theoretical memos to record this reasoning, that theoretical codes and theoretical sorting were accomplished. In addition, as the memo demonstrated, memo writing directed the researcher's further theoretical sampling and enhanced his theoretical sensitivity (Glaser, 1978; Strauss & Corbin, 1990).

Conclusion

The purpose of this appendix has been to demonstrate how a grounded theory was induced from data. This is an iterative process as the discovery of a grounded theory is a non-linear and inductive process relying much on the ability of the individual researcher. It should be emphasized that it is problematic for any grounded theorists to reveal fully the complex process of inducing a grounded theory from empirical data in its entirety. To do so would require detailed explanation of every minute step through the data and the inclusion of each and every field note and theoretical memo. Such voluminous information would simply be impossible for a paper such as this. What the reader sees is in fact snap shots of how the theory was generated from the systematic process data analysis, theoretical memoing and theoretical sampling.

Systematic Literature Searching and the Bibliographic Database Haystack

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Abstract: Researchers performing literature searches are increasingly using bibliographic databases as their initial and dominant resource. While the increasing number, volume and ease of access to academic and other databases potentially speeds searching, researchers require a rapidly evolving set of skills to do this efficiently. Current literature on this topic and research organisations developing techniques in this area are discussed. Aspects to be considered when designing search filters to extract relevant literature are also detailed. Further method development by the author performed during a systematic literature search on the topic of Barriers and constraints for women leaders is additionally examined.

Keywords: search filter, literature review, meta-analysis, database, Boolean algebra, women, leadership, social research

1. Introduction

The volume of material available to the academic researcher in bibliographic databases and other online sources continues to expand at an exceptional rate (Arms et al 2006, Needham 2000, Petticrew & Roberts 2006). While the increasing volume and ease of availability of information has seemingly made the researcher's task of accessing relevant literature quicker and easier, it has also created a new set of challenges (Han & Kamber 2001, Crawford 2006, Matthews et al 1999).

The literature on the effective and efficient access to this rapidly evolving information medium has lagged markedly behind its growth. (Grayson & Gomersall 2003, Taylor Dempster & Donnelly 2003) The effective and systematic searching of the variety of databases available to in particular the social and business researcher is however an area of increasing interest and the focus of this article.

2. Online and offline literature searching

The interrogation of online databases and other electronic searching still forms only part of a comprehensive literature search strategy. While the ongoing need for the use of more traditional search and inquiry techniques is still vital (Stroup et al. 2000), the growing wealth of information available from this source demands increased attention and skills development (Creaser, Hamblin, & Davies 2006). Many current research reports fail to demonstrate that electronic information sources have been fully exploited indicating a hit-and-miss approach rather than a systematic search methodology (Han and Kamber, 2001, Petticrew & Roberts 2006, Jenkins, 2004).

This article details the electronic search strategy taken by the author performing a systematic literature review. Two aspects of this research project both heightened the importance and increased the difficulty of a comprehensive and targeted literature search.

- Studies of interest and other relevant literature are spread through a variety of sources.
- The author's use of the meta-analysis methodology requires a systematic and comprehensive literature search for specific quantitative studies
- A variety of largely un-standardised terms are used in describing and classifying this literature both generally and within electronic sources.

3. Narrative and systematic literature reviews

To varying extents across fields of research the deficiencies of the traditional narrative literature review is increasingly being examined. Narrative reviews attempt to synthesize the primary literature and explore the heterogeneity within it descriptively. The technique relies heavily on the reviewer's judgment and viewpoint especially when reconciling conflicting results or when assessing the merits of confirming or confounding information (Petticrew & Roberts 2006). The larger the literature base on a topic, the more pronounced these problems can become. Despite these difficulties the narrative review continues as an important vehicle of academic discussion, dissemination and debate.

A variety of approaches and methods have been developed to either compliment or as an alternative to the traditional narrative review. To address the authors research question a range of systematic methods were examined to asses their suitability. One of the more established methods which the author has chosen to use is meta-analysis. This choice was largely driven by conflict, contradiction and uncertainty within the literature under examination. A preliminary literature review revealed that much of the original research and consequent analysis was contradictory, ambiguous or speculative. Meta-analysis requires the systematic identification and combination of quantitative studies examining the issue or issues of interest. This is seen by the author as a suitable method to both contrast and where possible reconcile the much larger literature base of qualitative research on the topic.

While much of the discussion below is driven by the needs of a systematic literature review, the literature search techniques detailed can similarly strengthen or, if neglected compromise, all varieties of literature searching and review.

4. Meta-analysis and literature searches

Meta-analysis has gained a firm standing in both the review and synthesis of quantitative research. It shifts much of the assessment burden from the reviewer's judgment to a set of assessment and statistical tools. It is also highly dependant on a comprehensive and exhaustive literature search.

A number of groups interested in meta-analysis also have a particular interest in highly targeted and systematic literature searching. While the meta-analysis methodology is used broadly, it is most codified and understood in medical research (Taylor Dempster & Donnelly 2003). The Cochrane Collaboration established in 1993 has specifically worked to develop and standardise the methodology applied to medically related research. This is an international not-for-profit organisation providing up-to-date information about the effects of health care. The group has a strong guiding role in the methodology development and increasingly features in the literature on it. It also takes a leading role in the production of systematic reviews across medical research updating these reviews as new primary research is completed.

Many of the principals and practices detailed in this medically focused literature can and have been adapted to other areas of research. Reacting to this need a sibling organisation to the Cochrane group known as the Campbell Collaboration was formed in 1999 (<http://www.campbellcollaboration.org/>). This group focuses on the systematic review of social, behavioural and educational research and is part of the wider American Institutes for Research organisation that focuses on behavioural and social science research (<http://www.air.org/>). Another major group with a focus on systematic review and social research is the UK based Economic & Social research council (ESRC) (Bradshaw, 2005).

While the Campbell and ESRC groups have both identified and generated literature on systematic searching strategies and methods there is still much development work being carried out. One issue noted within this literature is the additional challenges faced by systematic reviewers working outside of the medical field (Jenkins, 2004). Medical researchers can rely heavily on the Medline database and a highly standardised terminology usage. The social or business researcher often has a wide range of possible databases to examine and a much looser terminology usage within the literature. Other features of the range of databases within these disciplines include, poor indexing, lack of consistent abstract structure, lack of standardisation of terms used, and a variety in design of database structures with subsequent varying search fields and layouts (Grayson and Gomersall 2003, Taylor, Dempster and Donnelly 2003, Bradshaw, 2005).

5. Commonly described electronic search strategies

The typical search description found in recent meta-analysis studies that were examined as possible instructional examples for the author's study consisted of the following :

1. Definition of research problem and types of studies to be sought.
2. Scope of search (within a discipline, topic, language, region etc.) and specific variables being examined.
3. The time period of target studies included in the search (i.e. relevant studies completed in a defined period, generally set from a time close to the undertaking of the systematic study looking back typically 5 to 10 years depending on the topic).
4. Databases used in the search.
5. Key words or phrases used for the search.

6. Assessment criteria for including or culling the usual high number of studies that this technique typically produces (although this is often incomplete or not described).
7. Follow-up searching using authors' names taken from relevant studies found in the above stages.

Additional methods to ensure that a search has been comprehensive include –

1. Use of manual searching – Examination of reference lists from relevant studies obtained in searches, qualitative studies, review articles or relevant journal or book searches. Manual examination of relevant journal indexes.
2. Direct correspondence with authors found in the above processes for additional information or studies that they may have been involved with or know of.
3. Wider internet searches for sources of “grey literature”(Government, educational and other institutional reports, research organisation sites, conference proceedings and papers, dissertations, etc.).

6. Typical description of the search process in a meta-analysis study.

From an examination of a range of systematic studies similar in content or structure to the author's study the following description was generally contained within them:

To identify published and unpublished studies that investigate the relationship of ABC to XYZ....., these were searched using the keywords "X" or "Y" or "Z" in databases A, B and C.... These databases were searched again using the authors' names from relevant studies found in the initial search. The reference sections of each of the identified studies were then examined as well as existing reviews of the literature. Finally, e-mail requests were sent for help in identifying unpublished research to authors who had published relevant studies.... To be included in the analysis, a study needed to report on or examine ABC and its effect on XYX.....

Applying these criteria furnished a set of 'n' number of studies that were included in the meta-analysis.

7. Research experience

Performing a pilot search for studies to include in the author's meta-analysis, it was found that the methods generally described by other researchers or detailed in many texts or papers on the topic required further development. Most electronic search strategies described or suggested used single words or short phrases. Attempting to use this strategy for the authors topic with a variety of databases generally produced thousands of matching studies with the majority being unsuitable. The sheer numbers produced effectively made working through their abstracts impossibly unproductive.

8. Search filters

To overcome these problems a search filter was developed. The aim of a search filter is to extract studies and articles of interest from a database. A simple search filter can consist of singular or combined words entered into one or more search fields available within a database's search facility. Further parameters can be added such as, categories of literature to be searched, words that will exclude search extraction, restrictions on date ranges, etc.

Within many search fields, Boolean algebra can also be used to form relationships between words or phrases to further refine the output of search requests. The most commonly used Boolean functions are AND, OR and NOT functions to define the relationship between search words or phrases. These operators can generally also be used to form relationships between search fields and are largely self-explanatory in their operation.

The usage of standardised search filters is becoming well established in the medical meta-analysis literature. A range of generic filters have been developed for medical researchers performing searches in the Medline database. These standard search filters can be applied directly but are generally adapted by researchers for their specific projects. (Haynes et al 2005)

8.1 Developing a search filter

Compared to the systematic medical researcher, the social or business researcher has a much more difficult task to develop an effective filter (Grayson and Gomersall, 2003). Generic filters do not presently exist and

filters need to be developed for each application from scratch by the researcher. The mention of the use of search filters outside medical research is still very rare.

Using a cyclic development approach suggested by Petticrew & Roberts (2006) the following filter was constructed for the author's use:

(Barrier* OR Constrain* OR Imped* OR Obstr* OR hind* OR block* OR difficult* OR career path OR attrition) AND (survey* OR Quantitat* OR Data) AND (Women* OR Gender* OR Female OR Feminist) AND (Leader* OR Manage* OR direct* OR board member*)

Broken by the AND function and bracketed, each aspect of the literature search requirement can be seen within the filter. The first bracketed section sought the constraints or barriers aspect, followed after the AND by the requirement for a quantitative study. The examination in terms of gender is next covered followed finally by leadership (including the ascension to and manifestations of) requirement.

While many databases will consider plurals and other word suffixes as a match automatically, the use of the wildcard asterisk increased sensitivity and reduced reliance on this being performed in the same way by varying databases.

8.2 Application of the filter to a range of databases

The filter needed to be easily adapted to a range of databases (Robinson & Wusteman, 2007). The approach taken was to focus on the use of the 'search all text in all documents' field. Most databases encountered by the researcher contained this or an equivalent field. Alternately the filter can be used for a search on 'Title and abstract only' but where available the full text search increased the number of studies found (or improved it's sensitivity as defined below). The filter was designed to be used within these fields on a singular basis rather than using a variety of fields in one database and then having to make adjustments depending on field availability in other databases. The only other field required was the 'date range', which was used to delimit the searches to the years 1995 to 2007.

The screenshot shows the Google Scholar search interface. At the top, the Google Scholar logo is on the left, and 'Advanced Scholar Search' is in the center. To the right of 'Advanced Scholar Search' are links for 'Advanced Search Tips' and 'About Google Scholar'. Below the header is a search form with a green background. The main search field contains the filter: '(Barrier* OR Constrain* OF'. To the right of this field is a dropdown menu showing '10 results' and a 'Search Scholar' button. Below the main search field are four options for refining the search: 'with the exact phrase', 'with at least one of the words', 'without the words', and 'where my words occur'. Each option has a corresponding input field. Below these options are three sections for further filtering: 'Author' (Return articles written by), 'Publication' (Return articles published in), and 'Date' (Return articles published between). Each section has an input field and an example: 'e.g., "PJ Hayes" or McCarthy' for Author, 'e.g., J Biol Chem or Nature' for Publication, and '1995 _ 2006' for Date, with 'e.g., 1996' below it.

Figure 1: Generalist search databases such Google Scholar accept the filter directly. (Though appearing truncated above, the whole filter fits within the first field)

Advanced SearchTools: [Search Tips](#) [Browse Topics](#)

Barrier* OR Constrain* OR Imped* OR Obstr* OR hind* OR bloc	Citation and document text
AND	survey* OR Q
AND	Women* OR G
AND	Leader* OR M

[Add a row](#) | [Remove a row](#)[Search](#) [Clear](#)

Database: [Select multiple databases](#)

Date range: to [About](#)

Limit results to: Full text documents only

Scholarly journals, including peer-reviewed [About](#)

Figure 2: Here using Proquest the filter is split into its four parts. As with the Google search the search is date range but also now also content limited to Social Science.

8.3 The filter's ability to efficiently extract the desired material

Two aspects need to be considered and balanced when designing and developing a search filter. These are generally referred to as sensitivity and precision (Taylor et al. 2003, Popay et al. 2004, Vaughan, 2004). Sensitivity is the ability of the filter to find all relevant material in the database and precision is its ability to reject irrelevant material. A filter with a high emphasis on sensitivity will tend to include less and irrelevant material where a higher precision will tend to reject some potentially relevant information.

The author's approach was to initially develop a filter with a high sensitivity and then make further adjustments toward a desirable level of precision. Relevant material in search listings obtained from early versions of the filter was closely examined. Common and key terms used within this material (and used in relevant cited literature) was incorporated to develop the filters sensitivity along with the wildcarding of some terms.

The subsequent precision adjustment was made by examining common categories of irrelevant material returned by the now somewhat more developed filter. After some experimentation this adjustment was primarily made by changing the structure of the filter, in particular the usage and placement of the AND operators and bracketing of the OR functions. The additional use of the NOT operator to exclude any irrelevant categories was tested but not required. In practice the combination of the four requirements linked by the AND operator largely excluded irrelevant material to a workable level.

Another obvious aspect of such a filter is that it will only find material on the topic written or translated into English. For practical and resource limitation reasons this was the author's intent.

8.4 Filter development stages

A number of general databases such as Proquest, Firstsearch and Social Science Citation index were used in the development of the filter that progressed through the following preliminary and development stages:

1. Search definition. A clear and well-considered definition of exactly what the filter is to extract is vital to guide the construction of it.
2. Taking the key words, phrases or concepts from this definition an initial development filter or filters can be written and tested.
3. Examination of results can then be used to make changes to and retest the filter. (Too many irrelevant returns from a search can be used to make changes to increase the filter's precision while too few indicate changes required to increase sensitivity.)
4. Further iterations of steps 2 and 3 can take place, preferably using a range of databases, until the desired sensitivity and precision balance is achieved.

It is to be noted in relation especially to stage 3 above that excess irrelevant returns provide clear feedback on the performance of a filter and subsequent changes to it. However non-extraction of relevant material is much more problematic. Kennedy et al (1999) warn of the 'false focus' from an overly precise instrument where relevant material is not extracted. This non-extracted material is hidden to the researcher who may believe that they have an effective search tool.

8.5 Use of the filter

The filter could be relatively easily applied to all the databases used with the largest complication being that it was too long to fit within the character limit of some databases' search fields. This was relatively easily addressed by the filter being split roughly in half at the second AND operant or broken down further if required in a similar fashion. The then two or more fields, were then both set to search the 'full text of all documents' within the database, were then used with the fields being linked with an AND. With some databases the filter was more effectively applied to the 'basic' rather than 'advanced' search filter fields. In rare cases the wildcard asterisks needed to be removed for the filter to be accepted.

Bachmann et al (2002) investigated search filter improvements (for use in Medline) and suggested that a 10 to 15% precision for a filter of acceptably high sensitivity is a reasonable aim. With some variation across databases the author's filter performed somewhat below this figure though it peaked at approximately 20%. Most databases list extracted citations in order of 'relevance' assisting with the manual assessment of a highly sensitive filter. This relevance is usually determined on quantity of matches of the terms being searched for within an item, i.e. the higher the number of matches the earlier an item appears in the search result listing. The structure of the authors filter tended to support this measure as a measure of relevance assisting the search listing examination process. Other search filter designs may not necessarily lead to this level of relevance order listing.

8.6 Databases used

The filter was applied to a range of topic specific and more general academic databases. A listing of the databases producing relevant material follows :

8.6.1 General Academic Databases

- Academy of Management <http://apps.aonline.org/ArticleRetrieval/>
- Blackwell Publishing <http://www.blackwell-synergy.com/search/advanced>
- EBSCO Host <http://search.ebscohost.com/>
- Elsevier's Scirus www.scirus.com
- Emerald Full text database http://www.emeraldinsight.com/info/products_services/AtoZList.jsp
- Firstsearch <http://www.oclc.org/firstsearch/>
- Google scholar http://scholar.google.com/advanced_scholar_search?hl=en&lr=
- Intute: Social Sciences <http://www.intute.ac.uk/socialsciences/search.html>
- ISI web of knowledge <http://isiwebofknowledge.com/>
- Networked Digital Library of Theses and Dissertations <http://www.ndltd.org/serviceproviders/scirus>
- PROQUEST <http://www.proquest.com/>
- Proquest digital thesis http://www.proquest.com/products_pg/descriptions/pgdt.shtml

8.6.2 Topic specific databases or searches limited to a specific journal.

While many of the above listed databases hold data from a range of sources limiting searches to specific journals within them provided the additional precision and resultant material.

- Academy of Management Perspectives <http://www.aonline.org/aom.asp?ID=204>
- Educational Management Administration & Leadership <http://ema.sagepub.com/>
- Equal Opportunities International http://www.emeraldinsight.com/info/products_services/AtoZList.jsp
- Executive Development <http://www.blackwell-synergy.com/search/advanced>
- Journal of Management <http://jom.sagepub.com/>
- Psychology of Women Quarterly <http://www.blackwell-synergy.com/search/advanced>
- Studies on Women and Gender abstracts <http://www.tandf.co.uk/journals/titles/1467596x.asp>
- The Sociological Review <http://www.blackwell-synergy.com/search/advanced>
- UK Resource Centre for Women in Science, Engineering and technology http://www2.shu.ac.uk/nrc/section_2/2.3.cfm
- Women in Management Review http://www.emeraldinsight.com/info/products_services/AtoZList.jsp
- Women's Studies International Forum <http://search.ebscohost.com/>

9. Gray literature searching

As described above the filter was developed primarily using and was subsequently applied to a range of academically oriented databases. The filter also had limited success in finding relevant studies and material in the wider grey literature. Gray literature is generally considered to be any documentary material that is not commercially published and can consist of technical reports, working papers, business documents, conference proceedings, etc. Limited indexing, lack of editorial control and consequent uncertainty in regard to authenticity and reliability of material in this realm add additional challenges when searching 'Gray' sources and assessing retrieved material.

Sources of such material include general and technically oriented internet search engines and databases maintained by primarily commercial or governmental organisations. The first following listing of sources provided either directly applicable or otherwise helpful material, while the second listing of sites did not but may be useful to other researchers. The applicable material returned from searching these sources was as could be expected much more sparse than for the academically oriented sources discussed earlier.

9.1.1 Databases providing useful material

- British Library <http://www.bl.uk/>
- Google www.google.com
- National Technical Information Service <http://www.ntis.gov/search/>
- Yahoo www.yahoo.com

9.1.2 Databases not providing useful material

(Listed as they are generally useful databases that either didn't produce any relevant material and in some cases also didn't accept the filter without major modifications)

- Ask.com www.ask.com
- CiteSeer: Scientific Literature Digital Library <http://citeseer.ist.psu.edu/>
- GrayLIT Network <http://graylit.osti.gov/>
- Search Adobe PDF Online <http://searchpdf.adobe.com/>
- The Virtual Technical Reports Centre <http://www.lib.umd.edu/ENGIN/TechReports/Virtual-TechReports.html>
- Vivisimo <http://vivisimo.com/>

10. When to stop searching

Repetition of material retrieval is one indicator that a search is reaching its end point. Fall off in performance of a filter in either lack of returned hits or lack of relevant hits can indicate that the search is straying beyond

the bounds of relevance. Individual database search listings provided in order of 'relevance', if applicable, can be used to halt examination of search listings at a point where further examination is unfruitful. While each of these factors need to be judged on a case-by-case basis, in most instances in the author's experience, this was fairly clearly self-evident.

Generally the assessment of relevance is carried out by a brief examination of an items abstract for the purposes of the search. For the assessment of relevance and determination that a study is applicable for inclusion into a systematic review a detailed examination of each study is required. Using this combination of assessment approximately 40% of extracted studies based on an assessment of the abstract only fulfilled the full requirements to be included in the study.

11. Conclusion

In addition to the increasing volume and comprehensiveness of content within bibliographic databases and other electronic sources, access to them is becoming easier, faster and less expensive. The casual observer may then believe that the goal of the researcher wanting to substantially identify relevant literature has been drawn closer. Without a range of up-to-date skills and tools for this task however such a goal may in practice be more distant.

The expanding use of and requirement for systematic identification of relevant literature requires increasingly sophisticated tools and research skills. As databases expand in volume and search capabilities these skills will continue to expand. The complexity, structure and method of application of search filters, now in its infancy, needs to continue to develop along with these skills.

The usage of these tools and skills is becoming increasingly important not only for systematic reviewers but for any researcher embarking on or progressing a project needing to efficiently and accurately identify the depth and breadth of knowledge in their chosen area.

References

- Arms, W.Y., Aya, S., Dmitriev, P., Kot, B., Mitchell, R. and Walle, L. (2006) "A research library based on the historical collections of the internet archive", *D-LibMagazine*, vol. 12, no. 2, Feb.
- Bachmann, L.M., Coray, R., Estermann, P. and ter Riet, G. (2002) "Identifying Diagnostic Studies in MEDLINE: Reducing the Number Needed to Read", *Journal of the American Medical Informatics Association* ;9: 653-658
- Bradshaw, J.R. (2005) *Methodologies for socially useful systematic reviews in social policy*, Economic and Social Research Council Research report, Swindon, UK.
- Crawford, J. (2006), "The use of electronic services and information literacy: a Glasgow Caledonian University study", *Journal of Librarianship and Information Science*, vol. 38, no. 1, pp. 33-44.
- Creaser, C., Hamblin, Y. and Davies, J.E. (2006) "An assessment of potential efficiency gains through online content use" *Program: electronic library and information systems*. Vol.40, Iss. 2
- Grayson, L., and Gomersall, A. (2003) "A difficult business: finding the evidence for social science reviews", London; ESRC UK Centre for Evidence Based Policy and Practice, [online], <http://evidencenetwork.org/cgi-win/enet.exe/biblioview?1258>
- Han, J.M. and Kamber, M. (2001) *Data Mining: Concepts and Techniques*, Morgan Kaufmann Publishers, San Francisco, CA
- Haynes, R.B., Kastner, M. and Wilczynski, N.L. (2005) "Developing optimal search strategies for detecting clinically sound and relevant causation studies in EMBASE", *BMC Medical Informatics and Decision Making*, 5:8 doi:10.1186/1472-6947-5-8
- Jadad-Bechara, A.R. (1994) *Meta-Analysis of Randomized Clinical Trials in Pain relief*, Balliol College, University of Oxford, Oxford, 1994.
- Jenkins, M. (2004) "Evaluation of methodological search filters – a review", *Health Information and Libraries Journal*, vol. 21, no. 3, p. 148 September 2004
- Kennedy, L.; Cole, C. and Carter, S. (1999) "The false focus in online searching: the particular case of undergraduates seeking information for course assignments in the humanities and social sciences", *Reference and User Services Quarterly*, vol. 38, no. 3, pp. 267-73
- Lewandowski, D. and Mayr, P. (2006), *Exploring the Academic Invisible Web*, Dr. Dirk Lewandowski – Publikationen, Durch Denken, viewed 28 Jan 2007 [online], http://www.durchdenken.de/lewandowski/doc/LHT_Preprint.pdf
- Matthews, E.J., Edwards, A.G.K., Barker, J., Bloor, M., Covey, J., Hood, K., Pill, R., Russell, I., Stott, N. and Wilkinson, C. (1999) "Efficient literature searching in diffuse topics: lessons from a systematic review of research on communicating risk to patients in primary care", *Health Libraries Review* , vol. 16 no. 2, pp. 112-120.
- Morley, S., Eccleston, C. and Williams, A. (1999). "Systematic review and meta-analysis of randomized controlled trials of cognitive behaviour therapy and behaviour therapy for chronic pain in adults, excluding headache", *Pain*, vol. 80, pp. 1-13.
- Murray, E. (2002) "Challenges in educational research", *Medical Education*, vol. 36, no. 2, pp. 110-2.

- Needham, G. (2000) *Research and practice: making a difference*, in Gomm R. (ed.) Using evidence in health and social care, London: Sage,
- Neufeld, L.M. and Cornog; M. (1986) "Database history: From dinosaurs to compact discs", *Journal of the American Society for Information Science*, vol. 37, no. 4, pp. 179-278.
- NHSCR, *Undertaking Systematic Reviews of Research on Effectiveness: CDR Guidelines for Those Carrying Out or Commissioning Reviews*, 4, York, 1996.
- Petticrew, M. and Roberts, H. (2006) *Systematic Reviews in the Social Sciences: a practical guide*, Blackwell, Oxford.
- Popay, J., Roberts, H., Sowden, A., Petticrew, M., Arai, L., Roen, K. and Rodgers, M. (2004) *Guidance on the conduct of narrative synthesis in systematic reviews*. Draft report from ESRC Methods Programme. Lancaster: Institute for Health Research, University of Lancaster.
- Robinson, M.L. and Wusteman, J. (2007) "Putting Google Scholar to the test: a preliminary study" *Program: electronic library and information systems*; Volume: 41 Issue: 1
- Russell, J.M. (2001) "Scientific Communication at the Beginning of the Twenty-First Century". *International Social Science Journal (NWISSJ)* 53 (168), 271-282.
- Stroup, D.F., Berlin, J.A., Morton, S.C., et al. (2000) "Meta-analysis of observational studies in epidemiology. A proposal for reporting". *JAMA*, vol. 283, pp. 2008-2012.
- Taylor, B.J.; Dempster, M. and Donnelly, M. (2003) "Hidden gems: systematically searching electronic databases for publications for social work and social care", *British Journal of Social Work*, vol. 33, no. 4, pp. 423-39.
- Vaughan, L. (2004), "New measurements for search engine evaluation proposed and tested", *Information Processing and Management*, Vol. 40 No. 4, pp. 677-91.

Using Plenary Focus Groups in Information Systems Research: More than a Collection of Interviews

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Abstract: Qualitative techniques for the collection of empirical materials are classically identified as including interviews and observations. However a further technique has more recently emerged known as the group interview or focus group, which may be applicable only to certain types of research situation but is widely overlooked and can add a level of knowledge and richness not available through other techniques. This paper follows the growth of focus group research, looks for situations in Information Systems research where this technique gives unique insights, and describes the conduct and application of the technique in a case study setting. An example of a useful structuring technique is described and conclusions are drawn concerning a particular type of focus group in information systems qualitative research which may well be useful in other research scenarios.

Keywords: research instrument, focus groups, data collection, empirical technique

1. Introduction

Standard data collection techniques in qualitative research have included surveys, interviews and observations. More recently, focus group research has been used in several areas, particularly marketing (Leonhard, 1967/ Smith G H 1954 in Stewart & Shemdasani 1990) health care (Kidd and Parshall, 2000) media (Lunt and Livingstone, 1996) and politics (Delli Carpini and Williams, 1994), but have been limited in the area of Information Systems. This paper introduces a focus group approach to the study of information systems using a case study scenario and employing a structuring technique borrowed from Soft Systems Methodology designed to shape the discussion and organize group attention towards specific aspects of the descriptive process. The paper situates the case study and describes the conduct of a particular focus group with respect to individual incidents. Therefore attention is drawn to a particular type of Focus Group and the unique properties and advantages of these focus group in respect to IS research and this underpins the usefulness of the technique in given situations. As the technique has broader use across research disciplines, an attempt is made to identify the attributes and properties of these 'Plenary Focus Groups' in information systems research scenario that might lend themselves to focus group research as a useful and successful technique.

2. Background

Standard data collection techniques of interviews, non participant and ethnographically embedded observation, (Denzin and Lincoln, 1994; Miles and Huberman, 1994; Silverman, 1999) have often omitted the useful focus group technique. From a background in Market Research, the focus group approach originated by Merton (1947), was often referred to as group depth interviewing (Goldman and Schwartz McDonald, 1987) with the emphasis on depth as referring to the emergence of psychoanalytical theory in the further understanding of the dynamics of group activity, and in particular the hidden and unconscious motives behind group interactions. From the 1980's onwards, focus groups were used to explore knowledge, attitudes and practice in health related areas, by communications researchers, political parties, and social scientists (Basch, 1987; Bloor, Frankland, Thomas and Robson, 2001; Folch-Lyon, Macorra and Schearer, 1981; Johnson, 1996; Joseph, Emmons, Kessler, Wortmann, K, Hocker and Schaefer, 1984; Knodel, 1995; Lunt and Livingstone, 1996; Stewart and Shemdasani, 1990; Wilkinson, 1998).

3. Definition

A definition of focus groups has gradually emerged as having the following attributes (Vaughan, Schumm and Sinagub, 1996). Firstly, there will be a leader or moderator who plans and guides the session, secondly there will be a goal of eliciting feelings, attitudes and perceptions about a particular situation. In addition, and vitally, the focus group must interact as a group, not simply be identified as a nominal group, ie a set of people to be interviewed in turn, indeed it is the interaction of the members of the group, or synergy (Kitzinger, 1994) that is relied upon to produce the most useful results. The final definitive factor is that they must meet to focus on the topic in question, guided by a moderator (Morgan, 1998a).

4. The legacy of social psychological focus group activity

The background of focus group work in the work of social scientists such as Stewart and Shemdasani (1990) has brought with it a legacy of features which are now being discredited. Traditional social psychology assumes that the nature of 'self' and characteristics such as 'attitude' are fixed and stable properties of individuals. More recent work in discursive psychology (Billig, 1996) suggests that this view is limited and that in many situations, people adapt and alter their attitudes. Individuals evaluate attitudes in the light of new information and interaction with other opinions. In addition, they have been recorded as altering and re-stating opinions after re-evaluation and also in accordance with the situation in which they find themselves (Potter, 1998). In this way then the focus group itself may be the forum for interaction which synthesizes and consolidates differing accounts and underpins group consensus.

4.1 Methodological issues

Edward Fern (2001) has found it non-productive to offer methodological prescriptions for different types of focus groups, rather he suggests that the research task and associated objectives should provide scope and definition for the focus group activity. Although this viewpoint highlights the uniqueness of each focus group and stresses the importance of allowing theory to emerge rather than imposing a possibly constricting framework; it is countered by the definition of three different types of research tasks which for which focus groups can be adapted. These are exploratory, experiential and clinical: exploratory focus groups are used to uncover the attitudes opinions and beliefs participants have in common in different circumstances. Calder (1977) suggests this knowledge does not have scientific status until it is subjected to the abstraction of scientific concepts or used to generate theory through an inductive process. Fern agrees that focus groups projects are indeed subject to problems in these areas, but points out that this also applies to survey and experimental research. Fern argues that through cross-validation or triangulation, and in some instances repeated confirmation or disconfirmation from a series of focus groups, they can be used to determine the consistency between scientific explanations and anecdotal or tacit knowledge. In the case study described, a unique type of focus group emerged, which I have termed the 'plenary' focus group. Plenary is employed to mean complete, inclusive, absolute, entire and whole (Roget's Thesaurus) in that the membership of the group is the entire set of people present at the incident, there is no sampling procedure and no concerns of representativeness. In addition this means that after the focus group, there is a single account of an incident, which includes all (or most) of the personnel who were present. The evidence is the transcript of the group meeting, and any contradictions or widely differing accounts of events are generally a result of incomplete information or misunderstandings and are resolved within the focus group discussion. However, although many market research focus groups may be small and few due to time, cost and access constraints, some researchers (Conover, Crewe and Searing, 1991; Glick, Gordon, Ward, Kouame and Guessan, 1988; Hoppe, Wells, Wildon, Gillmore and Morrison, 1994) have deliberately stratified samples out of this concern for their representativeness. In these circumstances it may be incorrect to state that focus groups samples are unrepresentative, as the researcher can stratify the population and draw random samples from within each stratum. In the case study scenario, a regional UK Fire and Rescue Service, the issue of sampling and representativeness does not arise; the people attending the focus group were largely those attending the incident. In most cases, the entire group, or 'watch', attended both the individual incident, and the focus group discussion, absence being due to sickness, other duties, or change of shift patterns since the incident. This means there is no other information available, other than the official record of the event, which was produced by those same firefighters.

5. Conduct of focus groups

Guidelines on the conduct of focus groups (Antaki, 2000; Heritage, 1984; Puchta and Potter, 2004) contend that there should be a moderator who has several major functions. Firstly, they must create informality, in order to loosen the situation and make contributions more open, spontaneous and revealing. Secondly they must manage the interaction ensuring that all participants can effectively contribute and thirdly as a result of the first two functions, they must elicit useful and varied opinions. The idea of attitude in particular, as mentioned previously, is changing in the light of current research and has recently been defined by Mark Zanna and John Remple (1988 p319) thus:

'The categorization of a stimulus object along an evaluative dimension based upon, or generated from three general classes of information: (1) cognitive information, (2) affective/emotional information, and/or (3) information concerning past behaviours'. The wording of this emphasizes socio psychological 'behaviourist' roots by referring to the stimulus object, and then goes on to say that an attitude is produce by evaluation of this object in three different ways. Cognitive information concerns knowledge, affective/emotional information concerns feelings, and the third element clearly refers to

any previous interaction we have had with the stimulus object and how we behaved in that situation. Although this is a complex definition, it still does not clearly address the issue of changing attitudes, but rather suggests that an attitude is a static internal position. This view is limited in that it treats attitudes as cognitive objects rather than looking at how evaluations are arrived at, and treats the stimulus object as an existing thing to be evaluated rather than considering the way objects are constructed via evaluations (Puchta and Potter, 2004). In an attempt to redefine and classify attitudes and evaluations, Wiggins and Potter (2004) offer divisions between subjective and objective evaluations and between epistemic and descriptive accounts – the speaker justifies their account through reinforcing description. It is often useful to classify focus group evaluations and accounts according to these groupings and it can be seen that attitudes emerge and are constructed from all four of these types of interaction. It is important that the group moderator manages this interaction to reduce account clutter, arguments and irrelevant stories, and manages the group to stay on topic and speak about selected objects and ideas.

6. Eliciting evaluations

In group situations there seems to be a common pattern to the way people make evaluations (Pomerantz, 1984); when one speaker offers an evaluation, others in the group will usually offer an evaluation of their own, either disagreeing with or reinforcing the words of the original speaker. Thus a technique for eliciting many evaluations is to ask an individual for theirs, as this will often lead to other participants offering their own evaluations. This technique both generates talk and generates accounts for evaluation; people will justify their position with all types of evaluations and accounts. There appear to be dichotomies in the techniques currently proposed for story elicitation, as successful knowledge disseminating stories emerge from the organisational milieu having been constructed, morphed and embraced by multiple organisational participants. Current techniques such as questioning for eliciting stories are prescriptive, liable to inhibit rather than stimulate the offering of stories to the researcher and do not provide techniques for facilitating the generation of new stories or the nurturing of emerging stories. The focus group aims to provide an informal environment where experiences can be retold and discussed and such a forum would appear to be the ideal environment to generate, nurture and harvest stories. Unfortunately the researcher has few non prescriptive techniques to work with in order to stimulate such a forum, using structured direct open or closed questions or those which may be easier to analyse (Morgan, 1998b).

6.1 The Case Study – A Regional UK Fire and Rescue Service

The work of the regional Fire Service is concerned with the mobilisation of fire engines to incidents and the reporting of said incidents. As incidents are reported to the Fire Service a centralised control office records initial incident details including incident location, reporter of incident, fire service personnel and fire engines dispatched immediately and subsequently, route or routes taken by fire engines, dispatch and arrival times and a log of all communications with the deployed teams. After the incident a detailed electronic report, the FDR1 is completed categorizing and reporting on the incident, the report is semi-structured and any level of Officer can be assigned the responsibility of completing the report. Structured attributes of the form include cause of fire, location within the address, degree and speed fire spread, number of casualties, other emergency services involved, specific equipment used and arrival and departure times. Free format responses include incident handling strategies and lessons learnt. These reports are collated and summarized by a centralised office and abstracted results are presented to management who allocate human and physical resources from this data. In addition the summarized data is reported to central government who allocate funding and make policy decisions based on the data.

Due to the nature of the work of the fire service, a full picture of an incident is often only clear when the entire watch meets and discusses the incident. Thus the analysis of all fire and rescue related incidents takes place through focus groups which brings in the element of linguistic interface. This means that incidents were described and analysed through the language available to those present. This does not necessarily present a problem, or detract from the accuracy of reporting, especially as focus groups had the entire watch present and thus several accounts of incidents were heard adding richness and depth to the story. During a large and dangerous incident, any individual would only have their own physical view of angles and elevations of buildings and approaches of police and ambulance, other firefighters or members of the public. They may not have a physical view or cognitive awareness of the other sides of the building or location, the actions of other agents, other immediate incidents, dangers or occurrences. They also may not have a full picture of sequences of events, causes and effects of decisions made and actions and reactions of their colleagues. Thus the debriefing session in a focus group situation, is often the first time a full collective picture of any incident can be gleaned. This does mean that sometimes, the actuality of an incident was not observed by a

single individual and that a layer, or several layers, of interpretation were added to the stories of particular incidents. At the culmination of each focus group session, a more complete consensus of opinion emerged which was agreed by those participating to be the full and final report of the incident, synthesizing and consolidating a myriad of partial views and experiences into a single cohesive account. In view of these factors, focus group discussion was determined as the most appropriate research instrument for examining data capture within this environment. A total of 24 focus groups were conducted within the Fire Service in an 18 month period. Each focus group consisted of between 7 and 15 male fire officers from a specific watch. The sessions lasted between 2.5 and 5 hours, 21 out of the 24 sessions have been electronically recorded and the collected data amounts to over 120 hours of transcribed discussion. The focus groups were facilitated by the author using facilitator guidelines on creating informality, managing interactions, stimulating and acknowledging contributions (Puchta and Potter, 2004).

In most cases, the researcher was also the Focus Group moderator and in this role performed several major functions. As previously stated, informality was created, interaction was managed to ensure fair participant contribution, and as a result of the first two functions, useful and varied opinions were elicited (Heritage, 1984). To do this the moderator appeared neutral and did not betray agreement or disagreement with any comments made. Receipt of knowledge was marked with nods and of neutral words such as 'oh' (Antaki, 2000) and the suggestion that further information is given. At the same time attempts were made not to appear too aloof and distant in order to encourage openness and revelation. This was a dilemma which the moderator effectively balanced by use of careful wording and body language in order to elicit useful opinion without leading, guiding or acting disinterested.

Focus groups were situated in an informal atmosphere in order to reduce suspicion of accountability and identification, and foster a relaxed open environment. In this way it was hoped that participants would reveal more in-depth attitudes, feelings, hopes and fears than if they were in a formal environment where hierarchies, status and protocol are observed as well as procedures, rituals and routines. This informality was created using a variety of tools managed by the moderator. These included language aspects such as word choices, intonation, pauses and hesitations, and also location and layout of focus group, body language, interaction management, scene setting etc. In order to create informality, the moderator used humour, laughter and self-deprecation in order to be perceived as a position on-a level with, rather than above the group. In addition, language rich in idiom, metaphor and slang terms was used. A particular register was used to deliver the words and speech was in a friendly, relaxed and casual manner. In addition the moderator set the tone of the session by giving an overview of what was required in informal terms. An example is to use the word 'chat' about the particular topic which suggests informality and openness of exchange (Antaki, 2000). The moderator also made clear that the purpose of the session was to elicit genuine opinion and that individuals would not be followed-up or made accountable for any comments made, and that although events may be recorded, confidentiality was ensured. Although the focus groups took place in fire stations, and it was not feasible to find a neutral area, steps were taken to utilise common rooms and informal areas, to use similar level seating, and be seated aside rather than in front of the group.

7. Managing interaction

One of the main reasons to run focus groups rather than distribute questionnaires is to promote engagement with the topic rather than mere perfunctory completion of pre-arranged questions. The existence of interaction allows exchange refinement and re-evaluation of views. Conversational analysts (Heritage, 1984; Jefferson, ; Sacks, 1992; Schlegoff, 1995) have noted that conversation structure is very robust, that people know instinctively that they must wait for the person before them to finish speaking, that the point they raise must relate the point in question and that they must allow response to any points made. The moderator managed the role of asking questions while ensuring that group participants did not feel they were being tested, and that they were able to make controversial or unpopular opinion without censure or accountability. This was facilitated by using indirect questions which promote discussion, eliciting further response, asking for elucidation from those showing appropriate facial expressions or gesture, and using follow-up questions to clarify thoughts. The moderator ensured that no one person or topic aspect dominated the conversation, and that all group members got an opportunity to give views. Another task was to minimise account clutter – the extraneous information given by people to justify their accounts, to detract from their own importance, to be seen to be modest and self-effacing and to underpin their own limited depth or breadth of experience of the topic in question. .

8. Gaining useful and varied opinion

Although there was less time for each participant to contribute than in interviews, the synergy of the group provided a rich account of each incident; conflicts of opinion as to what occurred in what order and what actions were taken for what reasons were ironed out within the session as a fuller picture became known to each participant. Focus groups provide large amounts of concentrated, well targeted and pre-filtered data in a short period of time and avoid the overlap and repetition of individual interviews (Morgan 1997). In addition, whilst focus groups are more efficient than observational analysis, they do not provide the opportunity for examination of non-verbal communication or the detail of operation in a natural environment (Morgan, 1997 (2nd Ed)). A structure was applied to the focus groups in order to lead and direct the discussion and this was supplemented and reinforced by the use of specific questions aimed at examining how information systems recorded the incident in question, and how non-standard interactions between fire fighters and other agencies were dealt with in terms of accuracy, truthfulness and completeness. These types of questions have been designated key questions (Krueger, 1994) and were intended to elicit answers to probing and searching questions concerning the appropriateness or otherwise of the recording information systems. The structured focus groups allowed the research to contextualise the influences on the decisions made when recording and to bring the actuality of each incident into the forefront of the firefighter's minds.

9. Structuring the Discussion

A useful but non-prescriptive tool for eliciting discussion is described in the following section. To bring some structure to the enquiry process a subjectivist and pluralist perspective was employed. Stories are inherently subjective with multiple stakeholders from differing backgrounds being present. Therefore soft systems approaches would appear appropriate as they are both subjective and pluralist (Checkland, 1981). The aim was to find an appropriate technique to support the social elicitation of best practice and lessons learnt type knowledge from participants, the ultimate aim being to draw lessons that enhance practice. The chosen approach was therefore storytelling within focus groups. The use of the focus group technique was thought to be particularly suitable because fire fighters work together as a 'watch'. Each watch includes a team of fire fighters with an appropriate skill and experience mix. Members of each watch are all on the same shift patterns and will attend many incidents together in different multiples depending on the size and nature of the incident, it is not uncommon for fire fighters to have worked together on a watch for 15-20 years and a strong notion of 'family' exists. The group storytelling approach was chosen as it allowed different perspectives, viewpoints and angles to be conveyed. Furthermore, the incident driven nature of the Fire Service meant that storytelling was an organisational norm.

Focus groups can be highly structured with pre-arranged set of questions and fixed time spent on each. The moderator will manage the discussion tightly so there is no deviation from the pre-ordained issues, and will ensure that no one issue is allowed to dominate the allotted time. In less structured groups, moderators will ask open ended questions and allow important points to emerge. Although the discussion will be managed to ensure that all points are relevant, the moderator will give the group freedom to pursue what they see to be important points. The moderator encourages sharing of experiences, thoughts and feelings.

The aim of the focus groups was to facilitate knowledge elicitation and dissemination by use a storytelling approach. In order to stimulate the vocalisation of stories the sessions were conducted using a form of CATWOE analysis which is part of Soft Systems Methodology (Checkland, 1991). CATWOE (Customers, Actors, Transformation Process, World Views (or Weltanschauung), Owners, Environmental Constraints) is a technique to aid in the building of a systems model founded on studying the various Transformations that the system supports and the differing rationales (or Worldviews) behind those transformations. The Transformations and associated World Views are then examined from the perspectives of those who could benefit from the Transformation (the Customer), those who enact the Transformation (the Actor) and those who could stop the Transformation (the Owner). The differing perspectives were then considered within the bounds of the wider Environmental constraints within which they operate.

To begin, a typical scenario was presented to the group – a local semi-derelict building that the Fire Service is repeatedly called out to because of fire. The whole group were then asked to analyse the scenario based on CATWOE, the explanation of CATWOE as presented to the focus groups and an extract of the results from a single focus group are presented in Table 1.

Table 1: Example of CATWOE Application

Scenario: Semi-Derelict Building Repeatedly Set Alight	
Customer - Who are the people who should have benefited from the situation?	Building owner who has been told by the city council that he can not demolish the building as it is of architectural significance but must refurbish it. As a result of the repeated fires it may be declared dangerous and a demolition order may be issued – which is what the building owner wants; Local residents – possible removal of an eyesore; Local vandals/arsonists who have set the building alight for ‘fun’
Actor - Who were the main people involved?	Fire service Arsonists Security firm called out to make the building secure post fire
Transformation - What was the expected change that should have taken place?	Blazing building → extinguished building Derelict building → demolished building
World View - What were the perspectives /points of view of those involved (may be more than one point of view)?	Fire service – dangerous building, owners should be forced to make the building secure so arsonists can not gain entry Owner – building now closer to compulsory demolition, aim to redevelop land Security company – profit making opportunity
Owner(s) - Who could have stopped the change taking place or who controlled it?	Building owner by being more responsible for the building Local authority by compulsorily taking over ownership of the building Police by prosecuting irresponsible building owner
Environmental Constraints - What other factors around the situation were affecting what happened?	Local vandal and squatter population who are making the building unsecured and setting it alight Local residents and prospect of them lobbying local councillors for change

The second example is described in table 2

Table 2: CatWoe Example 2

Scenario: Chemical works, fire around chemical tank	
Customer - Who are the people who should have benefited from the situation?	Chemical company – removal of danger Local residents – possible removal of danger. Workers – less disruption to their work
Actor - Who were the main people involved?	Fire service operational firefighters Company Chemical engineer Fire Service Central command
Transformation - What was the expected change that should have taken place?	Chemical fire → safe environment Significant disruption → minimal disruption Expert opinion and knowledge included in decision making
World View - What were the perspectives /points of view of those involved (may be more than one point of view)?	Fire service – dangerous situation, rules applied without regard to local expertise Chemical company, significant disruption to work Poor public opinion of Fire Service
Owner(s) - Who could have stopped the change taking place or who controlled it?	Fire Service command, could have verified expertise and applied information Senior Officer could have facilitated this
Environmental Constraints - What other factors around the situation were affecting what happened?	Legal ramifications on fire service of causing loss of revenue Social issue – bad publicity for fire service.

Guided by assertions that good interpretive research should present multiple viewpoints of those involved and their different problems(Glaser and Strauss, 1967), the approach allowed a number of people to

contribute to the stories. During the process of populating the initial CATWOE table multiple stories and anecdotes emerged, discussion and debate would ensue and an uncooperative and suspicious group would rapidly transform into a relaxed group of individuals reminiscing about past scenarios. Following the initial whole group CATWOE analysis the focus group was then split into sub-groups each of was required to identify a scenario where they felt additional knowledge may have been beneficial or where personal or tacit knowledge had an impact on the scenario. They were asked to analyse the scenario using CATWOE, their analysis was then presented back to the focus group for cross validation and corroboration purposes. Again this process stimulated the generation of stories as the whole group validated or morphed the emerging stories. Recording of incidents presents genuine problems for information systems and the elicitation technique helped the group members to think in different ways about the impact of their incident recording systems.

10. Summary and conclusion

The contribution of this study is to demonstrate empirical use of a structured approach to gathering information using the Focus Group for gathering information. The use of this technique in this way, and supported by the CATWOE method of structuring discussion, creates an additional level to techniques such as interview and an extra dimension to observational approaches. This is not to say the technique is a substitute for interviews or observations, simply that it may be a useful addition to the researcher's repertoire in situations where particular factors are in place. The first factor is that participants share experiences and reflect on incidents and occurrences, often gaining additional knowledge of cause and effect, or reasons why certain actions were taken. Significantly, in the case study, some details only emerged when those in attendance were given the opportunity to discuss the incident as a group. Individual interviews would not have given this opportunity and observation would not have revealed attitudes and beliefs. Thus the full picture of the incident only came into being as a result of the focus group activity. As stories were generated collaboratively so they progressed, frequently over the course of a single focus group session, from fragmented and fractional elements, to a complete story where reasons for actions and decisions, not clear at the time of the incident, fell into place. Participants were able to complete their partial view of the incident and the background to particular behaviours, evaluations and judgements became clear forming a more complete view in the minds of participants. The second factor important to the notion of 'Plenary Focus Groups' and to the fire incident focus groups is that the entire cohort of persons attendant at the incident may also comprise the focus group; there are none of the issues of selecting an appropriate sample or concerns about representativeness. This may lead to questions concerning generalizability but each fire incident is unique, as are many other dynamic incidents, e.g a surgical operation, any type of sporting or artistic performance. The original larger/outer study was looking at the recording methods and techniques of fire service incidents within the case study and although each incident is unique there may well be common stages, opportunities for error/ misunderstandings. There may be similar situations which are difficult or impossible to record; or where recording is de-prioritised in favour of emergency action. The implications for future research might allow this technique to be used in other scenarios where group collaboration is vital for completion of a dynamic, real life incident or project. Examples might include an operating theatre, a marketing presentation, sales convention, any type of performance event including artistic or sporting events. The contribution of this paper is to define a particular type of focus group that is not a sample but includes the entire group of the people present at an incident or event, designated a 'plenary' focus group. In addition, this study covers the implementation of a novel structuring instrument for use with such a group and outlines in detail the application of the CATWOE technique for thinking about and describing particular incidents.

References

- Antaki, C. (2000). "Two Rhetorical uses of the description 'Chat'." *A Journal of Media and Culture* 3.
- Basch, C. E. (1987). "Focus Group Interview: an underutilized research technique for improving theory and practice in health education." *Health Education Quarterly* 14: 411-448.
- Billig, M. (1996). *Arguing and Thinking: A rhetorical approach to social psychology*. Cambridge, Cambridge University Press.
- Bloor, M., J. Frankland, M. Thomas and K. Robson (2001). *Focus Groups in Social Research*. London, Sage.
- Calder, B. J. (1977). "Focus Groups and the nature of qualitative market Research." *Journal of Marketing Research* 14(14): 353-364.
- Checkland, P. (1981). *Systems Thinking, Systems Practice*, John Wiley & Sons.
- Checkland, P. (1991). *From Framework through experience to learning: the essential nature of action research*. *Information Systems Research: contemporary approaches and emergent traditions*. H. E. Nissen, H. K. Klein and R. Hirshhiem. Amsterdam, Elsevier.
- Conover, P. J., I. M. Crewe and D. D. Searing (1991). "The nature of citizenship in the United States and Great Britain: Empirical comments on theoretical themes." *Journal of Politics* 53: 800-832.

- Delli Carpini, M. X. and B. Williams (1994). "The method is the message: focus groups as a method of social, psychological and political inquiry." *Res Micropolit* 4: 57-85.
- Denzin, N. and Y. Lincoln, Eds. (1994). *Handbook of Qualitative Research*. London, Sage.
- Fern, E. E. (2001). *Advanced Focus Group research*. Thousand Oaks, California, Sage.
- Folch-Lyon, E., L. D. L. Macorra and S. B. Schearer (1981). "Focus Group and Survey Research on Family Planning in Mexico." *Studies in Family Planning* 12: 409-32.
- Glaser, B. G. and A. Strauss (1967). *The Discovery of Grounded Theory: Strategies for Qualitative Research*. New York, Aldine Publishing.
- Glick, D., A. Gordon, W. Ward, K. Kouame and M. Guessan (1988). "Focus group methods for formative research in child survival." *International Quarterly in Community Health Education* 8(297-316).
- Goldman, A. and S. Schwartz McDonald (1987). *The group depth interview: Principles and Practice*. Englewood Cliffs, NJ, Prentice Hall.
- Heritage, J. (1984). A change-of state token and aspects of its sequential placement. *Structures of Social Action: studies in conversation analysis*. J. Heritage and J. M. Atkinson. Cambridge, Cambridge University Press: 299-346.
- Hoppe, M. J., E. A. Wells, A. Wilsdon, M. R. Gillmore and D. M. Morrison (1994). "Qualitative data from focus group interviews." *Health Education quarterly* 21: 117-126.
- Jefferson, G. "The Business of Talk."
- Johnson, A. (1996). "It's good to talk: The focus group and the sociological imagination." *The Sociological Review* 44(3): 517-38.
- Joseph, J. G., C. Emmons, R. C. Kessler, C. B. Wortmann, O. B. K. W. T. Hocker and C. Schaefer (1984). "Coping with the threat of AIDS: an approach to psychosocial assessment." *American Psychologist* 39(11): 1297-302.
- Kidd and Parshall (2000). "The use of focus groups in pediatric and adolescent research ." *Journal of Paediatric Health Care* 19(2): 104-110.
- Kitzinger, J. (1994). "The methodology of focus groups." *Sociology of Health and Illness* 16: 103-21.
- Knodel, J. (1995). "Focus Groups as a method for cross-cultural research in social gerontology." *Journal of cross cultural gerontology* 10: 7-20.
- Krueger (1994). *Focus Groups: A practical guide to applied research*. London, Sage.
- Lunt, P. and S. Livingstone (1996). "Rethinking the focus group in media and communications." *Journal of Communication* 46(2): 79-98.
- Merton, R. K. (1947). "Selected Problems of field work in the Planned Community." *American Sociological Review* Vol XII: 304-312.
- Miles, M. and A. Huberman (1994). *Qualitative data analysis: An expanded sourcebook*. Thousand Oaks, CA, Sage.
- Morgan, D. L. (1997 (2nd Ed)). *Focus Group as Qualitative Research*. Thousand Oaks, Sage.
- Morgan, D. L. (1998). *The Focus Group Guidebook*. Thousand Oaks CA, Sage.
- Morgan, D. L. (1998). *Planning Focus Groups*. London, Sage.
- Pomerantz, A. (1984). Agreeing and disagreeing with Assessments: Some features of preferred/dispreferred turn shapes. *Structures of Social Action: studies in conversation analysis*. J. M. Atkinson and J. Heritage. Cambridge, Cambridge University Press: p57-101.
- Potter, J. (1998). "Discursive Social Psychology: From attitudes to evaluations." *European Review of Social Psychology* 9: 233-66.
- Puchta, C. and J. Potter (2004). *Focus Group Practice*. London, Sage.
- Sacks, H. (1992). *Lectures on Conversation*. G. Jefferson. Oxford, Blackwell.
- Schlegoff, E. A. (1995). "Discourse as an interactional achievement III: the omnirelevance of action." *Research on Language and Social Interaction* 28: 185-211.
- Silverman, D. (1999). *Doing qualitative research: a practical handbook*, Sage Publications.
- Stewart, D. W. and P. N. Shemdasani (1990). *Focus Groups: Theory and Practice*. Newbury Park CA, Sage.
- Vaughan, S., J. S. Schumm and J. Sinagub (1996). *Focus Group Interviews in Education and Psychology*. Thousand Oaks CA, Sage.
- Wiggins, S. and J. Potter (2004). "Attitudes and Evaluative practices: Category vs item and Subjective vs Objective constructions in everyday food assessments." *British Journal of Social Psychology*.
- Wilkinson, S. (1998). "Focus Groups In Health Research: Exploring the meanings of Health and Illness." *Journal of Health Psychology* 3(3): 323-42.
- Zanna, M. P. and J. K. Rempel (1988). Attitudes: A new look at an old concept. *The Social Psychology of Knowledge*. D. Bar-Tal and A. W. Kuglanski. Cambridge, Cambridge University Press: 315-334.