A critique of using grounded theory as a research method

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Abstract: Grounded Theory is a powerful research method for collecting and analysing research data. It was ‘discovered’ by Glaser & Strauss (1967) in the 1960s but is still not widely used or understood by researchers in some industries or PhD students in some science disciplines. This paper demonstrates the steps in the method and describes the difficulties encountered in applying Grounded Theory (GT). A fundamental part of the analysis method in GT is the derivation of codes, concepts and categories. Codes and coding are explained and illustrated in Section 3. Merging the codes to discover emerging concepts is a central part of the GT method and is shown in Section 4. Glaser and Strauss’s constant comparison step is applied and illustrated so that the emerging categories can be seen coming from the concepts and leading to the emergent theory grounded in the data in Section 5.

However, the initial applications of the GT method did have difficulties. Problems encountered when using the method are described to inform the reader of the realities of the approach. The data used in the illustrative analysis comes from recent IS/IT Case Study research into configuration management (CM) and the use of commercially available computer products (COTS). Why and how the GT approach was appropriate is explained in Section 6. However, the focus is on reporting GT as a research method rather than the results of the Case Study.

Keywords: Grounded Theory; codes; concepts; emerging categories; emergent theory.

1. Introduction

Traditional research designs usually rely on a literature review leading to the formation of a hypothesis. This hypothesis is then put to the test by experimentation in the real world. On the other hand, GT investigates the actualities in the real world and analyses the data with no preconceived hypothesis (Glaser & Strauss, 1967). Data collection is usually but not exclusively by interviews. Analysis of interview data in qualitative research tends to result in descriptions of an interpretivist view of the events, whereas GT data analysis involves searching out the concepts behind the actualities by looking for codes, then concepts and finally categories. These are explained in the following section.

2. Grounded Theory Codes, Concepts and Categories

Grounded theory coding is a form of content analysis to find and conceptualise the underlying issues amongst the ‘noise’ of the data. During the analysis of an interview, the researcher will become aware that the interviewee is using words and phrases that highlight an issue of importance or interest to the research. This is noted and described in a short phrase. This issue may be mentioned again in the same or similar words and is again noted. This process is called coding and the short descriptor phrase is a code.

There were initial doubts about what a code was/is/should be. The literature tells us that coding should be performed with an open mind without preconceived ideas. Glaser & Strauss (1967) insisted that preconceived ideas should not be forced on the data by looking for evidence to support established ideas. Glaser (2001) recommended that if a researcher were uncertain about the process, just analyse the data in front of you and write what you see.

Strauss & Corbin (1998, pp. 65-68) recommended coding by “microanalysis which consists of analysing data word-by-word” and “coding the meaning found in words or groups of words”. An example is given in the following section. The data in this case comes from an interview with the IT Manager of a medium sized UK company specialising in customer billing.

2.1 Micro-Analysis Coding

The interview text is shown in the left-hand column and the right-hand column shows the codes that the researcher used in this case.

More than one code may emerge from the same text. The data were revisited many times looking and re-looking for emerging codes. Other issues will emerge, resulting in other codes from this and subsequent interviews.
Table 1 : Examples of early codes in grounded theory analysis of Case Study Y data

<table>
<thead>
<tr>
<th>Interview Text</th>
<th>Codes</th>
</tr>
</thead>
<tbody>
<tr>
<td>From my perspective</td>
<td>Personal view</td>
</tr>
<tr>
<td>the main challenge is</td>
<td>Assertion</td>
</tr>
<tr>
<td>in changes in technology</td>
<td>Changes in technology</td>
</tr>
<tr>
<td>or the product improvement</td>
<td>Changes in product</td>
</tr>
<tr>
<td>done by the COTS supplier.</td>
<td>Assertion</td>
</tr>
<tr>
<td></td>
<td>Changes by Supplier</td>
</tr>
<tr>
<td>You</td>
<td>Pronoun shift</td>
</tr>
<tr>
<td>can never guarantee that</td>
<td>Assertion</td>
</tr>
<tr>
<td>if you are buying several,</td>
<td>Uncertainty</td>
</tr>
<tr>
<td>they will all be the same.</td>
<td>Procurement</td>
</tr>
<tr>
<td>Yes,</td>
<td>Affirmation</td>
</tr>
<tr>
<td>when you come to buying PCs</td>
<td>Procurement of hardware</td>
</tr>
<tr>
<td>a lot of our products now are delivered with the software already loaded on</td>
<td>Integrated products</td>
</tr>
<tr>
<td>the PCs</td>
<td>Hardware</td>
</tr>
<tr>
<td>that causes you to go through an inspection.</td>
<td>Software</td>
</tr>
<tr>
<td>We weren’t happy.</td>
<td>Extra work</td>
</tr>
<tr>
<td>it was costing us extra money.</td>
<td>Costs in human effort</td>
</tr>
<tr>
<td>Last year this part of Company Y organised a forum</td>
<td>Costs in money</td>
</tr>
<tr>
<td>workshop seminar on COTS</td>
<td>Extra work</td>
</tr>
<tr>
<td>and as part of that we did a survey of a number of our projects on problems</td>
<td>Action due to COTS shortfall</td>
</tr>
<tr>
<td>and issues with using COTS</td>
<td>Extra work</td>
</tr>
<tr>
<td>the short time that components become obsolete.</td>
<td>Implementation difficulty</td>
</tr>
</tbody>
</table>

2.2 Difficulties with Micro-Analysis Coding

This analysis technique of coding by microanalysis of the data, word-by-word and line-by-line, had two drawbacks. Firstly, it was very time consuming. The transcription of each interview contained a mass of data that had to be studied to locate the information relevant to the research topic. Secondly, it led to confusion at times. Dividing the data into individual words caused the analysis sometimes to become lost within the minutia of data. So many words being picked over individually led to confusion. There were times when the focus was lost. Doubts were experienced about what it was that we were looking for.

Further reference to the grounded theory literature uncovered the rift between Glaser and Straus on this issue. Glaser (1992, p. 40) condemned this micro-approach as producing an “over-conceptualisation”. This encapsulated exactly what was being experienced and the analysis, from this point on, followed Glaser (1992). That is, identifying key points (rather than individual words) and allowing concepts to emerge. The selection of points key to addressing research questions is in line with qualitative coding analysis (Miles & Huberman, 1984) as a protection against data overload. Dey (1993, pp. 94-97) talks of “bits of data” that are considered important. Therefore, key points in each interview were identified and marked ready for analysis and coding.

2.3 Key Point Coding

The points regarded as important to the investigation were identified in the transcripts, highlighted in italic font and given an identifier attributed sequentially starting at the first interview and continuing on through subsequent interviews to give P1, P2, and so on where ‘P’ indicates ‘key point’. To differentiate key points made longitudinally in subsequent case studies, these identifiers were distinguished with a suffix X, Y or Z. For example, key point 8 made by the staff in case study X appears as P8. Thus it is possible to trace back through the interview transcriptions to the actual content and context of each key point. The key point identifiers are shown in the left-hand column of Table 2. The text of the key point is shown in the middle column and the code in the right-hand column.
Table 2: Examples of Key points and codes from the data in Case Study X

<table>
<thead>
<tr>
<th>Id</th>
<th>Key Point</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Px1</td>
<td>Manual standards on CM were set up as a result of a Requirements Study for better control of in-house software development.</td>
<td>control of software development</td>
</tr>
<tr>
<td>Px2</td>
<td>Company X required a CM system at minimum cost.</td>
<td>requirement for a CM system</td>
</tr>
<tr>
<td>Px2a</td>
<td>Maestro II was selected as CM tool</td>
<td>CM tool</td>
</tr>
<tr>
<td>Px3</td>
<td>End-to-end CM is defined as the full life-cycle from conception stage through to and including operational maintenance.</td>
<td>CM system</td>
</tr>
<tr>
<td>Px4</td>
<td>Scheduling changes was regarded as an essential and integral part of the software process.</td>
<td>changes software process</td>
</tr>
<tr>
<td>Px5</td>
<td>CM Projects Department has been officially formed.</td>
<td>recognition of CM</td>
</tr>
<tr>
<td>Px5a</td>
<td>All future work will mandate CM on all data streams.</td>
<td>recognition of CM support for CM</td>
</tr>
<tr>
<td>Px6</td>
<td>Processes equate to Configuration identification and configuration control.</td>
<td>CM process</td>
</tr>
<tr>
<td>Px7</td>
<td>CM audits are used to bring other software systems under CM control.</td>
<td>CM process</td>
</tr>
<tr>
<td>Px8</td>
<td>Status Accounting is used to report monthly to the Project Board.</td>
<td>CM process</td>
</tr>
<tr>
<td>Px9</td>
<td>Main difficulty is getting people to buy-in to CM.</td>
<td>people difficulty</td>
</tr>
<tr>
<td>Px10</td>
<td>3rd parties have a preconceived set of established tools and are not willing to see the in-house point of view.</td>
<td>people difficulty tool difficulty</td>
</tr>
<tr>
<td>Px11</td>
<td>Developers saw CM as a control mechanism rather than a helpful tool.</td>
<td>not helpful control</td>
</tr>
<tr>
<td>Px12</td>
<td>People in the rapid application development (RAD) team thought that CM slows down their work and perceived CM as “just another layer of administration”.</td>
<td>slows down work administration resistance to CM</td>
</tr>
<tr>
<td>Px13</td>
<td>Invoking software developers in the CM set-up processes can solve problems with the perception of CM.</td>
<td>people issue</td>
</tr>
<tr>
<td>Px13a</td>
<td>CM perception problems can be solved by involving people in discussions</td>
<td>people issue</td>
</tr>
<tr>
<td>Px22</td>
<td>Software is controlled in pre-production and production using CM.</td>
<td>control of software</td>
</tr>
<tr>
<td>Px27</td>
<td>Company X had a need to develop a version control system for software. [Comment: This implies that there is not one available on the open market]</td>
<td>tool difficulty software version control</td>
</tr>
</tbody>
</table>

The key points Px2a, Px5a and Px13a arose on a second, third or subsequent pass of the data. Many key points had been labelled with their unique identifiers and this avoided re-sequencing on every pass. Revisiting the data and creating multiple passes was to become a common occurrence.

The codes are then analysed and those that relate to a common theme are grouped together. This higher order commonality, is called a concept. Other concepts emerge from other groupings of the codes. An illustration is given in Section 4. Concepts are then grouped and regrouped to find yet higher order commonalities called categories illustrated in Section 5. It is these concepts and categories that lead to the emergence of a theory. If the data has been analysed without a preconceived theory or hypothesis, that theory is truly grounded in the data because it came from nowhere else.

3. The Emergence of Concepts

The code “software development” emerged from Px1. The codes from all other key points were compared with this to see if similar codes occurred often. The following codes were considered to have commonality: “software development” from Px1; “software process” from Px4; “control of software” from Px22; software version control from Px27. The common characteristic is “Used for control of software development” and this was the first concept to emerge from the data. This was noted in Table 3.

From Px12 emerged “slows down work”, layer of “administration” and “resistance to CM”. Combining these with Px13 and Px13a led to the concept of “Perceived as extra work”. Other combinations of codes led to further concepts and these were added to Table 3. Confidence in the process of coding grew and uncertain subsided with experience of the method.
The process of comparing the codes with each other, to find higher order commonality, produced the concepts from the codes. The concepts from Case Study X are summarised below.

### Table 3: Emergence of Concepts from the Codes in Case Study X Data

| Used for control of software development – Pₓ1, Pₓ4, Pₓ11, Pₓ22, Pₓ27 |
| Perceived as extra work – Pₓ12, Pₓ13, Pₓ13a |
| Recognised need for a CM system – Pₓ2, Pₓ3 |
| CM recognised by company – Pₓ5, Pₓ5a, Pₓ17, Pₓ19, Pₓ23, Pₓ24, Pₓ29 |
| Use of established CM processes – Pₓ6, Pₓ7, Pₓ8, Pₓ30 |
| Difficult to get people to buy-in – Pₓ9, Pₓ10 |
| Tools do not have the correct functionality – Pₓ10 |
| CM active seen as part of other activities – Pₓ15, Pₓ16, Pₓ26, Pₓ30, Pₓ31, Pₓ33, Pₓ34 |
| Used for control at system level – Pₓ4, Pₓ11, Pₓ18, Pₓ20, Pₓ23, Pₓ24, Pₓ27, Pₓ32, Pₓ35 |
| People support is needed – Pₓ9, Pₓ25, Pₓ29 |
| People are reluctant to practise CM – Pₓ11, Pₓ28 |
| CM tool difficulties – Pₓ10, Pₓ27 |
| Proof of control – Pₓ33, Pₓ34, Pₓ34a |

Gaser & Strauss (1967, p. 37) insisted that there is little point in looking for ideas established by other researchers, as this “hinders searching for new concepts”. Therefore, each key point was analysed for new concepts relevant to the current research. It is permissible to note support for a concept that is emerging from the current research. This provides important substantiation of that concept.

### 4. Categories

By comparing each concept in turn with all other concepts, further commonalities are found which form the even broader categories. Glaser & Strauss (1967, pp. 105-115) described this method of continually comparing concepts with each other as their “constant comparative method”.

#### 4.1 The Emergence of Categories from Case Study X

By applying the constant comparison technique to each concept in turn, a common theme were found amongst the following concepts:

- **Used for control of software development**
- **Used for control at system level**
- **Proof of control**
- **Need to control the introduction of software**

These share the theme of CM AS A CONTROL MECHANISM. This was the first category to emerge from the data and is demonstrated diagrammatically in Figure 1.

![Figure 1: Diagrammatical emergence of the category “CM as a control mechanism”](http://www.ejbrm.com)

By comparing the other concepts and grouping **People are reluctant to practise CM, Perceived as extra work, Getting people to buy-in and Tools do not have the correct functionality** a category emerged in Figure 2 as “Difficulties with CM”.

![Figure 2: Diagrammatical emergence of the category “Difficulties with CM”](http://www.ejbrm.com)
Grouping People support is needed, Use of established processes and There is a need for CM in Figure 3 gave the category “CM practices”.

![Diagram](image1)

**Figure 3**: Diagrammatical emergence of the category “CM practices”

Grouping Tool selection with CM tool difficulties in Figure 4 gave “Tools issues”.

![Diagram](image2)

**Figure 4**: Diagrammatical emergence of the category “Tools issues”

These categories and their relevant concepts are displayed in Table 4.

### Table 4: Emergence of categories from the concepts in the data from Case Study X

<table>
<thead>
<tr>
<th>CM AS A CONTROL MECHANISM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Used for control of software development - P\textsubscript{X}1, P\textsubscript{X}4, P\textsubscript{X}11, P\textsubscript{X}22, P\textsubscript{X}27</td>
</tr>
<tr>
<td>Used for control at system level – P\textsubscript{Y}4, P\textsubscript{Y}11, P\textsubscript{Y}18, P\textsubscript{Y}20, P\textsubscript{Y}23, P\textsubscript{Y}24, P\textsubscript{Y}27, P\textsubscript{Y}32, P\textsubscript{Y}35</td>
</tr>
<tr>
<td>Proof of control – P\textsubscript{X}33, P\textsubscript{X}34, P\textsubscript{X}34a</td>
</tr>
<tr>
<td>Need to control the introduction of COTS software – P\textsubscript{X}35, P\textsubscript{X}36, P\textsubscript{X}37</td>
</tr>
<tr>
<td>DIFFICULTIES WITH CM</td>
</tr>
<tr>
<td>Getting people to buy-in – P\textsubscript{Y}8, P\textsubscript{Y}10, P\textsubscript{Y}11, P\textsubscript{Y}28</td>
</tr>
<tr>
<td>Perceived as extra work – P\textsubscript{Y}12, P\textsubscript{Y}13, P\textsubscript{Y}13a</td>
</tr>
<tr>
<td>Tools do not have the correct functionality – P\textsubscript{Y}10</td>
</tr>
<tr>
<td>CM PRACTICES</td>
</tr>
<tr>
<td>Use of established CM processes – P\textsubscript{X}6, P\textsubscript{X}7, P\textsubscript{X}8, P\textsubscript{X}30</td>
</tr>
<tr>
<td>There is a need for CM – P\textsubscript{Y}2, P\textsubscript{Y}3, P\textsubscript{Y}5, P\textsubscript{Y}5a, P\textsubscript{Y}17, P\textsubscript{Y}19, P\textsubscript{Y}23, P\textsubscript{Y}24, P\textsubscript{Y}29</td>
</tr>
<tr>
<td>People support is being accomplished but still a problem – P\textsubscript{Y}9, P\textsubscript{Y}11, P\textsubscript{Y}25, P\textsubscript{Y}28, P\textsubscript{Y}29</td>
</tr>
<tr>
<td>TOOLS ISSUES</td>
</tr>
<tr>
<td>CM tool selection – P\textsubscript{Y}2a</td>
</tr>
<tr>
<td>CM tool difficulties – P\textsubscript{Y}10, P\textsubscript{Y}27</td>
</tr>
</tbody>
</table>

Data from two other case studies were analysed to further establish or otherwise these categories and discover new categories.

#### 4.2 Emergence of categories from Case Study Y

The second case study was a manufacturer and supplier of equipment computer. The company structure was divisional. The analysis proceeded by comparing the new key points with the concepts and categories thus far established. New concepts will appear. This evidence added further substance in what Glaser & Strauss (1967) called substantiation leading to substantive theory.

### Table 5: Emergence of concepts and categories from the data from Case Study Y

<table>
<thead>
<tr>
<th>CM AS A CONTROL MECHANISM</th>
</tr>
</thead>
<tbody>
<tr>
<td>CM is used for control of software development - P\textsubscript{Y}2, P\textsubscript{Y}8</td>
</tr>
<tr>
<td>CM is used for control at system level – P\textsubscript{Y}3, P\textsubscript{Y}4, P\textsubscript{Y}12a</td>
</tr>
<tr>
<td>Proof of control</td>
</tr>
<tr>
<td>DIFFICILITIES WITH CM</td>
</tr>
<tr>
<td>Getting people to buy-in - P\textsubscript{Y}5, P\textsubscript{Y}6, P\textsubscript{Y}11</td>
</tr>
<tr>
<td>Perceived as extra work - P\textsubscript{Y}7, P\textsubscript{Y}8</td>
</tr>
<tr>
<td>Tools do not have the correct functionality – P\textsubscript{Y}9, P\textsubscript{Y}13</td>
</tr>
<tr>
<td>CM PRACTICES</td>
</tr>
<tr>
<td>Use of established CM processes - P\textsubscript{Y}4, P\textsubscript{Y}8</td>
</tr>
<tr>
<td>There is a need for CM - P\textsubscript{Y}1, P\textsubscript{Y}2, P\textsubscript{Y}3, P\textsubscript{Y}4, P\textsubscript{Y}12a</td>
</tr>
<tr>
<td>People support</td>
</tr>
<tr>
<td>Relationship between CM and project management - P\textsubscript{Y}3, P\textsubscript{Y}4, P\textsubscript{Y}10, P\textsubscript{Y}14, P\textsubscript{Y}5a</td>
</tr>
<tr>
<td>Cradle-to-grave concept of CM - P\textsubscript{Y}12a, P\textsubscript{Y}3</td>
</tr>
</tbody>
</table>
The two concepts ‘Proof of control’ and ‘People support’ had no support from this data analysis. However, two new concepts emerged as:

‘Use of CM in project management’ - P\textsubscript{Y}3, P\textsubscript{Y}4, P\textsubscript{Y}10, P\textsubscript{Y}14

‘A cradle-to-grave concept of CM’ - P\textsubscript{Y}12a, P\textsubscript{Y}3

These new categories were integrated into the list of emerging categories.

4.3 Emergence of categories from Case Study Z

The third case study was a medium sized company employing approximately 500 staff providing a service function of customer billing to a national conglomerate organisation. The organisational chart of this company showed functional areas which were strictly defined with a rigorous reporting hierarchy. The organisation was bureaucratic with well-defined management levels.

The analysis of the key points into their codes continued as before by searching for key points in the data and identifying codes. A few key points are illustrated in Table 6 as examples.

<table>
<thead>
<tr>
<th>Id</th>
<th>Key Point</th>
<th>Open Codes</th>
</tr>
</thead>
<tbody>
<tr>
<td>P\textsubscript{2}1</td>
<td>Project people are the customers of CM.</td>
<td>CM in project management</td>
</tr>
<tr>
<td>P\textsubscript{2}2</td>
<td>CM is being used actively.</td>
<td>need for CM</td>
</tr>
<tr>
<td>P\textsubscript{2}3</td>
<td>There is difficulty in capturing the configuration of some systems that SD&amp;E are not directly responsible for.</td>
<td>people difficulties</td>
</tr>
<tr>
<td>P\textsubscript{2}4</td>
<td>The biggest difficulty has been to identify how much control CM should have over systems.</td>
<td>people difficulties</td>
</tr>
<tr>
<td>P\textsubscript{2}5</td>
<td>Another difficulty is how to achieve CM control consistently.</td>
<td>people difficulties</td>
</tr>
<tr>
<td>P\textsubscript{2}6</td>
<td>There is resistance to CM from the owners of systems.</td>
<td>resistance people difficulties</td>
</tr>
<tr>
<td>P\textsubscript{2}7</td>
<td>Documentation becomes part of the CM system.</td>
<td>CM process</td>
</tr>
<tr>
<td>P\textsubscript{2}23</td>
<td>There should be more of this research going on.</td>
<td>more research</td>
</tr>
<tr>
<td>P\textsubscript{2}4</td>
<td>Outsiders see CM as really boring.</td>
<td>people difficulty</td>
</tr>
</tbody>
</table>

A new concept emerged from P\textsubscript{2}23, that of “More research needed in CM”.

This new category was integrated into the list of emerging categories and the wording of existing concepts adjusted where necessary to reflect the additions to the data accumulated. For example “Getting people to buy-in” became “People difficulties” and “difficulties with tools” was reworded as “Technical difficulties” to reflect the totality of data collected without loss of relevance or focus.

As subsequent interviews took place, in any case study, the process of constant comparison continued. Key points identified in the transcripts were compared with concepts and categories so far established and adjustments made to categories to reflect accumulated findings. These, in turn, were then used in subsequent analysis. Emerging categories are show diagrammatically in Figure 5.

5. Emerging Theory

By linking the categories and investigating the connections between concepts the theory emerges. From Figure 5 the categories were: CM as a control mechanism, Difficulties with CM, CM practices and Tools issues. There is not space in this illustrative paper to analyse fully the connections between categories and the concepts. This can be obtained on request. However, the emergent grounded theory of computer CM can be summarised as follows.
Configuration management is a set of processes that collectively form a control mechanism to assist the effective operations of computer systems. The usefulness of CM will be impaired if the benefits from it are not recognised and supported among technical and business personnel. A sophisticated CM system will assist in identifying where and how components interact and the relationships between them so that a new component may be implemented in the correct place and continue the harmony of the whole system. However, currently available CM tools can be difficult to use. It is therefore important to select appropriate tools with care.

Figure 5: Emergent categories derived from grounded theory analysis of interview data in 3 case studies 1999-2002

6. Discussion
The reader will see that the four categories and some of the concepts are embedded in this summary. This is how GT leads from codes to concepts to categories to theory. The resultant theory does not need separate justification and testing because it came from live data. More data will be collected in future case studies and the theory will be improved upon and amended to reflect real life.

6.1 Grounded Theory and Literature Search
Some people have interpreted the GT method to mean fieldwork before literature search but this is a misconception of the original premise put forward by Glaser & Strauss (1967, p. 169) who encouraged researchers to “use any material bearing in the area”. This is taken to include the writings of other authors. Strauss & Corbin (1998) saw the use of literature as a basis of professional knowledge and referred to it as literature sensitivity and Dey (1993, p. 66) saw it as “accumulated knowledge”.

The research used to illustrate the GT method investigated current practices in large UK organisations when maintaining computer systems supporting their core businesses in the commercial world. A review of the relevant literature established current thinking in the areas of configuration management and the use of commercially available components. However, this literature review did not lead to any hypotheses of sufficient interest. Combine this with the fact that GT investigates actualities in the real world (which CM practices are) and the grounded theory approach was appropriate for this research. The choice of case study as the research method to collect the data is justified in the next section.

6.2 Grounded Theory and Case Studies
The use of the case study as a research paradigm is well known. Yin (1994) advocated case study research to investigate contemporary phenomena within real-life contexts especially when the boundaries between phenomena and contexts are not clear. In this research into CM practices, the
boundaries are not clearly defined between phenomena (the practices) and contexts (the companies) or within phenomena, or within contexts.

However, there are certain tensions between Yin’s version of the case study paradigm and the GT methodology. Yin (1994, p. 13) suggested that the case study “benefits from the prior development of theoretical propositions to guide data collection and analysis” whereas Glaser & Strauss (1967) insisted that a grounded theory approach should have no pre-conceived ideas or hypothesis.

A criticism of the case study as a research method is that there can be no generalisation of findings but Yin (1994) defended the position that case studies do lead to building theories applicable in the world at large. Grounded theory specifically attempts to investigate the real world, usually through interview data. It discovers the concepts grounded in the data and uses those concepts to build theory. The use of both these methods, therefore, minimises this criticism.

There is, therefore, no real anomaly between the use of case study and the use of GT. Both research methods collect data using interviews.

6.3 Grounded Theory and Interviews
Greater reliability can be placed on the data gathered in an interview over that gathered by a list of self-completion questions in a survey. In a face-to-face situation an experienced interviewer can tell whether the respondent is the appropriate person to answer the questions. Respondents are able to discuss issues in detail (Hague, 1987) and it is possible to use diagrams to clarify points.

Another possible criticism of GT is a lack of rigour due to careless interview techniques and the introduction of bias. In this research the case study interviews were guided to avoid leading questions and the introduction of bias. A working awareness of bias is imperative in all interview research. Transcriptions were checked for context and content accuracy before analysis began. These precautions and the fact that conclusions drawn are grounded in actual data helps minimise the risk of bias.

A real advantage of GT is that analysis starts as soon as data collection begins in the first interview. Glaser (2002) holds that analysis can start during the first interview if the researcher identifies concepts that are striking at that time. However, it is not sufficient simply to inspect data and label interesting points, the data have to be analysed in a systematic and rigorous manner to discover the concepts leading to the categories. This is an iterative process that requires a great deal of time, patience and analytic skill.

7. Conclusions
These conclusions are written as a personal reflection of my experiences of GT.

Glaser & Strauss (1967) emphasis that the researcher should have “no preconceived ideas” when collecting and analysing data. I had two problems with this. Firstly, there has to be some agenda for research by interview. Busy people in industry and commerce expect meetings to have an agenda and research projects to be scoped. Time and resource constraints prohibit unfocused investigation. It is clearly not possible to investigate specific working practices in UK industry without some focus to work toward but this is not what Glaser & Strauss meant. They were referring to preconceived bias, dogma and mental baggage which, in this case, may be taken to be preconceived ideas about working practices embedded in the researcher’s mind (Glaser 2002). Interviews were therefore focused using open stimuli such as “Tell me about the working practices to do with CM” or “What happens to new components?” Extra time then had to be budgeted for the analysis as the interview transcripts were voluminous.

Secondly, I was looking for a clearly defined coding process or mechanism. Grounded Theory demands more in analysis than simple inspection of the data. However, Glaser & Strauss (1967) and later Glaser (1978; 1992) do not instruct the reader in a prescribed mechanism for performing the coding. They describe the conceptualisation of coding. I was not sure what I was looking for. What was “a code”? Was it a statement of importance, in which case, what was important if we were to have no preconceived ideas? In previous research I had always had a hypothesis on which to focus. Was a code a statement of interest? At the outset I was unsure what was of interest.

Both these difficulties were overcome by identifying the Key Points in the interview data and concentrating the analysis on these. However, another difficulty experienced was in knowing when coding should be ended. Did every relevant statement in the text have to be
identified and used? Was one statement enough if made by a person in authority? Was it enough to have three of four statements containing the same code. How many times did a code have to occur to be substantive. When performing the constant comparisons between concepts to find emerging categories, how many concepts need to be included to form a category. Glaser (2002) advises that “one is enough if it is significant”. One concept can contribute to the emerging theory.

I was also uncertain about when to finishing the analysis. Glaser (1978) discusses saturation as the key to knowing when to stop. However, it took many attempts before I was at all confident when to stop the analysis and form the theory. Latterly I found that the theory could be allowed to emerge right from the start. I use the term “allowed to emerge” to mean that concepts and categories should be noted and merged as soon as they are noticed and this is the start of the theory. The researchers’ mind-sets are used to waiting until all data are collected before starting analysis and all analysis is completed before drawing conclusions. In GT this is not the case and this needs to be understood and appreciated. Analysis can start with the first interview.

In conclusion, the Grounded Theory method is recommend as a powerful way to collect and analyse data and draw meaningful conclusions. This recommendation applies to any researcher in the hard sciences as well as the social sciences.

References


Miles, M.B. & Huberman, A.M. (1984) Qualitative Data Analysis - A Sourcebook of New Methods, California, Sage


1. Introduction
The recent past has seen continuous systematic change to the subject of Information Literacy. For business students at all levels mastery of Information Literacy has become an increasingly important skill. There is an expanding range of computing applications that support the office. The subject itself has moved on from the acquisition of basic computing skills in the use of office software packages. There is an increasing distinction between basic use of a package, and between advanced use, or mastery, which typically requires subtle interpretation and manipulation of information. Mastery involves far more than the ability simply to operate the package.

At Cass Business School, a major redesign of the MBA offered the opportunity to make some radical changes to the traditional approach to teaching these skills. Traditionally this was a skill taught early in the course in a fairly mechanistic way, through computing workshops. It had been perceived by staff and students as a simple skill of only moderate importance. The workshops were autonomous, relatively unconnected to other parts of the degree, though some of the material later in the degree was taught on the assumption that students would have a level of basic competence with certain computer packages. Under the redesign, it became possible to integrate these skills into the core programme to a greater degree. It also became possible to attempt to deepen the students knowledge and understanding of the subject.

As the change was designed and implemented, it gradually became clear that this process was unlikely to stop at this stage. The expectation was that further redesign would take place as the course evolved. To the staff in charge of the new skills component of the MBA this project seemed to fit well to the model of Action Research. Other writers have suggested that Action Research methods offer a valuable approach to researching and developing educational courses (Carr, W. and Kemmis, 1986, McPherson and Nunes, 2002). The classic definition of Eden and Huxham (1996) that ‘action research involves the researcher in working with members of an organisation over a matter which is of genuine concern to them and in which there is an intent by the organisation members to take action based on the intervention’ applies in this case. The academic staff that would design and implement the course changes were in a position to discharge both roles of researcher and practitioner. Moreover the expectation of further interventions that would change the status quo promised the cyclic process of change and evaluation that promotes the opportunity for theory development.

This paper argues that action research is an effective way to approach course design, when major change is thought to be necessary. The case example of the redesign of the Cass MBA programme demonstrates its value. The application of action research methods offers a way to explain and understand the drivers for change and a structure by which further changes can be developed and assessed in a systematic way.

2. The challenges in designing an information literacy module for the Cass MBA
Changing perceptions as to student needs have driven changes to the MBA programme at Cass and hence to the information literacy module. This section describes the original module structure, discusses the theory underlining the changes made to the MBA programme and describes the impact of the redesign on the information literacy module.

2.1 Cass experience prior to redesign
For ten years from 1992 to 2001 the structure of the computer literacy programme for MBA students remained unchanged. During the orientation week there would be a formal introductory lecture at which students were briefed about their computer literacy requirements. This typically took most of a morning and included presentations by both
academic and technical staff. There was also one compulsory hands-on class where the principal objective was to establish that students were able to log into the university’s systems and to use some basic functions.

By 1994 e-mail was already used within the university for communication between students, even though most MBAs arrived with little or no experience of using it. So for some time the introductory hands-on class was primarily an e-mail training session. Once e-mail became widely used and most students were familiar with it before starting their MBAs, this initial class became largely a diagnostic session simply to establish that students had access to the network.

Questionnaires were used on occasion to gauge students’ level of experience and expertise, but these proved to be unreliable as a measure of the amount of expertise in the cohort as a whole. There was a strong tendency for students to play down any prior expertise, but these proved to be unreliable as a measure of the amount of expertise in the cohort as a whole. There was a strong tendency for students to play down any prior experience that they had. In addition, the questionnaires revealed that some students had very substantial IT experience which they could have usefully shared with others on the course, but in practice there was very little sharing of ideas and information through the course.

The first week also included an introductory class aimed at complete beginners, and any other students were strongly deterred from joining this class. After the initial week computing classes were available, and were included in the course timetable, but were voluntary. These classes followed a service teaching approach, that various of the later components of the MBA programme would be structured on the assumption that participants would have a certain level of computer literacy, and that it was the students’ responsibility to attain this level but that classes would be available if the students wanted them.

Anecdotal evidence suggested that this arrangement worked well for students with absolutely minimal computing experience – in practice by 2000 less than 5 would be in this category about of perhaps 110 students each year on the MBA programme. It was also appreciated by students who had a high level of computer expertise because they were able to use the optional classes to improve specific areas of knowledge. The approach worked much less well for students between these two extremes, and it was significant that students in this category would often lack some of the requisite skills for other components of the MBA even though they had chosen not to attend the relevant computer classes.

A further issue was vulnerability to technical failures, which was compounded by the likelihood of faults on the computer system appearing in the first weeks of term. Despite collaboration between technical and academic staff, the staff responsible for teaching computer skills were not in a position to do anything to alleviate technical problems. Nevertheless when problems did appear in the first weeks, they were often seen by students as a poor reflection on the learning experience as a whole. Typical problems that occurred included a modification being made to the computers’ operating system at the last minute, so that a group of MBAs arrived in a computer laboratory one morning to find all the computers unusable because the software that they carried was being built, and a fault that made it impossible for students to log into the system for the first time on certain computers. These problems create a very bad impression of the entire computer facilities in the university and also meant that for many students their first encounter with the teaching staff responsible for computer skills was watching them wait for the technology to start working.

2.2 Theory development for information literacy

An MBA has three constituent parts – a group of core courses without which the degree could not qualify as an MBA, a set of elective courses and a major piece of individual project work. At Cass, prior to 2002, the MBA followed a traditional structure with the core courses tending to reflect the functional model of a firm. Dissatisfaction with this design had been expressed for some years. Individual modules – both core and elective underwent continuous redesign, but there seemed little opportunity or will to redesign the degree as a whole. The main concerns expressed early in 2002 were:

- Over-reliance on lecturing as a teaching approach
- Lack of integration between modules, especially the core
- Overlap between modules
- Potential imbalance between subjects
- Lack of consistent coverage of skills training for all students and the lack of integration of skills with application
- Potential inappropriateness of the aims of skills training
- Student dissatisfaction with the core courses, despite the acknowledged high quality of the lecturing
Two major theories underpin the design of an MBA degree – the theory of the firm and the managers job role within it and teaching and learning theories. Theories of the firm and the managerial job role have changed over recent decades following research into the changing patterns of business operations. Over the same period considerable research into teaching and learning has led to significant developments to the theories on this subject. It was the perception of the significance of these theoretical and practical developments and the apparent mismatch between these ideas and the traditional course structure that drove the course changes at Cass.

In the spring of 2002, all the teaching staff for the core modules of the MBA embarked on a collaborative project to redesign the core courses (more than half the degree programme) for implementation in the autumn of 2002. It soon became clear that there was substantial agreement as to the key problems. In particular the MBA working group came to the view that the traditional degree structure gave too much weight to knowledge acquisition and too little to application of theoretical ideas and the integration of business knowledge and skills. Over the subsequent period of six months this working group delivered a major redesign of the core component of the degree. By the start of the new academic year, the core course had been restructured into blocks of modules – four blocks of three core modules and three blocks of skills modules. Each block was designed and managed by a small working team of the teaching staff concerned. Information literacy was one of the skills blocks. Perhaps the most radical effect of these developments was the change to the process by which the programme was to be designed. Small teams of academic staff collaborated over the design and delivery of groups of subjects. This was a process that was planned to continue into the future, offering the potential for debate on and change to composition and relative weight of the individual components of the programme. The most significant aspect of the restructured degree for the information literacy module was the agreement as to the need to integrate skills with the other courses on the degree and the allocation of more time to skills training, within the block structure.

Theory supporting MBA

![Diagram](http://www.ejbrm.com)

**Figure 1:** Proposed theoretical basis for an information literacy module design

It is clear that an information literacy module is but one small plank within the structure of the MBA degree course. However it is inevitably profoundly affected by changes to the MBA programme. The enormous scale of developments in information and communications technology over the last half of the 1990s has also played a large part in
changing the requirements of such courses. Many new applications are now considered key tools for the manager. In figure 1, we present a theoretical model that binds together these factors and identifies the basis for developments in our ideas on information literacy.

2.3 Information Literacy for the 21st century

Information literacy refers to students’ ability to use and navigate information effectively during their studies. Bruce (1997) identifies a number of different ways in which students might experience information literacy. Her first category, the information technology conception, refers to students who view information literacy primarily in terms of using information technology, while subsequent categories imply a greater degree of involvement by students in the use and understanding of information.

Bawden (2001) surveys a number of alternative definitions of Information Literacy. He bases his survey on three general concepts of literacy: ‘a simple ability to read and write; having some skill or competence; and an element of learning’. In addition he observes a number of common factors, notably that, as with literacy in its conventional sense, the standard of information literacy expected of different people varies a lot according to their background, and that information literacy represents a skill that people can continue to use and extend once they have acquired it. It can be regarded as a skill that integrates a number of other elements which an information-literate person might be able to build on.

Mastery in this paper refers to a level of understanding beyond basic computer skills. In particular it refers to the acquisition of a level of confidence and understanding that allows people to extend their skills and knowledge. For instance it refers to understanding the menu structures associated with a Windows package well enough to be able to adapt to use of a new Windows application with minimal instruction or reading. It refers to being familiar enough with the way that web sites are structured to be able to construct complex web searches and to navigate parts of the Internet that one might not have encountered before. In the context of a search engine such as Google, mastery would reach beyond knowing the search engine’s technical features, to possessing the intuition necessary to deal with a large number of search results.

There is a parallel with the concepts of deep and surface learning (Ramsden, 1992). In the context of computing skills, surface learning implies learning mechanistically how to use something. Deep learning implies enough understanding of the underlying principles to give a set up extensible and sustainable skills.

The word ‘mastery’ has entered the popular business lexicon, partly as a result of its use by Senge (1992) as a desirable attribute for managers. However Senge sees it as a generalised attribute, as a form of self-knowledge, which is rather different from the application of the term to a particular set of skills.

2.4 The redesign of the Information Literacy module

The redesign of the MBA programme included a move away from modules that ran through a complete ten-week term, towards blocks of four weeks interspersed with individual weeks based around particular topics. This offered an opportunity to make computing and information literacy skills one of the components of the first four-week block of the MBA, and this, together with the orientation week that preceded the block, meant that students had a considerable opportunity to learn about computing skills during the first five weeks of their degree programme.

At the same time, the style of the material was changed fundamentally, from mostly hands-on classes to a combination of practical exercises and tutorial classes, where the tutorial classes were structured discussions and did not take place in a computer room. The practical exercises were devised so that they could be carried out by students either using their own computers and Internet connections, or using the facilities at the university. This meant that they mirrored accurately the way that students would work in practice during their MBA programme. It also reduced the dependence on the university’s computing infrastructure at a time when it was prone to failure, and so reduced the risk of students receiving a very negative view of the information skills component because of unreliable computers.

To reinforce deep learning, the tutorial classes were based around a series of questions which the students would discuss in small groups. Some of these questions related to simple practical skills, but most of them were about information management skills and issues. For these classes the students worked in the same groups of 6 or 7 that they would use for other
parts of the programme. In each tutorial class one group would lead discussion about a particular question, and other participants would join in with possible answers and suggestions.

In addition to providing an opportunity to reinforce the learning, the tutorial approach addressed the issue of a very wide range of abilities within the cohort. It meant, in principle at least, that students who had a lot of expertise in information management, could share their ideas with other students who attended the same tutorials. In practice this level of sharing could only be achieved with very careful facilitation of the tutorials.

Nevertheless the new structure averted many of the problems that had affected the computing skills component of the programme in earlier years, and it at least provided a suitable environment for deep learning.

The first few tutorials were well-attended and the discussion there was very lively. The later tutorials were concurrent with other, assessed, exercises within the programme and the level of both attendance and enthusiasm among students diminished. Also some technical problems did become apparent during the first few weeks and it could be difficult to prevent some tutorials from becoming purely opportunities to talk about these.

Theoretical model on which the course change is based (presented in section 2.2) underpins both the changes to the MBA programme and the information literacy module.

3.1 Goals

Action researchers seek solutions of immediate practical relevance to existing problems while simultaneously expanding scientific knowledge (Avison, et al., 1999; Eden and Huxham, 1996). This is achieved through the collaboration of researchers and practitioners. For Eden and Huxham (1996) the most significant characteristic of action research is that these two groups collaborate on a subject of great practical importance to the practitioners and that the expectation of both groups is that organizational change will be enacted based on the results of the work carried out. This emphasis on action is one of the great attractions of action research. The relevance of research carried out by more conventional research methods has come under increasingly harsh criticism especially for those subject domains that are concerned with the social world (Greenwood and Levin, 2000). Action research, by emphasising the practical outcome seems to address this particular problem. For the case discussed in this paper, the course leaders are discharging both roles of researcher and practitioner. Hence collaboration and intent to implement change are beyond dispute. This is similar to the situation that developed at the Tavistock Institution in dealing with the psychological disorders caused by the 2nd World War, in which scientist and therapist were one (Baskerville and Wood-Harper, 1996). The theoretical model on which the course change is based is presented in section 2.2 underpins both the changes to the MBA programme and the information literacy module.

Unlike most research methods action research embraces change. Other research methods seek to study and understand existing organisational and social structures. The action researcher seeks to create organisational change and study the results (Baburoglu and Ravn, 1992). This is an interventionist approach that encourages social experimentation. Indeed Baburoglu and Ravn would go further in proposing that this method could be used normatively to create the future that we want to live in. It is a method of particular relevance to fluid situations that are subject to continuous development and change. This describes much of the business and educational world. In particular it seems well suited for research into the MBA courses at Cass, if our courses are to evolve to meet the needs of a demanding group of customers.
3.2 Process

Many different forms of action research have been applied to IS research problems (Baskerville and Wood-Harper, 1998). However the one chosen for this project is based on an early approach described by Susman (1983). This is a five phase cyclical process (see figure 2), which requires initial agreement on the client-system infrastructure.

The client-system infrastructure is the specification of the environment within which the research is to be carried out. This would cover a multitude of issues like; the level of authority of researchers and practitioners to investigate and act, the boundaries of the problem to be researched, the separate responsibilities of client and researcher. These are all factors that help to define the scale of the intervention and the scope of the research. Where researchers and practitioners come from different organisations and have differing goals, this stage involves much work. It would be important to clarify all contributors needs, responsibilities, contributions before any substantial work is started. This is the stage at which the contract between all parties should be settled. For the Cass project, this stage should be less controversial in that there is less ground for conflicting goals between researcher and practitioner. However the traditional approach to programme design and delivery in which individual lecturers assume responsibility for the constituent modules precludes course changes that depended on collaboration across modules. The creation of the working group for the MBA changed the organisational (the client-system infrastructure) context in a radical way.

The five phases of one cycle are shown in figure 2. Diagnosing is the stage at which the primary problem facing the organisation is identified. Researchers and practitioners collaborate on developing and action plan to relieve these problems and then implement the agreed intervention (the action taking stage). The evaluation stage is perhaps the most critical and difficult to complete successfully. It involves assessing the effects of the intervention on both a practical level ('Did the action relieve the problem?') and a theoretical level ('did we obtain new theoretical insights? Did the results support pre-existing theory?'). If further cycles are indicated, some framework for the next iteration will be required. Finally the learning achieved can be categorised into three types, knowledge about and for the client organisation, the basis for designing further iterations and new theoretical insights. The cyclic process of repeated applications of these five phases is one of the distinctive and powerful features of this type of action research (figure 3). Succeeding cycles allow the opportunity for the learning from the previous intervention to be incorporated in the next action. This process of action, feedback, reflection informs the design of further interventions and theory development. It is a continuous process building knowledge and practical understanding from cycle to cycle. For those subjects that are heavily dependent on the social and organisational context and subject to continuous change, this is a more
promising approach than other research methods. For the information literacy course, it was the restructuring of the MBA degree course as a whole that offered the opportunity to make a major intervention and start cycle two.

Figure 3: Spiral of action learning

3.3 Summary
For Baskerville and Wood-Harper (1996) the ideal domain of the action research method is specified by the following characteristics:

1. The researcher is actively involved, with expected benefit for both researcher and organization
2. The knowledge obtained can be immediately applied
3. The research is a cyclical process linking theory and practice

The course redesign project meets all these criteria. The researchers and practitioners are one and expect to obtain both theoretical and practical benefits. The knowledge gained will be put to immediate use for the next cohort of students. The first cycle has been completed and cycle two is underway with several more cycles expected.

4. Application of Action Research methods to the redesign of the information Literacy module at Cass

The project team was made up of the three authors, all of whom have contributed to the information literacy course over the two cycles. Although we, the team members were generally in substantial agreement as to both research and practical goals, it only became clear how limited our range of options had been as the possibilities offered by the major restructuring of the MBA began to unfold. The client-system infrastructure within which we worked had exerted powerful pressures and imposed severe constraints. This section describes the results of the initial cycles.

4.1 Cycle 1
Cycle 1 lasted many years. The original diagnosis phase identified the need for a set of computing skills training classes to be added to the existing MBA degree programme. Two factors contributed to this perception. Software developers were providing an expanding range of increasingly sophisticated computer packages that contributed to the efficient operation of the office. The managerial job role was undergoing significant change and the direction it was moving in included the expectation that managers could make appropriate use of computer packages. In practice the need for additional classes was driven by the development of a university wide network that all students needed to use and the patchy nature of package training delivered by the individual modules of the degree.

As described in section 2.1 above, the intervention taken was the design of a set of computing classes delivered in the first weeks of the programme. This was taught for many years, with minor changes to course content in terms of additional packages and university network functions, but with no change to the
course process in terms of structure or pedagogic approach.

Evaluations were made every year that surfaced a number of problems and criticisms – all on the quality and effectiveness of the course to meet the formal teaching aims. The evaluations were fairly informal. They comprised the perceptions of the teaching staff, computer support staff and student feedback on an individual and group level, notably the staff/student liaison meetings. An important point is that in a one-year course there are serious difficulties in identifying tangible improvements year on year, because each cohort of students does not really see any benefits from improvements in the course from one year to the next. Many of the issues covered by student feedback on information literacy have been to do with ‘hygiene factors’ (Herzberg, 1959) that only really generate comment when they are absent. These evaluations resulted in little additional learning with respect to the theory underpinning the course, but a lot of information on the practical problems of delivery. In particular neither the basic learning aims nor the teaching methods of the module were ever seriously questioned.

4.2 Cycle 2
Cycle 2 started in early 2002, with the formation of the working group to redesign the MBA programme. Theory development, diagnosis and action planning proceeded in parallel. The diagnosis stage resulted in a major change in our definition of information literacy and teaching aims for the module, as described in section 2.3. This led to the module redesign described in section 2.4.

Evaluation is proceeding on several levels – for the module individually through the staff and student perceptions, and for the MBA core as whole through student feedback forms and staff/student liaison committees. It is notable that staff feedback now comes from those teaching the core courses not just from the information literacy teaching group and computer unit staff. However it is becoming clear that we need to design a more formal system for evaluating all the elements of the module. Learning aims concern all the MBA participants – staff and students. Much of the assessment of module success relies on the tacit knowledge of staff involved in preceding cycles. For example one of the authors could see a change to the pattern of IT problems from previous years, in that they did not occur quite as early in the term as had happened in earlier years. In his view, that would have translated into a much better initial impression for students. But that depends on his largely tacit knowledge. It would be good to find ways of turning such judgements into explicit knowledge. Assessment of student skills acquisition is also important and needs to be targeted on the new goals. For example assessment through application and use on the core courses that the module has been designed to support.

4.3 The Future
The theoretical basis proposed for the MBA programme and information literacy module offers an explanation of the swelling dissatisfaction expressed about the traditional programme. Further work to amplify the description of the constituent elements would help to clarify the value of the various aspects of the course redesign and enhance continuing change initiatives. Evaluation of this model is key to successful course changes. If it is a poor representation of current business conditions and/or teaching methods, the course design for which it is a base will rapidly become flawed. Continuing change to business conditions could have a similar effect. Effective evaluation methods are far from clear but are the key to further learning. The results of cycle 2 have also established the need to develop more formal systematic evaluation procedures for the practical realisation of teaching aims.

With the review of the MBA core courses for the autumn term 2002, cycle 3 may have started. For the information literacy teaching group, diagnosis, theory development and action planning stages are again proceeding in parallel. The review and planning actions undertaken for the MBA core as a whole are having a significant impact on this process. The scale of the intervention for the following year will determine whether this is a new cycle or a refinement of cycle 2.

5. Conclusions
Action research can be an extremely valuable research method for course leaders. It is particularly appropriate for business degree courses, facing the need for continuous change driven by technology and developments in business theory and practice. The application of this approach to the case of the information literacy course at Cass Business School has suggested several promising lines of enquiry for future cycles of course development.
References
Bruce, C S, 1997. Seven Faces of Information Literacy, AUSLIB Press.
Greenwood and Levin, 2000, in Handbook of Qualitative Research, Denzin and Lincoln ed. Sage
Herzberg F, 1959. The motivation to work. Wiley.
Gender disparity in organisation and the resultant human resource mismanagement: A case analysis
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Abstract: This paper addresses ‘gender disparity’ in organisation. Using a multinational organisation, as a basis for data elicitation, the empirical analysis explores its human resource utilisation, on basis of gender, to assess parity of treatment. The research employs a combination of qualitative and quantitative data elicitation techniques. All comparative tables are chi-squared, with probability taken at ‘p<0.05’. The empirical data suggests that management, through its discriminatory practices, fail to adequately utilise its human resource, negatively affecting gender relationships and worker commitment, jeopardising overall organisational effectiveness.

Keywords: Gender disparity, human resource utilisation, committee membership, marketing intelligence, worker commitment, rsonation.

1. Introduction, theoretical and conceptual discussions
Organisations, many having surpassed the requirements of equal opportunities in employment, tend to focus on the management of a diverse workforce as a survival imperative. Much has, therefore, been aired regarding the management of workforce diversity (Kanji, 1993; Lapin, 1990; Wisniewski and Stead, 1996; Cerro, 2000; Harvey and Allard, 1995; Miller and Rowney, 1999; Moore, 1999, Loden & Rosener, 1991; Gomez-Mejia, Balkin and Cardy, 2001; Hicks-Clarke and Iles, 2000), management being advised of their legal obligations towards diversity, and the socio-political, and economic implications of its mismanagement (Stephenson & Lewin, 1996; Scheinholtz, 2000; Gomez-Mejia, Belkin and Cardy, 2001). This drive has, nevertheless, overshadowed the age-old issue of ‘gender disparity’.

Despite the UK’s effort, in the form of legislation (Equal Pay Act, 1970, Equal Pay (Amendment) Regulations, 1983, and the Sex Discrimination Act 1975 and 1986 (Equal Opportunities Commission, {EOC} 2000a & 2001) to protect women’s employment rights, it cannot be said that all expectations have been met. This remains the case, even with the additional protection that the Sex Discrimination (Gender Reassignment) Regulations 1999 (EOC, 2000b) afford. Women are often victims of discrimination (Mills, 1998, as cited in Wicks and Bradshaw, 1999). Not only are they victims of low paid employment (EOC, 2000; Halim, 1993 – as cited in Watson, 1995) but they also have restricted access to senior (Zane, 2002) and boardroom (Kersten, 2000) management positions, with only a 9.8% chance (IMS - cited in McDougall, 1996; EOC, 1999) - propagating ‘glass ceiling’ (Dix, 1999; Zane, 2002) - sometimes blamed on women’s unassertiveness (Gallese, 1999). Gender discrimination is further evidenced by the number of Employment Tribunals cases - 3,809 in 1999/2000 (Employment Tribunal Services, 2000).

Justification of gender disparity is sought by a number of unfounded claims – e.g. they use humour, a popular management tool, more sparingly with male than with their female colleagues (Cox et al, 1990 - as cited in Smith et al, 2000; Mitchell, 1985 as cited in Walker, 1988). To the contrary, and despite the language dilemma (Sellers, 1991), empirical evidence produced by Smith, Harrington and Neck (2000) indicates that, given the appropriate environment the ‘gender similarity effects’, does not exist.

Irrespective of the perspective to gender studies, we acknowledge that differences in perception and approach exist between male and female. These differences are beneficial to organisations in several ways least of which is the reduction in or aversion of cohesiveness (Lee and Chon, 200; Piper, Marache, Lacroix, Richardson and Jones, 1983; Pirog, Schneider and Lam, 1997; Cerro, 2000; Dessler, 2001; Eaton, 2001; Robbins, 2000; Schermerhorn, Hunt and Osborn, 2000; Manz and Neck, 1997), thereby addressing groupthink (Schermerhorn, Hunt and Osborn, 2000; Eaton, 2001; Manz and Neck, 1997; Neck, 1996; Dessler, 2001; Robbins, 2000) and the enhancement of ‘teamthink’ (Manz and Neck, 1997).

Committee and taskforce membership, the elicitation of, and receptivity to, women’s views
and comments are simple ways by which the marketing intelligence (Kotler and Armstrong, 2001) might be exploited (Boddy and Paton, 1998; Certo, 2000; Robbins, 2001). Effective decisions might be assured if gatekeeping (Gross, Tabkenken and Bramml-Greenberg, 2001; Pirog, Schneider and Lam, 1997) is accorded a heightened degree of importance in-group dynamics, ensuring that 'resonation' (Crawford, 2001), among other dysfunctional attributes, is averted. Resonation is the situation whereby an idea or view that one member proposes, usually at a meeting, is given little or no attention or is completely dismissed but is overwhelmingly received when another member re-presents it.

Nevertheless, several organisations such as Quaker Oats; IBM; Ciba-Geigy; and Pacific Telesis (Gomez-Mejia, Balkin & Cardy, 2001) have demonstrated their desire to employ some of the most innovative strategy to address the gender imbalance. These initiatives include the creation of ‘Mummy Tracks’. This means that an employer gives women extended leave with benefits for up to three years.

While the foregoing discussion provides a basis for understanding some of the pertinent issues at stake, we need to establish national and organisational contexts for an assessment of gender parity. This empirical analysis accepts this challenge by investigating the level of parity of treatment of male and female, in a case study organisation. Specifically, it enquires into its human resource utilisation, as is manifest in its operation.

2. Formulating the empirical research

2.1 The Setting

Pike International, the pseudonym for the case study organisation, is a limited liability company, having several overseas bases. Its technological infrastructure facilitates advanced Material Requirement Planning (Boddy and Paton, 1998; Hillier, Hillier and Liberman, 2000). Recognising the need to keep up with operational developments it employs strategic and operational changes, much of which has been instituted without total integration into the pre-existing system. Institutionalisation (Crawford, 1994), therefore, is seldom achieved. The organisation has experienced reduced effectiveness, over the past few years, customers and clients growing increasingly dissatisfied with the quality of its products and services. Product recalls, rejects and service ‘referrals’ have proven very expensive to maintain. Production has sagged, increasing lead-time, with deliveries falling behind schedule.

The company employs just over 2,000 workers, with a masculine to feminine gender mix ratio of 3:1. It operates a functional structure, even though it has foreign subsidiaries. The structure nevertheless facilitates the establishment of teams their leaders having a noticeable degree of power, providing a great deal of opportunity for effective career management.

Teams are usually small, with 5-12 workers, compared with departments, which may exceed 50. They are operationally flexible, numerically and functionally (Atkinson, 1984; Buchanan and McCalman, 1993; Dyer, 1998; Goodenham and Nordhaug, 1997; Kathuria, 1998; Parker and Jackson, 1993; Pettenger, 1998; Salmon, 1996; Saundry, 1998; Tregaskis, 1997; Wong, 1993), facilitating worker deployment between them, and simultaneous membership of different teams.

2.2 Methodology Employed

The empirical study was conducted over a two-year period, culminating in the questionnaire administration. As part of the contract, for consultancy engagement, the researcher conducted research into the organisation’s diversity management, from which senior management hoped to benefit.

150 questionnaires were originally administered, representing a 7.5% sample. 105 questionnaires were returned – a rate of 70%, reducing the sample to 5.25%. This is slightly above the 5% that some experts (e.g. Bienstock, 1996; Govindarajulu, 1999; Hansen, Hurwitz and Madow 1993; Warwick and Lininger, 1975; Williams, 1978) suggest as adequate for desirable precision. Others (e.g. Bouma and Atkinson, 1987; Ching Biu Tse, 1995; Devore and Peck, 1993) recommend a sample of 97-100, irrespective of its percentage of the population. A stratified random sample (Clark-Carter, 1997) was attempted, to assure proportionate race and gender representation. The sample consisted of 71.4% of the respondents were male and 28.6% female (Table 1), closely matching the existing organisational demography (above).
Table 1: Sex of respondents

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid Male</td>
<td>75</td>
<td>71.4</td>
<td>71.4</td>
<td>71.4</td>
</tr>
<tr>
<td>Female</td>
<td>30</td>
<td>28.6</td>
<td>28.6</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>105</td>
<td>100.0</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

It was possible to achieve a sample constituent of 66.7% Whites, compared with 33.3% minority ethnic groups – 27.6% being Blacks (Table 2).

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid White</td>
<td>70</td>
<td>66.7</td>
<td>66.7</td>
<td>66.7</td>
</tr>
<tr>
<td>Asian</td>
<td>4</td>
<td>3.8</td>
<td>3.8</td>
<td>70.5</td>
</tr>
<tr>
<td>Black</td>
<td>29</td>
<td>27.6</td>
<td>27.6</td>
<td>98.1</td>
</tr>
<tr>
<td>Chinese &amp; Other</td>
<td>2</td>
<td>1.9</td>
<td>1.9</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>105</td>
<td>100.0</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

The questionnaire consists of 33 closed ended items. The management of the case study organisation provided the mechanism for stratified random samples. The quantitative data analysis was facilitated by SPSS (Boum & Atkinson, 1995; Brace, Kemp and Snelgar, 2000). It attempts, therefore, to establish whether the null hypothesis (Clark-Carter, 1997; Kanji, 1994) can be accepted – i.e.

\[ H_0: \text{There is no significant difference between the treatment and perception of the sexes.} \]

The results of analysis were chi-squared, with the level of significance taken at \( p < 0.05 \).

The foci of the gender element of the analysis were to:

- Ascertain the effectiveness of human resource utilisation, based on the degree to which the sexes are 'represented' and consulted.
- To test the reality, and workers’ perception, by sex, of the internal environment.

To facilitate this, a combination of data elicitation techniques was used, which as Crawford (2002) suggests, are most invaluable in ensuring that the reality is compared with informants’ perception of particular issues. For example, the researcher was able to “compare direct observation, documentary analysis and interview responses on particular issues” (Crawford, 2002, p. 12). The researcher analysed documents, audio-recordings of meetings, observations of interactions and conversations but maintained high ethical standards.

Questionnaire responses were cross-tabulated to facilitate a comparative analysis of the information. For example, Question 14 asks: “Of how many committees or task forces have you been a member?” The responses to this question were cross-tabulated with those of Question 2 enquiring of respondents’ sex. The product is a table (not presented), showing the number and percentage of respondents who were members of these groups, at some stage - 0, 1, 2, 3, 4, 5 or more, task forces or committees. The sample represents all the age ranges, closely matching the population, the majority – 29% - between 40 and 46, followed by the 26-32 age-range, at 20% (Table 3).

The main limitation of this research is the generalisability of its findings, constrained by the use of a single setting. Further research will, therefore, be necessary to explore a number of issues raised, using samples of national and international contexts.
Table 3: Age range of respondents

<table>
<thead>
<tr>
<th>Age Range</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>18-25</td>
<td>11</td>
<td>10.5</td>
<td>10.5</td>
<td>10.5</td>
</tr>
<tr>
<td>26-32</td>
<td>20</td>
<td>19.0</td>
<td>19.0</td>
<td>29.5</td>
</tr>
<tr>
<td>33-39</td>
<td>18</td>
<td>17.1</td>
<td>17.1</td>
<td>46.7</td>
</tr>
<tr>
<td>40-46</td>
<td>29</td>
<td>27.6</td>
<td>27.6</td>
<td>74.3</td>
</tr>
<tr>
<td>40-46</td>
<td>17</td>
<td>16.2</td>
<td>16.2</td>
<td>90.5</td>
</tr>
<tr>
<td>54-60</td>
<td>7</td>
<td>6.7</td>
<td>6.7</td>
<td>97.1</td>
</tr>
<tr>
<td>Over 60</td>
<td>3</td>
<td>2.9</td>
<td>2.9</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>105</td>
<td>100.0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

3. The findings

3.1 Utilisation of Human Resources

The empirical analysis reveals that managers at Pike International are inconsistent with selection of members of committees and taskforces. With 70% male and less than 30% female members of only one of these groups, there is no significant difference between the sexes, at: \( \chi^2 = 8.529, \text{df} = 5, p < 0.112 \). 90% male and 10% female also belong to 4 task forces. While there is no significant difference, at \( \chi^2 = 10.545, \text{df} = 5, p < 0.061 \), between current committee memberships based on sex, 25.3% male, and 53% female are not members. 22.7% male and 16.7% female are members and 88.2% and over 85% male and 11.8% and 14.3% female, respectively, belong to 3 and 4 committees.

6.5% male and 16.7% female never had their views accepted at departmental meetings - significant at: \( \chi^2 = 9.638, \text{df} = 4, p < 0.047 \). Table 4 also shows that 100%, 87.5%, 88.2%, and 54.8%, of male, respectively, always, very often, often and seldom had their views accepted.

There is a significant difference between the degrees to which members’ views were accepted, at team meetings, based on sex (\( \chi^2 = 29.896, \text{df}=4, p < 0.000 \)). More than 90% male, compared with less than 7% female said they very often had their views accepted at team meetings. Male also represents 90% of the accepted views, 10% being female. 40.5% and 62.5%, male and 59.5% and 37.5% female respondents seldom and never had their views accepted. One female worker responding, unofficially, to a memo from her head of department regarding non-attendance at meetings, suggested the following:

“I thought they would be relieved that I was absent. It is a good thing to have only part of the group involved in discussions and taking all the decisions. I am one of the ‘complete observers’ – be there but do not interrupt the proceedings!

“What is most irritating is that when, occasionally, I think that I have a great idea! That brilliant idea! Thinking, ‘they will have to listen this time’! Then I present that brilliant idea! My best ever! But it ‘falls to the floor’! No one takes any notice of what I have to say. What is most disappointing is that my idea is rejected! No thought is given to my workable proposal!

“But what is even more infuriating! What really annoys me – that makes me feel to leave the meeting in protest, is that someone else steals my idea, presents it to members and they welcome it as though they had never heard it before!

“So often colleague sit beside me to get my ideas, just to bring them out to management and receive commendation from them.

“When, occasionally, we receive a visit from senior management, at one of our meetings, they say stupid things but still gain their recognition. They sometimes solicit our views before the meeting, and then present them before we have a chance to do so.

“If we try to make a comment, we are asked to wait but they are allowed to interrupt the process. Sometimes I get interrupted before I finish my statement – they pretend to know precisely what I was going to say. I am not
given a chance. Now, I conclude that it does not make sense trying. I will be the 'complete observer' that they want me to be!"

Table 4: View acceptance at departmental meetings by sex

<table>
<thead>
<tr>
<th>View Acceptance At Dept Meetings</th>
<th>Sex</th>
<th>Male</th>
<th>Female</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Always</td>
<td></td>
<td>4</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Count</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Expected Count</td>
<td>2.9</td>
<td>1.1</td>
<td>4.0</td>
<td></td>
</tr>
<tr>
<td>% within View Acceptance At Dept Meetings</td>
<td>100.0%</td>
<td>.0%</td>
<td>100.0%</td>
<td></td>
</tr>
<tr>
<td>% within Sex</td>
<td>5.3%</td>
<td>.0%</td>
<td>3.8%</td>
<td></td>
</tr>
<tr>
<td>% of Total</td>
<td>3.8%</td>
<td>.0%</td>
<td>3.8%</td>
<td></td>
</tr>
<tr>
<td>Very Often</td>
<td></td>
<td>14</td>
<td>2</td>
<td>16</td>
</tr>
<tr>
<td></td>
<td>Count</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Expected Count</td>
<td>11.4</td>
<td>4.6</td>
<td>16.0</td>
<td></td>
</tr>
<tr>
<td>% within View Acceptance At Dept Meetings</td>
<td>87.5%</td>
<td>12.5%</td>
<td>100.0%</td>
<td></td>
</tr>
<tr>
<td>% within Sex</td>
<td>18.7%</td>
<td>6.7%</td>
<td>15.2%</td>
<td></td>
</tr>
<tr>
<td>% of Total</td>
<td>13.3%</td>
<td>1.9%</td>
<td>15.2%</td>
<td></td>
</tr>
<tr>
<td>Often</td>
<td></td>
<td>30</td>
<td>4</td>
<td>34</td>
</tr>
<tr>
<td></td>
<td>Count</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Expected Count</td>
<td>24.3</td>
<td>9.7</td>
<td>34.0</td>
<td></td>
</tr>
<tr>
<td>% within View Acceptance At Dept Meetings</td>
<td>88.2%</td>
<td>11.8%</td>
<td>100.0%</td>
<td></td>
</tr>
<tr>
<td>% within Sex</td>
<td>40.0%</td>
<td>13.3%</td>
<td>32.4%</td>
<td></td>
</tr>
<tr>
<td>% of Total</td>
<td>28.6%</td>
<td>3.8%</td>
<td>32.4%</td>
<td></td>
</tr>
<tr>
<td>Seldom</td>
<td></td>
<td>23</td>
<td>19</td>
<td>42</td>
</tr>
<tr>
<td></td>
<td>Count</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Expected Count</td>
<td>30.0</td>
<td>12.0</td>
<td>42.0</td>
<td></td>
</tr>
<tr>
<td>% within View Acceptance At Dept Meetings</td>
<td>54.8%</td>
<td>45.2%</td>
<td>100.0%</td>
<td></td>
</tr>
<tr>
<td>% within Sex</td>
<td>30.7%</td>
<td>63.3%</td>
<td>40.0%</td>
<td></td>
</tr>
<tr>
<td>% of Total</td>
<td>21.9%</td>
<td>18.1%</td>
<td>40.0%</td>
<td></td>
</tr>
<tr>
<td>Never</td>
<td></td>
<td>4</td>
<td>5</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td>Count</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Expected Count</td>
<td>6.4</td>
<td>2.6</td>
<td>9.0</td>
<td></td>
</tr>
<tr>
<td>% within View Acceptance At Dept Meetings</td>
<td>44.4%</td>
<td>55.6%</td>
<td>100.0%</td>
<td></td>
</tr>
<tr>
<td>% within Sex</td>
<td>5.3%</td>
<td>16.7%</td>
<td>8.6%</td>
<td></td>
</tr>
<tr>
<td>% of Total</td>
<td>3.8%</td>
<td>4.8%</td>
<td>8.6%</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>75</td>
<td>30</td>
<td>105</td>
</tr>
<tr>
<td></td>
<td>Count</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Expected Count</td>
<td>75.0</td>
<td>30.0</td>
<td>105.0</td>
<td></td>
</tr>
<tr>
<td>% within View Acceptance At Dept Meetings</td>
<td>71.4%</td>
<td>28.6%</td>
<td>100.0%</td>
<td></td>
</tr>
<tr>
<td>% within Sex</td>
<td>100.0%</td>
<td>100.0%</td>
<td>100.0%</td>
<td></td>
</tr>
<tr>
<td>% of Total</td>
<td>71.4%</td>
<td>28.6%</td>
<td>100.0%</td>
<td></td>
</tr>
</tbody>
</table>

\[ \chi^2 = 17.259, \text{ df} = 4, p < 0.002 \]

On one occasion Valerie, a junior worker, read the contents of an email (attachment) of the minutes of a previous meeting, which omitted the suggestion that she made regarding ways of heightening customer and client awareness. In shock and disbelief, she broke her silence moments later with the following observation: “The least that I would expect is that they would listen to me. Even when I say something positive, my name does not appear on the ‘record’. I am made to feel stupid – but many organisations take the ‘stupid ideas’ that workers have and make millions from them.
Look at Microsoft! Look at most other corporate giants! They listen to people! They value all contributions!

“We are different, and it is that difference that makes it necessary for us to meet and trade ideas but this is not what is happening, here! This is the reason that we are literally stagnated! We are in the mire! And management is incompetent! They do not have a ‘clue’! – Completely ‘clueless’!”

In order to secure a wide range of view, to facilitate effective decision-making (Dessler, 2001), managers at Pike International frequently consult 95% male and less than 5% female subordinates. As Table 5 indicates, 81% male are seldom consulted compared with less than 20% female. With 40.9% male and 82.1% female, who are never consulted, by managers, they are twice as likely to consult male than female, a pattern team leaders (Table 6) and corporate managers reflect (Table 7).

<table>
<thead>
<tr>
<th>Table 5: Consultation From Managers By Sex</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
<tr>
<td>Consultation from Manager</td>
</tr>
<tr>
<td>Often Count</td>
</tr>
<tr>
<td>Expected Count</td>
</tr>
<tr>
<td>% within Consultation from Manager</td>
</tr>
<tr>
<td>% within Sex</td>
</tr>
<tr>
<td>% of Total</td>
</tr>
<tr>
<td>Male</td>
</tr>
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<td>------</td>
</tr>
<tr>
<td>22</td>
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<tr>
<td>16.1</td>
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<td>95.7%</td>
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<td>33.3%</td>
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<tr>
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</tr>
<tr>
<td>Seldom Count</td>
</tr>
<tr>
<td>Expected Count</td>
</tr>
<tr>
<td>% within Consultation from Manager</td>
</tr>
<tr>
<td>% within Sex</td>
</tr>
<tr>
<td>% of Total</td>
</tr>
<tr>
<td>Male</td>
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<td>------</td>
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<td>17</td>
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</tr>
<tr>
<td>Never Count</td>
</tr>
<tr>
<td>Expected Count</td>
</tr>
<tr>
<td>% within Consultation from Manager</td>
</tr>
<tr>
<td>% within Sex</td>
</tr>
<tr>
<td>% of Total</td>
</tr>
<tr>
<td>Male</td>
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<td>------</td>
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<td>27</td>
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</tr>
<tr>
<td>Total Count</td>
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<tr>
<td>Expected Count</td>
</tr>
<tr>
<td>% within Consultation from Manager</td>
</tr>
<tr>
<td>% within Sex</td>
</tr>
<tr>
<td>% of Total</td>
</tr>
<tr>
<td>Male</td>
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<td>66</td>
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<tr>
<td>66.0</td>
</tr>
<tr>
<td>70.2%</td>
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<td>100.0%</td>
</tr>
</tbody>
</table>

\[ \chi^2 = 14.559, \text{df} = 2, p < 0.001. \]
### Table 6: Consultation From Team Leaders By Sex

<table>
<thead>
<tr>
<th>Sex</th>
<th>Consultation from Team Leader</th>
<th>Male</th>
<th>Female</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Very Often</td>
<td>4</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Count</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Expected Count</td>
<td>2.8</td>
<td>1.2</td>
<td>4.0</td>
</tr>
<tr>
<td></td>
<td>% within Consultation from Team Leader</td>
<td>100.0%</td>
<td>.0%</td>
<td>100.0%</td>
</tr>
<tr>
<td></td>
<td>% within Sex</td>
<td>7.3%</td>
<td>.0%</td>
<td>5.1%</td>
</tr>
<tr>
<td></td>
<td>% of Total</td>
<td>5.1%</td>
<td>.0%</td>
<td>5.1%</td>
</tr>
<tr>
<td></td>
<td>Often</td>
<td>18</td>
<td>0</td>
<td>18</td>
</tr>
<tr>
<td></td>
<td>Count</td>
<td>12.7</td>
<td>5.3</td>
<td>18.0</td>
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<td></td>
<td>Expected Count</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>% within Consultation from Team Leader</td>
<td>100.0%</td>
<td>.0%</td>
<td>100.0%</td>
</tr>
<tr>
<td></td>
<td>% within Sex</td>
<td>32.7%</td>
<td>.0%</td>
<td>23.1%</td>
</tr>
<tr>
<td></td>
<td>% of Total</td>
<td>23.1%</td>
<td>.0%</td>
<td>23.1%</td>
</tr>
<tr>
<td></td>
<td>Seldom</td>
<td>13</td>
<td>3</td>
<td>16</td>
</tr>
<tr>
<td></td>
<td>Count</td>
<td>11.3</td>
<td>4.7</td>
<td>16.0</td>
</tr>
<tr>
<td></td>
<td>Expected Count</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>% within Consultation from Team Leader</td>
<td>81.3%</td>
<td>18.8%</td>
<td>100.0%</td>
</tr>
<tr>
<td></td>
<td>% within Sex</td>
<td>23.6%</td>
<td>13.0%</td>
<td>20.5%</td>
</tr>
<tr>
<td></td>
<td>% of Total</td>
<td>16.7%</td>
<td>3.8%</td>
<td>20.5%</td>
</tr>
<tr>
<td></td>
<td>Never</td>
<td>20</td>
<td>20</td>
<td>40</td>
</tr>
<tr>
<td></td>
<td>Count</td>
<td>28.2</td>
<td>11.8</td>
<td>40.0</td>
</tr>
<tr>
<td></td>
<td>Expected Count</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>% within Consultation from Team Leader</td>
<td>50.0%</td>
<td>50.0%</td>
<td>100.0%</td>
</tr>
<tr>
<td></td>
<td>% within Sex</td>
<td>36.4%</td>
<td>87.0%</td>
<td>51.3%</td>
</tr>
<tr>
<td></td>
<td>% of Total</td>
<td>25.6%</td>
<td>25.6%</td>
<td>51.3%</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>55</td>
<td>23</td>
<td>78</td>
</tr>
<tr>
<td></td>
<td>Count</td>
<td>55.0</td>
<td>23.0</td>
<td>78.0</td>
</tr>
<tr>
<td></td>
<td>Expected Count</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>% within Consultation from Team Leader</td>
<td>70.5%</td>
<td>29.5%</td>
<td>100.0%</td>
</tr>
<tr>
<td></td>
<td>% within Sex</td>
<td>100.0%</td>
<td>100.0%</td>
<td>100.0%</td>
</tr>
<tr>
<td></td>
<td>% of Total</td>
<td>70.5%</td>
<td>29.5%</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

χ² = 18.182, df = 3, p < 0.000

### Table 7: Consultation From Corporate Managers By Sex

<table>
<thead>
<tr>
<th>Sex</th>
<th>Consultation from Corporate Managers</th>
<th>Male</th>
<th>Female</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Very Often</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Count</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>% within Sex</td>
<td>1.4%</td>
<td>3.3%</td>
<td>1.9%</td>
</tr>
<tr>
<td></td>
<td>Often</td>
<td>16</td>
<td>1</td>
<td>17</td>
</tr>
<tr>
<td></td>
<td>Count</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>% within Sex</td>
<td>21.6%</td>
<td>3.3%</td>
<td>16.3%</td>
</tr>
<tr>
<td></td>
<td>Seldom</td>
<td>23</td>
<td>2</td>
<td>25</td>
</tr>
<tr>
<td></td>
<td>Count</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>% within Sex</td>
<td>31.1%</td>
<td>6.7%</td>
<td>24.0%</td>
</tr>
<tr>
<td></td>
<td>Never</td>
<td>34</td>
<td>26</td>
<td>60</td>
</tr>
<tr>
<td></td>
<td>Count</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>% within Sex</td>
<td>45.9%</td>
<td>86.7%</td>
<td>57.7%</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>74</td>
<td>30</td>
<td>104</td>
</tr>
<tr>
<td></td>
<td>Count</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>% within Sex</td>
<td>100.0%</td>
<td>100.0%</td>
<td>100.0%</td>
</tr>
</tbody>
</table>
There is no significant difference (χ² = 2.691, df = 3, p < 0.442) between the percentage of male and female, 98.3% and 92% respectively, who volunteer advice to team leaders. However, team leaders reject 60% of the views of female and 28.1% of male. Leaders always accept the volunteered information of 19.3% male but none of the female (Table 8).

Table 8: Leader’s Acceptance of Volunteered Information By Sex

<table>
<thead>
<tr>
<th>Leader’s Acceptance of Information</th>
<th>Sex</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Male</td>
<td>Female</td>
<td>Total</td>
<td></td>
</tr>
<tr>
<td>% within Leader’s Acceptance of Information % within Sex</td>
<td>100.0%</td>
<td>13.4%</td>
<td>100.0%</td>
<td></td>
</tr>
<tr>
<td>% of Total</td>
<td>13.4%</td>
<td>13.4%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>% within Leader’s Acceptance of Information % within Sex</td>
<td>100.0%</td>
<td>8.8%</td>
<td>100.0%</td>
<td></td>
</tr>
<tr>
<td>% of Total</td>
<td>6.1%</td>
<td>6.1%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>% within Leader’s Acceptance of Information % within Sex</td>
<td>87.5%</td>
<td>24.6%</td>
<td>100.0%</td>
<td></td>
</tr>
<tr>
<td>% of Total</td>
<td>17.1%</td>
<td>9.8%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>% within Leader’s Acceptance of Information % within Sex</td>
<td>57.9%</td>
<td>19.3%</td>
<td>100.0%</td>
<td></td>
</tr>
<tr>
<td>% of Total</td>
<td>13.4%</td>
<td>9.8%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>% within Leader’s Acceptance of Information % within Sex</td>
<td>51.6%</td>
<td>28.1%</td>
<td>100.0%</td>
<td></td>
</tr>
<tr>
<td>% of Total</td>
<td>19.5%</td>
<td>18.3%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>% within Leader’s Acceptance of Information % within Sex</td>
<td>69.5%</td>
<td>100.0%</td>
<td>100.0%</td>
<td></td>
</tr>
<tr>
<td>% of Total</td>
<td>69.5%</td>
<td>30.5%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

χ² = 15.357, df = 4, p < 0.004

62% and 30.3% male and 67.7% and 32% female respondents often and seldom volunteer information to managers, a significant difference at: χ² = 3.038, df = 4, p < 0.551. From the analysis managers always accept the advice that 27% male and 3.6% female provide them. 7.1% female and 27% male say that their heads of department often accept their suggestions, a significant gender difference at: χ² = 24.284, df = 4, p < 0.000.

There is a significant difference in the pattern with which corporate managers consult the sexes (χ² = 16.232, df = 3, p < 0.001) - a total of 13.3% female, and 54.1% male. Therefore, they neglected to consult almost twice as many females (86.7%) as males (45.9%).

While they very often consult 3.3% female and 1.4% male, they often consult 21.6% male and just 3.3% female. In addition, they also seldom consult 31.1% male and 6.7% female.

When asked: “To what extent do you think that you have access to important information from outside your organisation that would improve its chances of success? an overwhelming 80% female, compared with just under 25% male suggest that they do - to a great extent. Just over 50% male and 16.7% female agree that they possess this type of information - interpreted as marketing intelligence - to a fair extent (Table 9).
Table 9: Worker’s Access to Marketing Intelligence By Sex

<table>
<thead>
<tr>
<th>Sex</th>
<th>Male</th>
<th>Female</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Access to External</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Information – To a Great</td>
<td>52.0%</td>
<td>48.0%</td>
<td>100.0%</td>
</tr>
<tr>
<td>extent</td>
<td>34.7%</td>
<td>80.0%</td>
<td>47.6%</td>
</tr>
<tr>
<td>% of Total</td>
<td>24.8%</td>
<td>22.9%</td>
<td>47.6%</td>
</tr>
<tr>
<td>To a Fair Extent</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>% within Access to</td>
<td>88.4%</td>
<td>11.6%</td>
<td>100.0%</td>
</tr>
<tr>
<td>External Information</td>
<td>50.7%</td>
<td>16.7%</td>
<td>41.0%</td>
</tr>
<tr>
<td>% of Total</td>
<td>36.2%</td>
<td>4.8%</td>
<td>41.0%</td>
</tr>
<tr>
<td>To a Limited Extent</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>% within Access to</td>
<td>100.0%</td>
<td>100.0%</td>
<td>100.0%</td>
</tr>
<tr>
<td>External Information</td>
<td>8.0%</td>
<td>5.7%</td>
<td>5.7%</td>
</tr>
<tr>
<td>% of Total</td>
<td>5.7%</td>
<td>5.7%</td>
<td>5.7%</td>
</tr>
<tr>
<td>Not at All</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>% within Access to</td>
<td>83.3%</td>
<td>16.7%</td>
<td>100.0%</td>
</tr>
<tr>
<td>External Information</td>
<td>6.7%</td>
<td>3.3%</td>
<td>5.7%</td>
</tr>
<tr>
<td>% of Total</td>
<td>4.8%</td>
<td>1.0%</td>
<td>5.7%</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>% within Access to</td>
<td>71.4%</td>
<td>28.6%</td>
<td>100.0%</td>
</tr>
<tr>
<td>External Information</td>
<td>100.0%</td>
<td>100.0%</td>
<td>100.0%</td>
</tr>
<tr>
<td>% of Total</td>
<td>71.4%</td>
<td>28.6%</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

χ² = 18.114, df = 3, p < 0.000

Managers and team leaders consult 65.3% male and 15% female - 85% female not being consulted at all – significant at: χ² = 27.523, df = 4, p < 0.000.

3.2 Workers’ Perception, and Reality, of the Internal Organisational Environment

The findings indicate that females are less likely to seek promotion than male. For example, 16.7% female and 10.7% male never sought promotion. Of those who sought promotion 1-4 times 76% were male but only 24% were female. 19.6% female and 80.4% male sought promotion 5-9 times.

Altogether 37.95% female and 62.05% male applied for promotion 5 or more times – a significant difference at: χ² = 8.893, df = 3, p < 0.031. 73.1% female, compared with 32.9% male, suggest that they were never successful in their bid for promotion, but 43.8% male and 23.1% female said they were successful on 1-4 occasions.

Similarly 23.3% male and 3.8% female say they have been successful 5-9 times (Table 10). Analysis indicates that females are (more than twice) more likely to be unsuccessful in their application for promotion as than their male counterparts - significant at: χ² = 13.271, df = 2, p < 0.001.

Some informants threatening boycott accuse the selection panels of customising job descriptions and personnel specifications to ensure that their preferred candidates ‘unmistakably’ match the ‘engineered profiles’. Others suggest that panel members are “downright discriminatory”. One female member claims:

“Management has a way of trying to explain away what is openly their highly discriminatory practices!

“But one thing that they have forgotten is that the people that they try to ‘brainwash’ with their ‘excuses’ are far more intelligent than they are. They don’t even realise that with a ‘discipline’ like mine, I am able to determine the irregularities.”

http://www.ejbrm.com
“They do try to insult one’s intelligence – to a great extent they do! But ………. It is better that we ignore them.”

Table 10: Times Successful In Bid For Promotion By Sex

<table>
<thead>
<tr>
<th>Times Successful</th>
<th>None</th>
<th>% within Times Successful</th>
<th>% within Sex</th>
<th>% of Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>55.8%</td>
<td>32.9%</td>
<td>24.2%</td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>44.2%</td>
<td>73.1%</td>
<td>19.2%</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>100.0%</td>
<td>43.4%</td>
<td>43.4%</td>
<td></td>
</tr>
<tr>
<td>1-4 Times</td>
<td>% within Times Successful</td>
<td>84.2%</td>
<td>43.8%</td>
<td></td>
</tr>
<tr>
<td>% within Sex</td>
<td>15.8%</td>
<td>23.1%</td>
<td>6.1%</td>
<td></td>
</tr>
<tr>
<td>% of Total</td>
<td>100.0%</td>
<td>38.4%</td>
<td>38.4%</td>
<td></td>
</tr>
<tr>
<td>5-9 Times</td>
<td>% within Times Successful</td>
<td>94.4%</td>
<td>23.3%</td>
<td></td>
</tr>
<tr>
<td>% within Sex</td>
<td>5.6%</td>
<td>3.8%</td>
<td>1.0%</td>
<td></td>
</tr>
<tr>
<td>% of Total</td>
<td>100.0%</td>
<td>18.2%</td>
<td>18.2%</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>% within Times Successful</td>
<td>73.7%</td>
<td>17.2%</td>
<td></td>
</tr>
<tr>
<td>% within Sex</td>
<td>26.3%</td>
<td>1.0%</td>
<td>1.0%</td>
<td></td>
</tr>
<tr>
<td>% of Total</td>
<td>100.0%</td>
<td>18.2%</td>
<td>18.2%</td>
<td></td>
</tr>
</tbody>
</table>

$\chi^2 = 13.271$, df = 2, p < 0.001

On her return from visiting an overseas ‘agency’, and having received the briefing on another round of appointments, a furious female worker exclaimed:

“Why do you think that I have never applied?! It does not matter how lucrative the position is, it will never really appeal to me. I am not certain who ‘calls the shots’ but I think that I have a fair idea.”

“Why ‘don’t’ they follow the ‘management succession chart’ that they have created, and to which no one else but them have access? Why do they keep wasting our time?”

After another ‘fatal’ attempt to secure the promotion to which she had long aspired, and for which she thought that she was ideally suited, Millie stormed out of her office, on receiving the disappointing news. She sighed effortlessly - in an unforgiving tone, and spoke unerringly:

“I am not now certain what is required of me!

“I am that person! I fit the profile - like none other! – Yet, I was denied the opportunity to advance!

“This is not a mistake! It is deliberate! I could do that job. Very well but ……… has got everything to lose.. I should be valued – taken seriously. I have really overstepped my bounds, this time. I wasted my time and ‘theirs.’

“I could have spent my time more profitably. Its ok!

“I will be here long enough to see ………. fail.”

There is, no significant difference between the types of feedback that colleagues provide their counterparts, based on their sex. For example, while 26.7% of male and 16.7% female say that the comments that they receive are positive, 34.7% and 40% of them respectively say that the comments are negative. However, only 5.3% male and 6.7% female think that they receive mixed comments ($\chi^2 = 3.506$, df = 5, p < .623).

24% male and no female describe the work atmosphere as very friendly, while 40% male and 20% female think that it is friendly. The remainder of respondents think that it is either unfriendly or intolerable the former being the perception of most female (Table 11).
20\% male but no female describe their colleagues as extremely supportive, while 40\% male and 10\% female think that they are supportive. 8\% male, compared with 26.7\% female find their colleagues to be fairly supportive, with 28\% male and 63.3\% female suggesting that their colleagues are unsupportive - significant at: $\chi^2 = 25.848$, df = 3, $p < 0.000$.

Just over 17\% male and no female perceive their managers as extremely supportive. 90\% of the female respondents and less than 30\% of the male, describe their managers as unsupportive (Table 12).

Frustrated with her low-level of utilisation, one informant observes:

“When my manager needed quality assurance award, … ‘paraded’ me and used my influence to gain accreditation. However, as soon as the organisation gained its enviable status, I was no longer of any importance to them. “They would have expected that my memory would have been as conveniently short as theirs. However, I cannot help but remember how important I was to them before they achieved their current status. Not only does my ‘wretched deployment’ hurts but it stifles me!”

Another worker, having achieved first-level supervisory status remarked:

“One would have thought that the fact that we are paid fairly handsomely – I have never groused over the ‘pay issue’ – we would be expected to produce ‘our worth in gold’. Unfortunately, the non-recognition of our potential contribution in particular spheres – ones to which we are known to be able to make a valuable contribution – is something that is beyond my comprehension.

“Irrespective of how ‘obnoxious’ managers perceive particular groups of workers, it is their technical expertise and the quality of their contribution that should really count. In the end, it is the organisation, which loses out, strategically and operationally. There were many occasions when things have gone wrong and I am convinced that I am able, and willing, to help but no one asks me.

“I have stopped volunteering because of being turned down for tasks that I am competent to undertake, and for which I am not being paid, adds insults to injury. The excuses that one is given insult, and suffocates, one’s intelligence!”
Table 12: Assistance From Managers By Sex

<table>
<thead>
<tr>
<th>Assistance from Managers</th>
<th>% within Assistance from Managers</th>
<th>% within Sex</th>
<th>% of Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extremely Supportive</td>
<td>100.0%</td>
<td>17.3%</td>
<td>12.4%</td>
</tr>
<tr>
<td>Supportive</td>
<td>91.4%</td>
<td>42.7%</td>
<td>30.5%</td>
</tr>
<tr>
<td>Fairly Supportive</td>
<td>61.5%</td>
<td>10.7%</td>
<td>7.6%</td>
</tr>
<tr>
<td>Unsupportive</td>
<td>51.2%</td>
<td>29.3%</td>
<td>21.0%</td>
</tr>
</tbody>
</table>

χ² = 23.837, df = 4, p < 0.000

One recently promoted informant, already frustrated with her new role, remarks:

“I have had complaints from colleagues that they are ‘stretched to the limit’. For me, that could not possibly be a complaint. They are overworked and under-paid but I am under-utilised! I do not mind ‘their’ withholding a portion of my salary, if I felt that I was satisfactorily assigned”.

Female respondents’ perception of Pike International’s discriminatory practices extends to ‘working times’. Several informants complain of receiving unreasonable requests from managers to work extra hours, for which, unlike others, they are not paid. Some are called back to work before the expiration of their lunch break. On one occasion, while having lunch with a female minority ethnic worker, she looked at her watch and remarked:

“Sorry! But I really have to go! I was not supposed to have been at lunch in the first place. It is against the rule but my manager insists that I eat on the premises and get back to my desk as soon as I am finished. I do not fancy being out of a job! I know of the Tribunals but nobody knows what might be the outcome of any case that I bring against the company.

“I am very sorry but I really have to go! Bye!”

4. Empirical discussion, summary and conclusions

Evidence suggests that there is a gender disparity in Pike International’s treatment of workers, explicit in committee and task force membership, and acceptance of views at meetings. Overall, the analysis reveals male dominance on committees. More than 90% of those who belong to 4 task forces or
committees are male and less than 10% female.

There is a significant difference between the extent to which respondents perceive that their views are accepted at team meetings ($\chi^2 = 29.896, df = 4, p < 0.000$). More than 90% male and less than 7% female very often, and 90% male and 10% female often had their views accepted.

Disparity in the treatment of male and female extends to internal promotion, even where women have superior qualifications to their male counterparts. The number of males with PhDs is 3% more than female but 73.3% female compared with 66.7% male respondents have qualifications at degree level and above. Volunteered information does not escape inequity. Team leaders reject 60% of the views that female members offer, compared with only 28.1% of those that their male counterparts present, a significant difference at: $\chi^2 = 15.357, df = 4, p < 0.004$. 96.

Discrimination compromises the effectiveness of its human resource utilisation, valuable skills, knowledge and expertise remaining untapped (Ely and Meyerson, 2000). Little account is taken of the fact that workers command marketing intelligence to varying degrees. An overwhelming 80% female, compared with just under 25% male, suggest that they have a great deal of marketing intelligence. Just over 50% male and 16.7% female agreed that they possess this information, to a fair extent – a significant difference between them (Table 12). Despite this factor, senior managers consult 13.3% of the female respondents, compared with 54.1% of their male counterparts.

Several writers have offered help in managing diversity, not least of whom are Flood and Romm (1996); Gill (1996); Groschl and Doherty (1999); Kersten (2000); Rifkin and Fulop (1997). Not only should organisations confront diversity issues (Flood and Romm, 1966) but they should also ensure that there is a:

- Zero tolerance policy
- Stringent workplace behaviour standard
- Supportive workplace relationship skills programme (Phomphakdy & Kleiner, 1999) encouraging organisational citizenship behaviour (Chattopadhyay, 1999).

- Diversity policy and procedure statement (Horwitz, Boemaker-Falconer and Searll, 1996).
- Constant monitoring of the diversity policy.

While training should be provided to create sensitivity to diversity issues (Allen, 1994; Gomez-Mejia, Balkin and Cardy, 2001; Lindsay, 1994; Loo, 1999; Moore, 1999; Njeri, 1989; Phomphakdy and Kleiner, 1999), managers, in particular, should be trained (Allen, 1994) to recognise that gender diversity implies difference in attitude, desires, values and behaviour (Jackson et al., 1995, as cited in D'Netto and Sohal, 1999). However, like any other initiative, the scheme’s survival is contingent on the continuity of resource allocation.

References


Crawford, R B Gender, race & ethnicity: Key elements of unexploited workforce diversity. Paper presented at Rethinking Gender, Work And Organisation: Gender, Work and Organisation Conference - An


Njeri, I ‘When different groups convene, the ignorant and the curious can be unexpectedly rude Times 6:1, Los Angeles, (1989, April 2).
Inductive theory generation: A grounded approach to business inquiry

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Abstract: Grounded theory has frequently been referred to, but infrequently applied in business research. This article addresses such a deficiency by advancing two focal aims. Firstly, it seeks to de-mystify the methodology known as grounded theory by applying this established research practice within the comparatively new context of business research. Secondly, in so doing, it integrates naturalistic examples drawn from the author’s business research, hence explicating the efficacy of grounded theory methodology in gaining deeper understanding of business bounded phenomena. It is from such a socially focused methodology that key questions of what is happening and why leads to the generation of substantive theories and underpinning knowledge.

Keywords: grounded theory methodology, qualitative, inductive, small business

1. INTRODUCTION

Developed by Barney Glaser and Anselm Strauss in the early 1960s Grounded Theory is a methodology for inductively generating theory (Paton, 1990). Glaser and Strauss’ seminal work, The Discovery of Grounded Theory (1967), specifically aimed at developing social scientists’ capacities for generating theory. Glaser’s definition of grounded theory is,

a general methodology of analysis linked with data collection that uses a systematically applied set of methods to generate an inductive theory about a substantive area (Glaser, 1992, p.16).

The emphasis is the systematic approach to data collection, handling and analysis. Glaser’s and Strauss’s personal differences that emerged over the years since their joint publication (1967) saw Glaser (1992) emphasizing the necessity for the researcher to be more creative and less processual in his/her methodological approach. Strauss (Strauss and Corbin, 1990) conversely, conveyed a more linear approach to recommended methodology.

Data collection, analysis and resultant theory generation has a reciprocal relationship, in that the researcher, rather than commencing with a theory that he or she attempts to verify, commences with an area of study and allows relevant theoretical conceptual constructs to emerge from the process. Grounded theory research requires a constant interplay between the researcher and the data. Grounded theory studies use rigorous data coding procedures designed to increase the validity of data interpretation. The process requires that,

Joint collection, coding and analysis of data is the underlying operation. The generation of theory, coupled with the notion of theory as process ... should blur and intertwine continually, from the beginning of an investigation to its end. (Glaser and Strauss, 1967, p.43)

Grounded theory’s methodological emphasis is on the actors’ own (’emic’) interpretations and meanings to emerge with minimal researcher intervention (’etic’). Through constant comparison, coding and analysis of interview and observational data, theory that is grounded in these data emerges. What is pertinent to social research, through grounded theory, is that it seeks to approximate to the context of that being studied, that is, for example; a business, its actors, their interactions and interrelationships; thus conveying a conceptual understanding of issues that make up their naturalistic world (Van Maanen, 1979). Mintzberg also emphasizes the requirement for qualitative inquiry within organizational (naturalistic) settings:

Measuring in real organizational terms means first of all getting out, into real organizations. Questionnaires often won’t do. Nor will laboratory simulations… The qualitative research designs, on the other hand, permit the researcher to get close to the data, to know well all the individuals involved and observe and record what they do and say. (Mintzberg, 1979, p. 586)

Whilst having its antecedents in sociology some application of grounded theory beyond sociology has been applied, if somewhat limitedly, in the areas of for example: tourism and hospitality management (Connell and Lowe, 1997 ); medical studies (Charmaz, 1990); psychology (Henwood and Pidgeon, 1995); and, business and organization studies. This latter broad field of academic inquiry has
seen grounded theory applied, if again limitedly, in for example: management research (Locke, 2001); innovation (Lowe, 1995), business mergers (Lowe, 1998); management action (Partington, 2000). The concluding author emphasises its limited application:

...there is little dedicated methodological guidance for builders of theories...and few exemplars of research conducted beyond the level of procedural detail. In much qualitative management research, important ontological (what counts for reality) and epistemological (how knowledge of reality may be established) issues are often either artfully avoided, taken for granted or ignored. (Partington, 2000, p. 92)

Therefore it is contended that there remains a paucity of published accounts of the application of grounded theory within the broad (multifaceted) academic field of business research. This article makes a contribution to such a deficiency.

2. GLASER OR STRAUSS?

Since their influential work of the 1960’s Glaser and Strauss departed in their views on Grounded Theory. Glaser (1992) selects an area (or organization or activity) for study and allows issues to emerge in the course of the research process. Strauss and Corbin (1990) are more specific and prefer to identify a phenomenon or issue for study. Thus Glaser’s approach to the identification and specification of the research issue to be addressed is entirely dependent upon the perceptions of actors and researcher. Strauss and Corbin permit the researcher to predetermine the general subject of enquiry before entering the research site. Glaser also prefers an analytical method that is more general in its frame of reference, while Strauss and Corbin opt for a somewhat more structured set of analytical steps. Glaser (1992) regards Strauss and Corbin’s (1990) analytical method as forcing, rather than allowing emergence of theory. In this respect, Glaser’s methodological approach relies primarily upon the constant comparison of different incidents, perceptions, relationships, and issues, with the aim of identifying inconsistencies, contradictions, gaps in data and emerging consensus on key concepts and relationships, in grounded theory we do not know, until it emerges (Glaser, 1992, p. 95). Strauss and Corbin (1990) are significantly more prescriptive in specifying the steps to be taken by a researcher in coding and analysing phenomena.

The Glaser adherent can allow for the central concept to emerge inferentially from the coding process – reflecting the key issue or problem as perceived by the actors being studied. The researcher, for example, could initially inquire in terms of a firm’s general management as an approach. Alternatively, following the Strauss and Corbin approach, the researcher could elect in advance to focus observation, interviews and archival data gathering on a particular issue such as marketing strategy. Coding is then oriented around this issue, and a central concept (or “code”) is then sought to represent the interplay of subjects’ and researcher’s perceptions of the nature and dimensions of phenomena under study.

3. GENERATING THEORY

The process of generating grounded theory involves data being systematically collected through field observations, interviews, meetings and the inspection of documentation where appropriate or possible. The researcher is often confronted with a flood of textually rich data. Coding for emerging concepts (from those data) is done by close scrutiny, with the intention of developing core categories that account for most of the variance in the data.

The aim of coding is to arrive at systematically derived core categories that become the focal concepts that contribute towards theoretical development. Theory generation occurs around one or more core categories, with evidence of properties of these categories and therefore patterns of behaviour to be found in the research phenomenon studied. Categories are coded with a view to rendering them ‘dense’ and ‘saturated’ with theoretical meaning.

3.1 THEORETICAL SENSITIVITY

Theoretical sensitivity refers to the researcher’s capacity to think about the data in theoretical terms. It requires the researcher to interact continually with the data collection and analysis, and suspending judgment on possible outcomes. During the interactive process of a grounded theory study, the researcher should be asking two formal - not preconceived – questions:

What is the chief concern or problem of the people in the substantive area, and what accounts for most of the variation in processing the problem? And secondly, what category or what property of what category does this incident indicate? One asks these two questions while constantly...
comparing incident to incident, and coding and analyzing. (Glaser, 1992, p. 4)

3.2 DATA COLLECTION
There are three main categories of data in grounded theory research: field data (notes), interview data (notes, recordings, transcripts) and any existing literature and artifacts that may be useful to the research (for example, written correspondence between managers within a business, or any potentially useful ephemera). Copious notes and/or detailed tape recording transcripts need to be undertaken and to examine the data several times from a variety of perspectives in order to develop the most rigorous explanations of the phenomenon being studied.

Empirical data, as exampled for this article, depicts information that was collected from predominantly interview based research set within a small commercial firm. Data were predominantly audio taped and accompanied by hand written notations. Interviews were structured using initial informational and subsequent reflective and feeling questions (Charmaz, 1990, p. 1167). Informational questioning established chronology of the interviewee and subsequent events within that person’s historical reflection of his/her employment at the company. The overall consideration is the generation of primary data that is captured in the exact words and explanations by the actual respondents themselves with the minimal framing by the researcher.

The audio taping of each interview, whilst generating a considerable amount of data enables the grounded theory analyst to specifically focus on the words used by the respondent (hermeneutics), rather than transcripts of the researcher’s limited capacity to capture that said by the interviewee (See Example 1.)

Example 1. Fragment of an Interview Transcription.

Interviewee (25 years with the company).
...The present owner is a newcomer in the company.
I liked the last owner.
Last owner did not have a lot to say in the workshop.
He has bought into the company.
It’s now all onwards and up wards.

He brought in two supposed experts.
He spent a fortune on that which didn’t work.
Last two years have been disastrous.
There are now more overheads.
They were happier days in the past than now.
Not many people are interested in this job.
We were doing all right as we were…

3.3 CODING
Coding is the result of raising questions and giving provisional answers about categories and their relations. Creating distinctions between codes produces dimensions and sub-dimensions. The coding paradigm originally articulated by Strauss (1987) and further refined by Strauss and Corbin (1990) is applied. It represents the operations by which data are broken down, conceptualised, and put back together in new ways. (Strauss and Corbin, 1990, p. 57)

Three types of coding are proffered: open coding, axial coding and selective coding. Coding as a term conjures up notions of esotericism, whilst in actuality the researcher is labelling fragments of data through various developmental stages. The coding paradigm focuses:

...attention on the slightly different aspects of naming and comparing at different levels of conceptual perspective that span the three forms of analytic activity… (Locke, 2001, p. 64)

The transcripts' data were predominantly coded (labelled) applying in vivo codes (Strauss, 1987, p. 33), or, researcher-constructed codes. The former extrapolates the actual words and phrases used by the respondent. The latter uses a label that best captures a description of a phenomenon as it is highlighted in the textual data.

3.3.1 OPEN CODING
Open coding involves the analysis of data. Codes form the basis for later aggregation into concepts (core codes). These are names or labels given by the researcher to events, activities, functions, relationships, contexts, influences, and outcomes. This initial coding involves the close scrutiny of the data. This requires transcripts being analysed, word for word, line-by-line and phrase-by-phrase. The aim of open coding is to begin the unrestricted
labelling of all data and to assign representational and conceptual codes to each and every incident highlighted within the data. As the process moves forward, iterative reflection of that already coded is considered with new data.

Open coding allowed similar incidents and phenomena to be compared and contrasted with each other, and where similar were correspondingly coded. This initiated the tentative process of developing conceptual categories and their properties. It needs to be remembered that it is not data themselves that develops conceptual categories and their properties, and, importantly the emergent substantive theory – it is the conceptual interpretation of data and their phenomena that creates the grounded theory. The theory is literally grounded in the data, but is not the data themselves.

As a methodological point of clarification – during the open coding stage, phenomena can be coded a number of times to emphasis various facets of an event or comment. For example, a comment by an employee from the business exampled in this article said, “I liked the last owner”. This comment alone can have can have several connotations and warrants a number of codes to consider what is not only being literally said (In Vivo), but most importantly, what is being conceptually conveyed by the respondent (Open Label Code). Therefore in this particular case, the coding stage for the above single comment was applied as in Example 2.

Example 2. Open Coding Application to the words, “I liked the last owner”.
1. I liked the last owner (In Vivo code)
2. Liked (In Vivo code)
3. Last owner (In Vivo code)
4. Historical contrasting (Open Label Code)
5. Positive employee emotion (past) (Open Label Code)
6. Negative employee emotion (present) (Open Label Code)
7. Perception of owner-manager’s personality (Open Label Code)
8. Perceptions of change in managing the business (Open Label Code)

From this short particular tract of data, and what emerges as the coding and tentative theory building develops, is that this respondent was conveying a dislike for the present owner-manager, a probable dislike of how the business was now managed (as opposed to how it was in the past) and a feeling of negativity about how the business and probably his job has changed since a new owner-manager had come to the company.

3.3.2 AXIAL CODING
Axial coding follows open coding. Once the initial open coding has been done, the researcher then regroups the data. Axial coding identifies relationships between open codes, for the purpose of developing core codes. Major (core) codes emerge as aggregates of the most closely interrelated (or overlapping) open codes for which supporting evidence is strong (Strauss, 1987; Strauss and Corbin, 1990).

Moving from the transcript of one respondent to that of another, and on towards the final transcript or piece of data, tentative relationships emerge - plus a considerable number of individual fragments of data (See Example 3.).

Example 3. Some Employees’ Emergent Axial Codes.
1. Co-worker perceptions of each other.
2. Historical contrasting between the business now and previously.
3. Managerial decisions made by the new owner.
4. Interpretive consequences of managerial decisions made.
5. Perceptions of what were required for the business.

3.3.3 SELECTIVE CODING
Selective coding requires the selection of the focal core code, that is, the central phenomenon that has emerged from the axial coding process. All other core codes derived from that axial coding process must be related in some way to this focal core code, either directly or indirectly. These codes can be classified as representing context, conditions, actions, interactions and outcomes. In this way a theoretical framework of interrelated concepts can be developed showing posited relationships between the central concept (i.e. the focal core code which represents the central phenomenon identified in response to the questions of, what is the central activity occurring here, what are the conditioning or influencing concepts, what are the observable outcomes and any intervening concepts and
variables being represented by the other conceptual codes identified (Strauss and Corbin, 1990) (See Example 4).


‘Management Decisions and Consequences’ (see Axial Codes: 3 and 4 above)

3.4 MEMOING

Theoretical memos are written theoretical questions, coding summaries, and hypotheses, used to monitor and stimulate coding, and as a basis for theory integration and ultimately generation. Memos are written (e.g. on cards or computer files) continuously through the entire research process (including observation and analysis stages). They are used to reflect upon and explain meanings ascribed to codes by actors and researcher; to identify relationships between codes; to clarify, sort and extend ideas; and to record crucial quotations or phrases. They provide the foundation of phenomenon’s characteristics and depth of understanding of the properties of the focal core concept and key related concepts.

Data are interpreted and concepts developed and related by means of relational statements. The procedures extend beyond the commonly understood concept of ‘coding’ in that the iterative process requires openness to modification of early coding as the researcher moves towards substantive theory generation. Glaser (1992) makes a point of distinguishing between different types of coding in the grounded research process, and emphasizes the value of the ‘constant comparison’ method that allows categories and conceptual properties to emerge.

The core category must appear frequently in the data, suggesting that it becomes increasingly related to other categories. Interconnecting codes must not be forced to link with the core code. The core code will take longer than other core codes to become saturated with information and understandings about its nature, characteristics and relationships to other codes, as it should be connected to more codes than the others. The core code (category) can be depicted as an integrative diagram (See Example 5.).

The core code would form the basis for developing a more formal theory. The level of theory development will progress as the researcher analyses and modifies the core code. A core code should account for a substantial proportion of the variation in an event or pattern of behaviour. The conditions and outcomes in particular, are represented by other core codes identified in the course of axial and selective coding.

Grounded theory uses ‘theoretical sampling’ to sample events that are indicative of categories, their properties and dimensions, so that they can be developed and conceptually related (Strauss and Corbin, 1990). Theoretical sampling is the process of sampling events, situations, populations, and responses, making comparisons between the samples of responses, descriptions, and behaviours in inductively generating theory.

Grounded theory researching samples incidents and not individual people as such. One’s methods include:

1. Collecting data about people’s actions, inactions and interactions.
2. Analysing antecedent and consequent conditions.
3. Determining the stability of the phenomena over time.
4. Identifying any causal effects.

The selective coding stage focused on what emerged as a core (central) category. The core category represents the main theme of the research. A central category has analytical power. What gives it that power is its ability to pull the other categories together to form an explanatory whole (Strauss and Corbin, 1998, p. 146).

Having completely analysed and coded all actors’ transcripts beyond where saturation of anything new comes forth gives the research the richness that conveys the naturalistic account - it also indicates actors’ frequencies of drawing attention to incidents and feelings, the emotional weight to that conveyed.
Example 5. Integrative Diagram of Core and Related Conceptual Categories.

3.5 SAMPLING CRITERIA
At all stages the researcher will seek alternative explanations and test for confirmation/disconfirmation of the concepts developed. In order to reduce the conceptual inadequacy of a theory (Glaser, 1978; Glaser and Strauss, 1967; Strauss and Corbin, 1990), rigorous grounded theory research will sample until: no new or relevant data appear; all elements of the theoretical paradigm are covered; and relationships between categories have been validated.

Insights can be cultivated from the perceptions of the actors being studied as well as from the researcher’s interpretation of the data. Undeniably, insights must be cultivated until the conclusion of research because they have the capacity to emerge continually from ongoing reflection upon the data, through constant comparison. Such comparison may be enhanced when insights emerging from a grounded study stand in marked contrast to other pre-existing theories.

3.6 SUBSTANTIVE THEORY GENERATION
A substantive theory emerges from the conceptual categories but is grounded in the data.

By substantive theory, we mean that developed for a substantive, or empirical, area of...inquiry (Glaser and Strauss, 1967, p.32).

By pursuing a substantive theory emergent from and grounded in the data presents the flexibility and freedom to explore a phenomenon in depth (Strauss and Corbin, 1998, p.40).

Underpinning conceptual categories to the core conceptual category, which in themselves hold underpinning conceptual properties (of which there can be many), support the emergence of a substantive theory. These emergent elements are the building blocks of theory generation. Such an activity aids in the development of further theory generation, be it...
formal theory that addresses, say, related but broader lines of inquiry (for example, managing small businesses’ decisions) to grand theory (for example, managing businesses’ decisions).

Substantive and formal theories must be grounded in data. Substantive theory faithful to the empirical situation cannot, we believe, be formulated merely by applying a few ideas from an established formal theory to the substantive area. To be sure one goes out and studies an area with a particular...focus, a general question, or a problem in mind. (Glaser and Strauss, 1967, p.33)

The research exampled adhered to the principles governing substantive theory generation by grounding its results in empirical data, set within a particular area of attention and continually asking the question of why things were happening in the way that they were within the business studied. From it developed an emergent substantive theory (See Example 6).

Example 6. A (Simplified) Generated Substantive Theory.

“To effect change in the (substantive) business were a function of the asymmetries of power between actors within the organization and contingent on management’s personality, knowledge and ability to make decisions appropriate to the business’ viability”.

4. MEASURES OF GOOD GROUNDED THEORY

Glaser and Strauss (1967, p. 237) provide some guidance for evaluating the empirical grounding of a grounded theory. These can be summarized as follows:

(1) Fit – does the theory fit the substantive area in which it will be used?
(2) Understandability – will non-professionals concerned with the substantive area understand the theory?
(3) Generalizability – does the theory apply to a wide range of situations in the substantive area?
(4) Control – does the theory allow the user some control over the “structure and process of daily situations as they change through time”?

In terms of credibility, validity and rigour, it should be observed that grounded theory is based on a systematic and formal process of data collection, analysis and theory generation. Inaccuracies and misleading interpretations are guarded against by various means including comparative analysis, investigation of different slices of data, and integration of theoretical concepts (Glaser and Strauss, 1967).

The main threats can be summarized as observer-caused effects on the phenomenon under study, observer bias in interpretation, limitations to data access, and the complexities and limitations of the human mind that may prevent the statements of actors being taken at face value. Strategies available to deal with these threats include the researcher spending a substantial length of time in the field, the employment of multiple data sources and observation methods, and care with respect to the researcher’s social behaviour in the field.

Yin (1994) suggests that key characteristics of rigorous case study research include comprehensive data collection and examination of alternative explanatory hypotheses or interpretations. These characteristics can clearly be delivered by a grounded theory approach. Miles and Huberman (1994) proffer cross-site qualitative data analysis methodologies includes research techniques that provide a springboard for examining data from multiple theoretical perspectives. Business research case studies can be enhanced and strengthened by combining grounded theory research principles with exhaustive data collection and analysis.

5. CONCLUSION

Theory emerging from the collection and analysis of data according to the central tenets of grounded theory methodology can indeed be grounded in the broad field of business research. Theory emerges from the researcher grappling with not only his/her own analytical perceptions, but from empathizing the ways in which respondents themselves construct their reality, their world. The emerging concepts would have been subjected to repeated coding and memoing, confirmation of observations from multiple data sources, theoretical elaboration from interpretations of these multiple sources, and continual testing for consistency across multiple observations. In this developmental process, concepts have been identified, developed, discounted, and merged in order to produce the component concepts of the emergent theory.

The distinctive advantage of grounded theory is that it commences from specific naturalistic situations, with the intent of understanding the nature and rationale of observed interactions
and processes. Inductive theory generation is embedded in explanation of phenomenon, rather than generalisability. The explanatory power of the grounded theorist is to develop predictive ability – to explain what may happen to, for instance, a business or organizational sub-unit or a manager - given incidents that tend towards replicating previous grounded theories. Naturally, the wider the theoretical sampling frame develops the more embedded the theory becomes, and whilst generalisability in the naturalistic world of business requires circumspection, general theories become possible from within the qualitative paradigm. Transferability within the naturalistic concept depends on the degree of similarity between the original situation and the situation to which it is transferred. The researcher cannot specify the transferability of findings; he or she can only provide sufficient information that can then be used by the reader to determine whether the findings are applicable to a new situation (Lincoln and Guba, 1985).

This article has discussed and exampled where the research inquiry situates its methodology to account for the reality of that under investigation (ontology) and how best that reality can be established (epistemology). The argument put forward for the application of grounded theory methodology in business research is that micro level concerns such as complexity and context and other unique variables, gravitates towards applying research methods that explicate interpretive understanding and account for what is happening and why. Grounded theory particularly orientates towards eliciting improved understanding of theoretical-conceptualisations of processes of social interactivity. Business as a broad concept exemplifies inherent processes that are dynamic by nature and interactive by necessity. Grounded theory has the inductive capacity to extrapolate, amongst other outcomes, such processes.

REFERENCES
Yin, R. (1994 (2nd Ed)) *Case Study Research - Design and Methods* (California, Sage).
Getting results from online surveys – Reflections on a personal journey
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Abstract: In this paper we present a personal reflection on the implementation of an online survey, highlighting the tradeoffs between the potential benefits and pitfalls. It is argued that casting your net out too wide, in a bid to maximise responses can result ultimately in a low response rate. We evaluate the experience of completing an online survey from the perspective of both the researcher and the respondent to outline the dynamics of the completion and submission process. Finally, in a bid to assist those interested, a review of some of the online survey tools is presented.

Keywords: Questionnaires, Surveys, Research Design, Research Process, Design and Implementation, Stakeholder Perspectives

1. Introduction
The effective design and implementation of surveys has been extensively written about over the course of research history. Best practice is well established and it is not hard to find resources to assist the beginner in constructing a well thought out and useful survey. However most of the advice seems to be related to the use of the survey method generally, or specifics concerning layout or question construction whilst acknowledging that

"it is very difficult to state, in abstract, exactly how [a good questionnaire] may be achieved" (Webb 2000).

This paper argues that the naïve researcher is often not aware of the hands-on issues concerning implementation of surveys and this is heightened in the case of the implementation of online surveys. In this paper we present a personal reflection on the implementation of such a survey. Initially the potential benefits and pitfalls are revealed through an evaluation of a recent experience in conducting an online survey. Both the perspectives of the researcher and the respondent are addressed in an attempt to outline the dynamics of the completion and submission process. Finally, in a bid to assist those interested, a review of some of the online survey tools is presented.

2. Technological Advances
The advent of the Internet and the falling costs of personal computers has expanded the realms of possibilities for the researcher in their choice of research techniques, and in particular, methods for conducting research surveys (Schonlau, Fricher et al. 2001). Never before has it been as possible to target such a diverse range of potential respondents in terms of geography and industry background.

Historically, questionnaires have been used extensively in large scale research endeavours (Easterby-Smith, Thorpe et al. 1991), hence it is not a surprise that an opportunity to target a large respondent base over the Internet would initially appear attractive. Although the classic texts on the survey technique (Oppenheim 1966; Moser and Kalton 1971; Youngman 1984) cited in (Easterby-Smith, Thorpe et al. 1991) provide practical advice on issues concerning questionnaire design, the technological advances which have exploded over the last decade open up the debate of good research design generally to a new arena.

Developments have been made in how questions can be sequenced and presented to respondents online. Definitions and the clarification of questions are possible alongside the ability to identify and correct errors at the point of data entry (Norman, Friedman et al. 2001). However, it has been argued that online methods of research represent a cultural as well as technological change in the manner in which research is conducted (Miller and Dickson 2001).

For a new researcher, the transition from design and implementation of a hard copy mail survey to that of an online survey is fraught with complexities and anomalies that are not always pre-definable or obvious.

3. Theoretical Perspectives
“In a culture like ours, long accustomed to splitting and dividing all things as a means of control, it is sometimes a bit of a shock to be reminded that, in operational and practical fact, the medium is the message. This is merely to say that the personal and social consequences of any medium – that is, or any extension of ourselves – result from the new scale that is introduced into our affairs by each extension of ourselves,
or by any new technology” (McLuhan 1965) cited in (Miller and Dickson 2001)

The importance that the ‘medium’ plays in communication has been long discussed amongst academics and practitioners alike. Schonlau, M., R. D. J. Fricher, et al. (2001) argue that there are a number of circumstances in which the online survey may prove to be a useful approach. These can be summarised as when:

1. ..the survey can be conducted with a convenience sample 
   often the respondents self select themselves into the survey.
2. ..the survey is being conducted in an organisation that has a list of e-mail addresses for the target population 
   contact being made initially by e-mail.
3. ..the target population represents a small slice of the total population 
   use or respondents from a pre-recruited panel that can be targeted directly.
4. ..the sample size is moderately large 
   - taking advantage of the lower marginal cost per respondent.
5. ..the survey contains questions of a particularly sensitive nature 
   - distance between researcher and respondent reduces chance of reflexivity bias.
6. ..the survey contains a large number of important open-ended questions 
   - data automatically entered and there is evidence that respondents write more.
7. ..the survey is a multimedia survey or contains interactive elements 
   - there is no other way to use technological innovations at a reasonable cost

These characteristics are fairly general and do not particularly assist the new researcher when setting out on their journey to evaluate all the research technique options and come to some decision about which techniques to use and through which medium. Essentially it is a question of balancing numerous research priorities (see Figure 1.0).

Figure 1.0: Balancing research priorities

However, in order to make a valid assessment of priorities one must first understand some of the benefits and pitfalls that might be encountered along the journey.

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3.1 Potential Benefits & Pitfalls

There are a number of reasons often proposed for why one would wish to implement an online survey:

- they are less time consuming
- they produce outputs of at least equal quality to more traditional methods
- they are cheaper to conduct
- they are easier to conduct

(Schonlau, Fricher et al. 2001)

They are all inter-related. Miller and Dickson (2001) are advocates of online surveys in the context of market research. They argue that traditional methods can take a long time to implement due to separate and distinct phases of design, data collection, coding and analysis. The time taken to move successfully through the process can take weeks or even months and the costs involved are not only those of development but also of the researchers own time.

In an era where web years are 2-3 months and costs are continually being addressed, one can see the attraction in conducting research to improved timescales and costs. However, online surveys are by no means always cheaper, easier or quicker to execute (Schonlau, Fricher et al. 2001; Vehovar, Manfreda et al. 2001). As we shall see later in a reflection on a personal experience, the quality of data entered online is not always comparable with that of a paper and pencil completed survey.

Figure 2.0 shows a recent review of survey response rates as reported in the literature. 31 studies were reviewed. Results are shown by mode of survey method and one can clearly see that using a combination of both online and traditional methods can deliver better results.

An interesting adjunct is that a study by Tse (1998) has shown that the initial response rate for an online survey can be quicker than other methods. This brings us to an extension of the researcher’s dilemma of priorities – is the goal to maximise response rates or turnaround research quickly?

**Figure 2.0:** Response rates for Internet surveys in the Literature – by Survey mode

Not all research has shown that costs can be reduced through the use of online surveys. Whilst Vehovar and Manfreda et al believed online surveys to be superior in this regard, other research has shown that this is largely the case when purely postage and printing costs are taken into account (Schonlau, Fricher et al. 2001).

Considering recognised pitfalls with online survey’s, the largest concern in the literature appears to be related to reliability and validity of the results collected through online means due to coverage error and the ability of respondents to access the Internet (Schonlau, Fricher et al. 2001). Depending upon the research this may lead to problems with
targeting a representative sample of the population. This problem is decreasing over time due to growth in computer access in the workplace or at home.

When it comes to potential technological and navigational issues, research has shown that respondents are generally comfortable with:
- online survey methods and may prefer online versions over paper and pencil versions or indeed interviews
- various methods of viewing online surveys including scrolling down long or partitioned forms and the presentation of single items at a time (Norman, Friedman et al. 2001).

4. The Experience

4.1 Background to the research
These anomalies can be best explored through the examination of a recent deployment of an online survey. Research conducted to date at Henley Management College has investigated Customer Relationship Management (CRM) from the position of business objectives behind such implementations (Ezingaerd, Nolan et al. 2001; McCalla, Ezingaerd et al. 2002) and has led to, amongst other outputs, the development of a taxonomy of CRM applications.

The classification developed was used as the basis for a content analysis of CRM vendors’ websites. Three key business objective themes emerged of which a subset of objectives were derived. The three key objective themes were:
- Enhanced service quality
- Enhanced productivity and organisational adaptiveness
- Enhanced decision-making capabilities (of both the end customer and the organisation).

4.2 Questionnaire Design
Building on this research, a survey was designed to test the validity of these business objectives with organisations that have either implemented or are planning to implement CRM technologies in the near future. Through the use and development of existing scales a questionnaire was both designed and tested carefully referring to best practice in questionnaire design.

4.3 The Technology
The survey was administered using the ‘TeleForm’ software tool, which enables the survey to be shown on the web in either ‘pdf’ or ‘html’ formats. The TeleForm software which sits behind the web server captures the data entered online and presents the administrator with data which can then easily be converted into an Excel spreadsheet for analysis. In addition, manual surveys can also be scanned into the software package thereby providing the researcher with the option of using multiple methods for collecting and integrating data. Initially the pdf online format was used for data entry. Due to technical problems (see section 3.7), the design was changed after the survey had gone live to a html format.

4.4 The Pilot
An expert reference group of academics were used as an advice panel on the questionnaire design before it was formally issued. The pilot group were 6 members of a CRM implementation project who all had different stakeholder perspectives on the same CRM implementation.

4.5 Determining the Sample
The target population were organisations who had either implemented CRM implementations or who had such technology investments on their investment plan. A professional services membership body were identified and approached to partner with in this research endeavour.

22,000 members were targeted through an e-mail initially via their monthly newsletter. Each one of these members have selected to receive these newsletters and so were deemed as likely to have the appropriate technology to access online surveys.

Follow-up newsletters referred to the research campaign and was supported by a presence on the membership body’s own website.

4.6 The End Result
After a week of the survey being live on the website only 3 surveys had been completed from a target population of 22,000 respondents. Over the forthcoming weeks the response rate did not improve significantly and finally, alternative respondents were sought:
- College alumni population
- Also targeted through a web-based newsletter that was delivered by e-mail. However due to the institution’s relationship with Alumni, it was
anticipated that a higher response rate could be obtained.

- Snail mail mailing to 155 IT Directors and Managers provided through a forum of business managers facilitated through the College’s own network. This list was known to be of a high quality.

4.7 The Respondent’s Experience
There were two specific examples that demonstrated problems respondents faced in participating in the online survey. One is related to a technology issue and the other related to understanding clearly that this was a piece of research they may which to participate in.

4.7.1 Technology Failure
Within two hours of the survey going live a respondent had attempted to post a response but due to technical constraints with their desktop, the survey’s complete functionality was not operational. Consequently, the respondent did not submit the survey successfully. The respondent, in an attempt to find alternative means of submitting his response, attempted to save the data to a file and e-mail it.

The file he attempted to save was in pdf online format and the technology appeared to let him complete the action successfully – he dutifully e-mailed through to the contact e-mail address provided.

However after interrogation of the file, we realised that he did not have the full version of the pdf software and so had only succeeded in saving and e-mailing the blank questionnaire (all data was lost during saving).

The initial technology failure had been that only certain versions of pdf software would be able to see the ‘submit’ button on the web page. Also if the respondent involved had different computer settings, this may have also affected his ability to see the submit button.

The experience of the respondent was one of frustration and required a personal apology by the researcher.

4.7.2 What Research?
After poor response rates were noted a number of respondents were contacted and invited to give feedback as to their lack of participation. The majority had not seen the newsletter with only one respondent giving a detailed response:

“I did see the newsletter with the e-mail invitation to take part in the research, but just glimpsed at it – I didn’t bother to read the detailed briefing and so wasn’t aware of it. I will be happy to take part now I know more about what it is about”

4.8 Reflections

- Technology failure could have led to low response rate

Whilst the technology problem was a significant stumbling block, the technology failure was resolved within hours of it being noticed. However, considering Tse’s (1998) research discussed earlier (see section 2.1) if one of the benefits of an online survey can be a higher initial response rate such time lost at the beginning of the launch of an online survey may have contributed to the poor response rate.

- Poor communication & differing of priorities

A significant problem is that it appears that respondents may not have seen the invitation. In this case, the actual link to the invitation appeared towards the end of the newsletter. As research generally appeared in this area I the standard format, it was not considered to be an issue by the membership organisation. However this was not communicated properly or discussed as part of the negotiations in the research relationships. The design problem was not determined until after the e-mail had been distributed.

- Respondents may have changed their e-mail address

In this case there is no way to determine this as the information is not readily accessible by the research organisation.

- The level of questions was specific and required a certain level of knowledge in order to be able to complete. Whilst respondents were invited to pass on the survey to a colleague if they preferred this may not have occurred.

- Last but by no means least, a larger problem may be the problem of information overload. Marketing and research survey’s are prolific and arrive via the postal system as well as through e-mail. With no financial incentive offered, it is likely that a large portion of the population base placed completion of the survey low down on the list of priorities.
5. Online Survey Tools – A Review

Despite these problems and personal reflections the process has been an interesting learning experience. The technology constraints posed by the software used may have been circumvented if we had used an alternative online survey solution. This section details some of the potential options to enable those interested in pursuing online solutions further.

Chatfield-Taylor (2002), provides a useful review of a number of online survey tools. They argue the choice of tool is dependent upon 3 key factors:

- The research budget
- The researchers competence in survey design
- The analysis outputs required

They go on to summarise a few key features that would be desirable in any online tools:

- Simple survey construction without the need to know html coding
- The ability to choose multiple question formats (e.g. rated scales, multiple choice, open-ended etc).
- The ability to import data for list segmentation and personalisation.
- The inclusion of analysis tools to enable cross tabulation.
- The ability to export data for manipulation, in conjunction with graphical representation of results

However, which tool do you choose? A search on the search engine www.Google.com for the term 'online survey tool' (30th January 2002) retrieved a search result of 725 documents. There is clearly a large range of tool options to choose from and we could not possibly provide in this report a review of all the tools available. Chatfield-Taylor (2002) provides a useful overview of some of the key types of tools on offer, which we have adapted and added to in Table 1.0:

<table>
<thead>
<tr>
<th>Type</th>
<th>Examples</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Professional</td>
<td>Exhibit Surveys Inc</td>
<td>Where you would prefer to outsource the design and development of the survey to an outside organisation, there are a number of consultancies that will assist with the entire survey process from conceptualisation through to data analysis. This is potentially a more costly option but perhaps useful for complex or very large scale surveys.</td>
</tr>
<tr>
<td>Survey Management</td>
<td>Decision Analyst Inc</td>
<td>There is a broad range of companies that fit into this level of provision. Some only offer consultancy services and others offer lower levels of support and/or the software purchase only.</td>
</tr>
<tr>
<td>Company</td>
<td>Perseus</td>
<td>Where software purchase is available tools are generally intuitive and do not require expect knowledge in HTML to be able to use successfully.</td>
</tr>
<tr>
<td></td>
<td>Socratic Technologies</td>
<td>Chatfield-Taylor (2002) describes these tool as flexible due to the pay as you go function. She goes on to explain that there is no restriction on the number of questions you can ask or on the amount of responses you can receive. ‘WebSurveyor’ in particular appears to be quite popular in this arena and is used by some well-known websites to evaluate their services. The flexibility also extends to the look and feel of the site – you can use your own branded image with this tool. Free trials are often offered with these tools.</td>
</tr>
<tr>
<td></td>
<td>Snap Survey Software</td>
<td>There are free tools that allow you to be able to create a survey with a limited number of questions and disseminate to your address list relatively quickly and cheaply. These have become very popular and are obviously cheap to use if you have a simple survey requirement. Such tools are quite intuitive and some such as ‘Zoomerang’ have a number of templates to assist you. There is a subscription charge if you require the ability to construct more complicated surveys and which results to be made available in a spreadsheet format. (Chatfield-Taylor 2002)</td>
</tr>
<tr>
<td>Pay as you go tools</td>
<td>WebSurveyor</td>
<td>Chatfield-Taylor (2002) describes these tool as flexible due to the pay as you go function. She goes on to explain that there is no restriction on the number of questions you can ask or on the amount of responses you can receive. ‘WebSurveyor’ in particular appears to be quite popular in this arena and is used by some well-known websites to evaluate their services. The flexibility also extends to the look and feel of the site – you can use your own branded image with this tool. Free trials are often offered with these tools.</td>
</tr>
<tr>
<td></td>
<td>Surveypro.com</td>
<td>There are free tools that allow you to be able to create a survey with a limited number of questions and disseminate to your address list relatively quickly and cheaply. These have become very popular and are obviously cheap to use if you have a simple survey requirement. Such tools are quite intuitive and some such as ‘Zoomerang’ have a number of templates to assist you. There is a subscription charge if you require the ability to construct more complicated surveys and which results to be made available in a spreadsheet format. (Chatfield-Taylor 2002)</td>
</tr>
<tr>
<td>Limited free tools</td>
<td>Zoomerang</td>
<td>There are free tools that allow you to be able to create a survey with a limited number of questions and disseminate to your address list relatively quickly and cheaply. These have become very popular and are obviously cheap to use if you have a simple survey requirement. Such tools are quite intuitive and some such as ‘Zoomerang’ have a number of templates to assist you. There is a subscription charge if you require the ability to construct more complicated surveys and which results to be made available in a spreadsheet format. (Chatfield-Taylor 2002)</td>
</tr>
</tbody>
</table>
6. So are Online Survey’s of Use?
This paper has attempted to highlight some of the research issues that must be considered if an online survey is to be implemented effectively from a personal research experience. We can see from both the theory and the practice, that there are many potential benefits that can be gained from taking advantage of the developments in technology. However, there are a number of lessons that have been learned from this personal journey into the use of the online survey method. These have been summarised in Table 2.0:

### Table 2.0: A Summary of Lessons Learned

<table>
<thead>
<tr>
<th>Process Stage</th>
<th>Lessons Learned</th>
</tr>
</thead>
<tbody>
<tr>
<td>Survey Design</td>
<td>One must not forget that the medium is the message. It is vital that the well-documented best practice in usability design is built into the survey design process. The technological interface should not be of consequence to the respondent. This means that technological innovations used to reduce the amount of errors on data entry should be used with discretion.</td>
</tr>
<tr>
<td>Survey Design</td>
<td>Form rules which activate mandatory field functions, should be kept to a minimum, otherwise respondents are likely to be confused or annoyed. The temptation to make as many fields as possible mandatory in order to reduce occurrences of incomplete or inaccurate data must be resisted at all costs. Failure to do so may result in respondents not submitting an online response.</td>
</tr>
<tr>
<td>Dissemination</td>
<td>E-mail invitations are an excellent mechanism for attracting respondents. Design of the e-mail and links to the online survey must also follow best practice usability design principles. E.g. the number of clicks required must be kept to a minimum.</td>
</tr>
<tr>
<td>Dissemination</td>
<td>Where e-mail newsletters are used, there must be careful consideration of where the research fits in the priorities of the newsletter content. Placing the link to the survey at the bottom of the newsletter is likely to reduce the response rates.</td>
</tr>
<tr>
<td>Dissemination</td>
<td>This consideration also extends to the research invitation appearing on a supporting website. Whilst online surveys can prove useful for convenience samples, it requires respondents from such a target population to be able to find the research in order to be able to ‘self-select’ themselves into the research. Obviously any negotiations that can be made to reduce this potential barrier must be negotiated early in the survey design process in order to be able to enable smooth dissemination of the survey.</td>
</tr>
<tr>
<td>Completion &amp; Submission</td>
<td>Respondents must be able to report a technical problem with the survey quickly and easily. In terms of timescales, errors on the web may result in hundreds if not thousands of potential respondents being unable to access or submit an online survey. Once the opportunity for the respondent to complete the survey has gone it is unlikely that they will return.</td>
</tr>
<tr>
<td>Completion &amp; Submission</td>
<td>Due to the reductions in mandatory fields discussed at the survey design stage, it is highly likely that online surveys may have missing or incomplete data. Hard copies of the same survey, completed manually, were completed to a higher standard. This has consequences for the analysis phase.</td>
</tr>
<tr>
<td>Analysis</td>
<td>The potential for missing data permeates to the analysis stage. The only solutions here are the standard approaches: to either use missing data statistical methods to deal with the issue or to approach the respondents to ask them to complete. The key lesson here is to ascertain the likelihood that there will be a high volume of missing data and make a trade off decision regarding whether or not to insert mandatory fields.</td>
</tr>
<tr>
<td>Feedback</td>
<td>If the online survey is used in conjunction with other more traditional methods of survey the timescales of the analysis may be extended. Where respondents have been invited to select into receiving a summary of the results, it may be necessary to make contact with respondents to inform them of an anticipated date by which the results will be issued.</td>
</tr>
</tbody>
</table>

In addition there have been two significant findings – one technology related and the other related to the organisation of the research.

### Table 3.0: Two key findings – a personal reflection

<table>
<thead>
<tr>
<th>Technology</th>
<th>Research organisation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Where an online survey method is used, the potential technological constraints that may be present for the end respondent must be considered in order to reduce problems and the potential to isolate respondents. When necessary, the lowest common denominator must be used at the expense of other features such as interface design.</td>
<td>Where the researcher does not have control over the dissemination of the e-mail invitation, there needs to be early communications with the third party research partner in order to ensure that the respondents will be targeted in the most effective manner possible. There is potential here for conflicting research priorities and negotiations around this should be factored into development time at the beginning of the process.</td>
</tr>
</tbody>
</table>
7. Conclusion

Whilst online surveys have their place in quality research endeavours and can prove a very effective method to reach your target population, the process may be more complex than first appears.

Technological innovations that seem tempting at first glance can prove difficult to manage and may inhibit respondents from submitting online survey's successfully.

We do not argue that by addressing all of these lessons one can experience a perfect implementation of a survey. Rather the aim has been to simply reflect on a personal journey and highlight the dangers of oversimplifying the benefits and pitfalls of online surveys. There is a danger that casting your net out too wide, in a bid to maximise responses can result ultimately in a low response rate.

The proclaimed time and cost benefits claimed by proponents of online survey research are not always applicable. We agree with the findings of Schonlau, Fricher et al (2001) that although useful, one may want to conduct an online survey in conjunction with more traditional methods in a bid to improve reliability and validity of the data collected. This would still enable the researcher to benefit from some of the economies of using an online approach, whilst hopefully reducing some of the problems of actually making contact with your target population.

References

Knowledge management: A critical investigation

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Abstract: The topic of knowledge management will be analysed from a critical perspective; as will the topic of knowledge creation (Nonaka and Takeuchi, 1995). To begin with, the key motivations behind the discourse of knowledge creation and management are briefly discussed. The contemporary distinction between tacit and explicit knowledge is then explored. Following this, the work of Lyotard on knowledge in a (post)modern economy will be summarised. The paper then explores how some work by Foucault may provide a new direction for developing critical research strategies in this area.

1. Introduction: Why “knowledge management”? In the last ten years or so, an explosion of literature on knowledge management has occurred. This literature is nearly all managerialist in tone, and it is underpinned by a belief in the competitive advantage that can be obtained from the exploitation of knowledge—both for companies and countries—in the developed world; a typical argument being:

“The long-predicted ‘information society’ and ‘knowledge economy’ are now emerging as tangible realities. Leading management theoreticians argue that it is much more profitable for a company to invest a given sum in its knowledge assets than to spend the same amount on material assets.” (Probst et al., 2000, p. 3)

The challenge is, then, to both to create new knowledge and exploit existing knowledge (within a firm) more aggressively than hitherto. Nonaka and Takeuchi’s (1995) work contains one of the seminal accounts of these processes, and provides prescriptions—forexample managers of competitive firms—concerning how to both create and exploit knowledge. They argue that, in order to persist, companies must perpetually offer competitive new products and services; moreover,

“Years of research on Japanese [and other Western] firms ... convinces us that knowledge creation has been the most important source of their international competitiveness.” (Nonaka and Takeuchi, p. viii).

As the marketplace is conceived of as being dynamic it follows that new knowledge is constantly needed for the existence of a company to be sustained,

“By organisational knowledge creation we mean the capability of a company as a whole to create new knowledge, disseminate it throughout the organisation, and embody it in products, services and systems... The goal of this study is to formalise a general model of organisational knowledge creation.” (Ibid., pp. iv-vi).

This approach - and that of many others in the knowledge management field—hypothesises (and, no doubt, encourages) an unprecedented desire for knowledge within the firm. As Fuller (2002) points out, this has little to do with a (quaint?) curiosity-based desire for knowledge. The knowledge management literature is focussed on the needs of competitive firms (or perhaps their shareholders),

“The realisation that knowledge is the new competitive resource has hit the West like lightning. But all this talk about the importance of knowledge — for companies and countries — does little to help us understand how knowledge gets created.” (Nonaka and Takeuchi, p. 7).

Philosophically, this is significant. Epistemology-to-date has been a largely regulative activity; most philosophers have concerned themselves with the question of how to evaluate a knowledge-claim (e.g. astronomy v astrology), and have largely left the generative aspects alone. The knowledge management literature stresses the generative aspects and leaves the regulative aspects largely untouched—indeed, the implication is that these problems have been solved. At times, one gets the distinct impression that as long as useful stuff is produced, then debates concerning the truth of this useful stuff are relegated to being (economically costly) scholasticism. There are profound implications of such a view, but further discussions of these lie outside the scope of this paper. To some extent, it can be argued that—from a critical perspective Lyotard pre-empted these arguments in the seventies. Lyotard’s contribution will be summarised shortly. One of Nonaka and Takeuchi’s key arguments is that knowledge falls into several categories; the primary distinction they draw is between tacit
and explicit knowledge. These distinctions will now be discussed.

2. Tacit and explicit knowledge

Here is an “official” statement of this distinction:

“Tacit knowledge is personal, context-specific and therefore hard to formalise and communicate. Explicit or ‘codified’ knowledge, on the other hand, refers to knowledge that is transmittable in formal, systematic language… Therefore scientific objectivity is not a sole source of knowledge. Much of our knowledge is the fruit of our own purposeful endeavours in dealing with the world…” (Nonaka and Takeuchi, 1995, pp. 59-60)

Explicit knowledge need not be subjective – and may reside in databases, written reports, etc. Tacit knowledge is further sub-divided into two – not entirely discrete – categories:

“Tacit knowledge includes cognitive and technical elements… Mental models [the cognitive elements] such as schemata, paradigms, perspectives, beliefs, and viewpoints, help individuals to perceive and define their world. On the other hand, the technical element of knowledge includes concrete know-how, crafts and skills. It is important to note here that the cognitive elements of tacit knowledge refer to an individual’s images of reality and visions for the future, that is, ‘what is’ and ‘what ought to be’.” (ibid., p. 60)

It should be noted that technical skills are primarily bodily skills.

3. Lyotard and the performativity principle

Lyotard was one of the first people to link knowledge-production to economic well-being in a systemic way, and – in some ways – the knowledge management literature is a sort-of “joyful” extension of this thesis:

“There is no denying the dominant existence today of techno-science, that is the massive subordination of cognitive statements to the finality of the best possible performance, which is the technological criterion. But the mechanical and the industrial, especially when they enter fields traditionally reserved for artists, are carrying with them much more than power effects. The objects and the thoughts that originate in scientific knowledge and the capitalist economy convey with them one of the rules which supports their possibility: the rule that there is no reality unless testified by a consensus between partners over a certain knowledge and certain commitments. This rule is of no little consequence. It is the imprint left on the politics of the scientist and the trustee of capital by a kind of flight of reality out of the metaphysical, religious and political certainties that the mind believed it held. This withdrawal is absolutely necessary to the emergence of science and capitalism.” (Lyotard, 1984, pp. 76-77).

However, as already stated, Nonaka and Takeuchi make a distinction between tacit and explicit knowledge; of these,

“…[The] more important kind of knowledge is tacit knowledge.” (ibid., p. viii).

Interestingly, if Nonaka and Takeuchi are taken seriously (and the management literature appears to do so!) then - for critical purposes – tacit knowledge is where the attention should be focused. However, much of Lyotard’s argument relates more-or-less entirely to explicit knowledge; tacit knowledge is not considered to be predominantly textual. Consequently – in this context - the critical solution to the problems of the performativity-principle, advocated by Lyotard, would no longer be tenable:

“We are finally in a position to understand how the computerisation of society affects this problematic. It could become the ‘dream’ instrument for controlling and regulating the market system, extended to include knowledge itself and governed exclusively by the performativity principle… But it could also aid groups … by supplying them with the information they usually lack for making knowledgeable decisions. The line to follow for computerisation to take the second of these paths is, in principle, quite simple: give the public free access to the memory and data banks. Language games would then be games of perfect information at any given moment.” (Lyotard, 1984, p. 67).

A critical theory of tacit knowledge dissemination will need to take a very different approach. Furthermore, Lyotard has little to say concerning the active management of the knowledge-creation processes in a site such as competitive firm.
4. Active management of the dynamic knowledge creation process

What specific interventions are involved in the creation of knowledge in the knowledge management literature? A supercilious answer might be that there as many answers to this (sort of) question as there are books on knowledge management! Nonaka and Takeuchi go to some lengths to explicate their theoretical and pragmatic assumptions, and these help to throw light on the issues which must be grappled with. To begin with we might ask, ‘how can knowledge be created at all?’.

Of course, it is commonsensical enough to state that knowledge-generation doesn’t “just happen”, but it also seems commonsensical enough to assume that knowledge is generally discovered rather than created. The key here is to note that the use of the term ‘created’ implies an active process (in fact, various dynamic processes are advocated):

“In our theory of organisational knowledge creation, we adopt the traditional definition of knowledge as ‘justified true belief.’ It should be noted, however, that while traditional Western epistemology has focussed on ‘truthfulness’ as the essential attribute of knowledge, we highlight the nature of knowledge as ‘justified belief’…. While traditional epistemology emphasises the absolute, static, and nonhuman nature of knowledge, typically expressed in propositions and formal logic, we consider knowledge as a dynamic human process of justifying personal belief toward the ‘truth’.” (Nonaka and Takeuchi, 1995, p. 58)

Truth is – most likely - in scare-quotes because the justification for the “stuff” generated will have to be grounded in the future; in consumer acceptance of the products (services, etc.), produced, as a result of the “knowledge” generated, in the competitive marketplace – rather than being grounded on any direct evidence of truthfulness. In a sense, this is perhaps the ultimate conclusion of the justification-by-performativity argument put forward by Lyotard (1984). What is different is that the exploitation (or liberation) of explicit knowledge is no longer deemed sufficient (or even central). Furthermore, the processes involved in active management of the dynamic knowledge creation process (i.e., knowledge management) have largely escaped critical attention hitherto. To critically examine the tacit dimension, other approaches may yield important insights; one approach being that Foucault’s analysis of pastoral power – insofar as it provides the beginnings of a genealogical approach to the study of the power / knowledge relations intrinsic in the typical contemporary descriptions - and prescriptions - of (tacit) knowledge management in competitive firms. Foucault’s conception of pastoral power will now be explored.

5. Foucault’s conception of pastoral power and Knowledge management

Foucault characterised this form of power thus:

“This form of power applies itself to immediate everyday life which categorises the individual, marks him by his own individuality, attaches him to his own identity, imposes a law of truth on him which he must recognise and which others have to recognise in him. It is a form of power which makes individuals subjects… the modern Western state has integrated into a new political shape, an old power technique which originated in Christian institutions. We can call this power technique the pastoral power… this form of power cannot be exercised without knowing the inside of people’s minds, without exploring their souls, without making them reveal their innermost secrets. It implies a knowledge of conscience and an ability to detect it.” (Foucault, 1982, pp. 212-214)

One of the main techniques of (old) pastoral power was the religious confession, vital for obtaining a deep knowledge of the subjects (their intentions, aspirations, secrets, etc.). The original aim of pastoral power (and its associated confessional technology) was religious salvation. Of course, in Western (mainly) secular societies, religious salvation may have lost its traditional significance, however Foucault argues that pastoral power, as a form of power, is still prevalent today - but in other guises:

“We may observe a change in its objective. It was no longer a question of leading people to their salvation in the next world, but rather ensuring it in this world. And in this context, the word salvation takes on different meanings: health, well-being, (that is sufficient wealth, standard of living), security, protection against accidents. A series of “worldly” aims took the place of the religious aims of the traditional pastorate…” (Foucault, 1982, p. 215)

It is in the appeal to secular salvation that the legitimisation of the active management of knowledge creation processes is grounded. Furthermore, these are processes which
transcend the normal boundaries of management understood as (an aspect of) traditional labour-capital relations - this is discussed further below. Foucault traces the genealogy of such a conception back to ancient Hebrew, Greek, and Roman civilisations, a key notion in the themes traced is that of the shepherd:

"I just want to show a few themes typical of pastoral power... The shepherd gathers together, guides, and leads his flock... what the shepherd gathers together is dispersed individuals. They gather together on hearing his voice: "I'll whistle and will gather them together."... In other words, the shepherd's immediate presence and direct action cause the flock to exist... The theme of keeping watch is important. It brings out two aspects of the shepherd's devotedness. First, he acts, he works, he puts himself out, for those he nourishes and who are asleep. Second, he watches over them. He pays attention to them all and scans each one of them. He's got to know his flock as a whole, and in detail. Not only must he know where good pastures are, the season's laws and the order of things: he must also know each one's particular needs... The shepherd's power implies attention paid to each member of the flock." (Foucault, 1988a, pp. 61-63)

The senior managers of knowledge-creating companies (in theory) display many of these features, as their role is to leverage both the tacit and explicit knowledge, generated at lower levels of the organisation, for competitive advantage:

"The basic role of knowledge officers, who are the senior managers of a company, is the management of the total organisational knowledge-creation process at corporate level... Knowledge officers should be aware that their aspirations and ideals determine the quality of knowledge the company creates. While the ideals of top management are important, on their own they are not enough; they need to foster a high degree of personal commitment by other members of the knowledge creating crew. To do so, an open-ended and equivocal vision, which is susceptible to a variety of interpretations, is preferable. A more equivocal vision, which is susceptible to a wide variety of interpretations, is preferable. A more equivocal vision gives members of the self-organising team the freedom and autonomy to set their own goals, making them more committed to figuring out what the ideals of the top really mean." (Nonaka and Takeuchi, pp. 156-157.)

The management of knowledge-creation cannot be achieved using old-fashioned disciplinary-hierarchical management techniques. Managing the “flock” of potential knowledge creators involves a good number of classic Foucauldian power/knowledge themes particularly “subjectification” – ways in which people turn themselves into subjects, which has been explained by Paul Rabinov thus:

"Foucault’s third mode of objectification represents his most original contribution. Let’s call it 'subjectification.' The process differs in significant ways from the other two modes... The dividing practices, broadly speaking, are techniques of domination ... The interplay between these modes of domination and various social scientific form of classification, although given new clarity and power by Foucault’s analysis and historical studies, has been recognised by other thinkers... In contrast, with the third mode, ‘subjectification’ – Foucault looks at those processes of self-formation in which the person is active.” (Rabinov, 1984, pp. 10-11 [emphases added])

The tacit knowledge creation process requires that the actors are dynamically self-forming to produce their own tacit knowledge – which can then be passed on (by various methods) to other members of the organisation for commercial exploitation,

"Let us start with the ontological dimension. In a strict sense, knowledge is created only by individuals. An organisation cannot create knowledge without individuals. The organisation supports creative individuals or provides contexts for them to create knowledge." (Nonaka and Takeuchi, 1995, p. 59).

However, to exploit such knowledge it will be necessary for it to be made available to others in the organisation,

"The explanation of how Japanese companies create new knowledge boils down to the conversion of tacit knowledge into explicit knowledge. Having an insight or a hunch that is highly personal is of little value to the company unless the individual can convert it into explicit knowledge." (Nonaka and Takeuchi, p. 11).

The self-forming activities the employee must undergo take place in several modes, both bodily and cognitive, as tacit knowledge can be
created in both ways (as outlined earlier). This is essentially the process of subjectification identified by Foucault,

“This self-formation … takes place through a variety of ‘operations on [people’s] own bodies, on their own souls, on their thoughts, on their own conduct’.” (Rabinov, 1984, p. 11).

Part of the requisite conduct-management will be the “pastoral” function of converting tacit (individual) knowledge to explicit (socialised) knowledge.

6. A critical analysis of the knowledge-creation process

Nonaka and Takeuchi (1995) provided four models of knowledge “conversion”. These will now be summarised.

6.1 Tacit to tacit

The process described for this conversion is socialisation. Tacit knowledge is gained from experience and this can be passed on to others. Bodily training is as important as anything cognitive in this process. This bodily training is largely to be self-initiated, and requires adequate pastoral arrangements / incentives, etc. It should be noted that (in theory) disciplinary procedures play no (or very little) part in this process.

6.2 Tacit to explicit

The process described for this conversion is called externalisation. This process is essentially one of making the (largely) bodily knowledge textual, although it will not always be possible to directly express this knowledge in prose or diagrams,

“ When we cannot find an expression for an image through analytical methods of deduction or induction, we have to use a nonanalytical method. Externalisation is, therefore, often driven by metaphor and/or analogy.” (Nonaka and Takeuchi, 1995, p. 65).

However, to be ultimately useful, such knowledge will need to be codified in fairly precise language. There may be considerable scope for further critical research concerning this mode of conversion

6.3 Explicit to explicit

This process is described (rather unfortunately, perhaps) as combination. Any cognitive learning from primarily textual sources (e.g. databases) falls under the rubric of ‘combination’. Interestingly, Lyotard’s (political) plea to “give the public free access to the memory and data banks” seems to have been taken on board within the boundaries of the knowledge creating company. Discussing the Kao corporation (in Japan), Nonaka and Takeuchi note the following:

“To assure ‘free access to information,’ computer systems have been introduced throughout the Kao organisation., with all information being filed in a database. Through this system, anyone at Kao can tap into databases included in the sales system, the marketing information system (MIS), the production information system, the distribution information system, and the total information network covering all of its offices in Japan. the unique feature of this system is that any member, no matter what his or her position or to what section she or he belongs, within the business system, has full access to the database (except for a limited amount of personal information). In other words, anyone can get access to the rich base of explicit knowledge that exists within the business system through this ‘free access to the information system’.” (Nonaka and Takeuchi, 1995, p. 172).

In a way, this is striking - no (or little) risk is perceived as a result of this policy; indicating a considerable discontinuity between this approach and the older “disciplinary” approaches to management (where security and “need to know” issues are paramount).

6.4 Explicit to tacit

The process described for this conversion is internalisation. This is hard to describe – Nonaka and Takeuchi suggest “learning by doing” (p. 69-70). Once again, the body is centrally involved, as it learns to behave in ways formally written down. Explicit operations on the body are central here, as this example shows:

“An example of internalisation through ‘learning by doing’ can be seen at Matsushita when it launched a companywide policy in 1993 to reduce working time to 1800 hours… the policy’s objective was not to reduce costs but to innovate the mindset and management by reducing working hours and increasing individual creativity. Many departments were puzzled about how to implement the policy, which was clearly communicated as explicit knowledge…[They] advised each department to experiment with the policy for one month by working 150 hours. Through such a bodily experience,
employees got to know what working 1800 hours a year would be like. An explicit concept, reducing working time to 1800 hours, was internalised through the one-month experience.” (Nonaka and Takeuchi, 1995, p. 70 [emphases added])

In this mode, written prescriptions will be internalised as bodily activities, processes, etc.

6.5 The four processes

These four modes of knowledge conversion very explicitly link operations on the body and the mind. The settings in which these are to take place hardly resemble the “disciplinary” organisation (of the past), however there are strong indications that subjectification processes should be occurring.

7. Discussion and conclusion

It is obvious that the knowledge creating company is (at least in theory) a very different beast from the disciplinary organisation. Many of Foucault’s later themes on power and subjectivity certainly seem relevant to analysing the power effects of knowledge creating companies on those who are employed within them, but it must be doubted as to whether these analyses could go beyond thematic conclusions. The most important examples given by Nonaka and Takeuchi (1995) are Japanese companies – genealogical studies have been mostly European. Whereas companies based in the USA follow many social patterns observed in European companies - and there are considerable similarities in the histories of North America and Western Europe at the ideological / genealogical level - very little (genealogical) material from Japan is available. Nor – until very recently – has there been a great deal of cross-fertilisation (of ideologies, social structures, etc.) between Europe / North America and Japan – although a review of the social structures, etc.) between Europe / North America at the post 1945, would seem worthwhile.

American influence (on Japan), immediately Nor – until very recently – has there been a great deal of cross-fertilisation (of ideologies, social structures, etc.) between Europe / North America and Japan – although a review of the social structures, etc.) between Europe / North America at the post 1945, would seem worthwhile. Nevertheless, genealogy concerns itself with what it is that makes management styles (etc., etc.) readily acceptable to people. In this respect many of Foucault themes will be worth revisiting (particularly those on subjectification) if the styles of management advocated by Nonaka and Takeuchi prove to be more than fleeting. But will they? Already the knowledge management displays many aspects of the bandwagon/fad effect of much prescriptive modern mismanagement literature. This study has focussed on Nonaka and Takeuchi’s (1995) work precisely because if it were to be widened to take into account the multifarious approaches to the topic of knowledge management, available in the literature, it might well prove impossible to do any serious analysis at all. Moreover, some knowledge management literature is now focussed on technology – particularly IT – rather than on management. At this point, it is worth mentioning that Nonaka and Takeuchi only include one extended discussion on IS (there is nothing on IT) in the whole of the 1995 book, and this discussion has been (largely) included in section 6.3 above. Assuming that Nonaka and Takeuchi’s work is durable (for the moment), a focus on technology seems to miss all the homilies about the importance of tacit knowledge – especially its bodily character. Furthermore, in this respected, it can be argued that the changes in management, seemingly advocated by Nonaka and Takeuchi, can appear to be (proposals for) changes in relations of production in European / North American firms, rather than changes in the forces of production (Adorno, 1968). Moreover, it is the illusion - that these proposed changes in relations of production – are (critically) substantive that appears to give rise to the some of the enthusiastic academic receptions of these ideas in Europe / North America, whereas – on the contrary – it is precisely because they are merely extensions / formalisations / etc. of techniques of management that have been gathering momentum since at least the 1960s that probably accounts for the enthusiasm shown by managers for these ideas. Prima facie, that the body must be re-invigorated as a productive force – even in the most sedentary of occupational settings – would be a management prescription that would hardly have surprised Michel Foucault. Further research is underway by the author to locate Nonaka and Takeuchi’s work in a wider discussion of the shift of emphasis - taking place at the present – from constant capital enhancement (e.g. new IT) to variable capital utilisation-enhancement (e.g. knowledge creation and management).

References


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Discourse analysis and complex adaptive systems: Managing variables with attitude/s

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Abstract: There have been long-standing debates about the relative values of quantitative vs. qualitative research, and of positivism vs. critical theory in management studies. In this paper we discuss the value of discourse theory and the tools of discourse analysis in the context of complex adaptive systems theory, which can usefully be seen as a synthesis of the thesis of modernism and the antithesis of post-modernism. Discourse has been developed and used in several disciplines, to interesting effect. It is now time to systematise the notion of discourse, and the tools of discourse analysis, both theoretically and practically, so that they can better be applied to management research, and to management practice.

Keywords: Discourse, modernism, post-modernism, complex adaptive systems, communities of practice

1. Introduction

Traditionally there have been debates on the merits of positivism vs. critical theory, quantitative vs. qualitative methodology, and modernism vs. post-modernism. However, we believe that these discussions can be approached quite differently. Complex adaptive systems theory can help us to achieve a “synthesis of modernism and post-modernism” (Byrne in Rihani, 2002:72). Similarly, discourse theory and discourse analysis can provide us with practical tools to apply this ‘synthesis’ to current management issues.

It is important to see the different modes of social organisation from modernist, to post-modernist, to Complex Adaptive Systems as, by and large, cumulative modes of social organisation, not as substitutive or oppositional theories. The point about complex adaptive systems theory, and discourse theory, is that different modes of social organisation and different epistemologies are applied in different contexts, and for different purposes. The cumulative development of these different modes is outlined in Figure 1.

2. Variables

Variables are the basis of research. There have been two fundamental developments in epistemology and research methodology, which share a common thread -- their radical scepticism. The first development, in science, overturned the uncritical conservatism of metaphysical and traditional practices, by its insistence on the criteria of falsifiability and replicability as the basis for rational truth and knowledge. This resulted in a body objective knowledge, which was stripped of context and subjectivity, and which was highly commodified, which is why much of it is defined quantitatively. Like money, quantified scientific results are highly exchangeable, which is both a result of scientific method, and a constituent part of it.

But science left culture largely undisturbed, by confining scientific scrutiny to the ‘social sciences’, which were not entirely successful in producing the same kind of ‘objective’ knowledge that could be produced in the natural sciences. The ‘individuals’ who were the object of study in the social sciences were not as amenable to the reductionist quantifiability of the natural sciences, nor did they perform very well on the other metrics of the natural sciences – predictability and determinism. ‘Social control’ and even ‘social engineering’ were tried, but remained elusive. This led to a long-standing, and still largely unresolved debate in the social sciences, of which management research is a part, on the divide between the two “cultures”: ‘science’ and ‘culture’, or natural and social sciences.

Natural and social sciences are embedded in language and social practices, much of which has become ‘naturalised’. The second development, the radical scepticism of post-modernism, challenged the uncritical conservatism of the epistemology of language itself; thereby challenging culture and society, and the notions of rationality, truth and the individual, which had become ‘royal game’ within the research establishment. It brought the radical scepticism of science under its own radical scrutiny

2.1 Dispersed Subjects

The semiotics of post-modernism contested the notion of the individual, particularly the apparently ‘objective’ notions of gender, race and class, and deconstructed the extent to which these are socially constructed, and the extent to which the notion of the individual is also socially constructed. Post-modernists replaced the ‘individual’ with the notion of the
dispersed subject; no longer one ‘identity’ - the individual - but ‘identities’: occupying various subject positions, within different discourses and discursive communities. Identity is no longer seen as ‘individual’ but as a process and a contestation within overlapping and even contradictory discourses – i.e. an intersection of the personal and the social.

Just as an ‘individual language’ is a non sequitur, so too the notion of the ‘individual’ itself came to be seen as a non-sequitur (a useful riposte to Margaret Thatcher’s claim that there was “no such thing as ‘society’ “). The idea of people shifting their identities was nothing new, except that it was now underpinned by a radical and systematic epistemological critique of language and culture. It is of course now also enhanced by the hardware and the architecture of post-modernism, i.e. the networked society.

2.2 Variables with Attitude

The point that discourse theory and complex adaptive systems theory make is that human ‘variables’, which are ubiquitous as the objects of study of management research, are quite simply not ‘objects’ but rather, subjects with identities (in fact, changing subjects). Moreover, this has specific methodological and epistemological implications.

Rihani writes that:

The new discoveries [in physics] did not prove Newton to have been in error. Essentially, they revealed circumstances where linear methods yielded excellent results, and others where they did not. More fundamentally, they established beyond dispute that some phenomena, now referred to as non-linear systems, are essentially probabilistic. They do not conform to the four golden rules associated with linearity: order, reductionism, predictability and determinism. Causes and effects are not linked; the whole is not simply the sum of the parts; emergent properties often appear seemingly out of the blue; taking the system apart does not reveal much about its global behaviour; and the related processes do not steer the systems to inevitable and distinct ends (2002: 68).

Snowden, writing on knowledge management, comes to much the same conclusion. He illustrates the difference between systems which are not adaptive, and human systems which are adaptive - precisely because they are made up of humans who have identities, or (what we refer to as) subject positions; people who are “subjects”, rather than “objects”:

**Human systems are complex; a complex (adaptive) system comprises many interacting agents, an agent being anything that has identity. We all exist in many identities; the author can be son, father or brother in different contexts; similarly with work group identities, both formal and informal along with various social groupings. As we fluidly move among identities, we observe different rules, rituals, and procedures unconsciously. In such a complex system, the components and their interactions are changing and can never be quite pinned down. The system is irreducible. Cause and effect cannot be separated because they are intimately intertwined Two examples make this clearer: Consider what happens in an organization when a rumour of re-organisation surfaces: the complex human system starts to mutate and change in unknowable ways; new patterns form in anticipation of the event. On the other hand, if you walk up to an aircraft with a box of tools in your hand, nothing changes. A feature of a complex system is the phenomenon of retrospective coherence in which the current state of affairs always makes logical sense, but only when we look backwards. Organisations tend to study past events to create predictive and prescriptive models for future decisions based on the assumption that they are dealing with a complicated system in which the components and associated relationships are capable of discovery and management. (Snowden 2002:17).**

There are particular methodological consequences of this. Human variables must be regarded as variables with identities, which are (particularly in a networked society) dispersed subjects. They are capable of acting powerfully and ‘changing the subject’ from time to time, and context to context. In short, they are ‘variables with attitude’, and are unlikely to be amenable to behaving as predictable and deterministic ‘objects’, no matter how complex the researcher’s psychological description and analysis of the subject is.

3. Complex Adaptive Systems

In complex adaptive systems it is not useful to look for directly, and predictably linked, causes and effects; instead, what one has to look for are emergent properties, attractors, and fitness landscapes. The solutions within complex adaptive systems are those that allow for
interaction between the ‘subjects’ with a substantial amount of freedom, but within supportive rules.

A large shift in mind-set is required

...from one suited to linear, highly predictable, systems to an approach based on non-linear, less predictable systems, in which internal chaotic interactions between local actors produce self-organised ... order (Rihani op cit: xv).

He goes on to say

for a system to exist in a state of self-organised Complexity, its internal elements should be capable of interacting at an appropriate level of connectivity and in accordance to suitable local rules (p9).

In other words, a network of communication between the people within the system, and a certain degree of freedom within a set of mutually acceptable rules are pre-conditions for ‘self-organised complexity’ to emerge. Self-organised complexity is distinct from either chaos or order, and the

management of complex adaptive systems is therefore a reiterative process that relies on slow, and uncertain evolution (ibid).

It is vital to note that this does not mean a linear approach is never valid; this is not an either/or approach. In the management of objects rather than subjects, a linear systems approach could be valid and appropriate.

It is also important to realise that complex adaptive systems are not merely systems which are complex, and which adapt – because they are made up of people with identities. They are particular systems, which have to be managed to elicit self-organised complexity (a fine balance somewhere between order and chaos), and which share four common traits:

- They have active internal elements that furnish sufficient local variety to enable the system to survive as it adapts to unforeseen circumstances
- They systems’ element are lightly but not sparsely connected
- The elements interact locally according to simple rules to provide the energy to maintain stable global patterns, as opposed to rigid order or chaos
- Variations in prevailing conditions result in many minor changes and a few large mutations, but it is not possible to predict the outcomes in advance (Rihani, op cit: 81).

4. Discourse

We are concerned in this paper to outline, both theoretically and practically, ways in which a combination of discourse theory and complex adaptive systems theory can indeed offer us a dialectical synthesis of the thesis of modernism/positivism and the antithesis of post-modernism. In order to do so, we need to build on the radical scepticism common to both modernism and post-modernism, and to extrapolate and build further on the notion of the dispersed subject. To this effect, we need to insert the dispersed subject back into the social – to put post-modernism back into sociology (without the linear and positivistic reductionism), back into communities of practice and discourse communities, but not ‘communities’ as they have been traditionally defined.

Rihani and Snowden both view linear and non-linear systems as what we would call different discourses - different ways of making sense of particular contexts (or all contexts, if you wish to be reductionist) and acting within them. There is an overlap between this notion of discourse, (and discourse communities that support and maintain particular discourses) and the concept of Communities of Practice (CoP). CoPs, as used in the ICT world, refer to groups of people who may be organised very informally, and who do not necessarily maintain, or seek to maintain, any integrated and sustained discourse over any considerable period of time. Although there may be similarities between this (ICT) understanding of a Community of Practice and the concept to we refer, there are distinct differences in that discourses are generally more structured and more stable

Discourses can be characterised in the following ways

1. Discourses in broad terms serve two related purposes, to make sense of the environment, and to order it accordingly. Or as Ferguson says, discourse is an “interpretative grid”, but it is also “a conceptual ‘apparatus’ ... that does something” (1994: xiv).

2. It is quite possible to approach the same issue from the point of view of quite different discourses.

3. The best intentions do not always work out in practice. Discourse is first and foremost about what actually happens. This might relate only ironically or paradoxically to what was intended.
4. And in overall terms, a discourse can be distinguished from other discourses by:

- Its primary concerned and /or focus
- How it identifies its key issues
- What kinds of solutions it advocates and implements
- What assumptions it makes about the desirability of and necessity for change
- How it changes and develops in terms of participation and consultation.
- The people who constitute the community of practice.
- How it relates to other discourses – does it take precedence or not and, if so, under what circumstances?

4.1 Discourses of Economic Development

A classic analysis of what actually happens within a particular discourse is that of economic development in Lesotho, in Ferguson’s book The Anti-Politics Machine (1994). He locates the intelligibility of a series of events and transformations not in the intentions of one or more animating subjects, but in the systematic nature of the social reality which results from those actions (op. cit:18, emphasis added)… and, continues the outcomes of planned social interventions can end up coming together into powerful constellations of control that were never intended and in some cases never even recognised, but are all the more effective for being ‘subject-less’… It is this emphasis on the ‘systematic nature of the resultant social reality’ that is the core of the notion of discourse here. It includes a framework for making sense of the world and for planning interventions, but it also includes what the anthropologist knows full well, namely “how easily structures can take on lives of their own (op. cit: 17).

Ferguson is not just stating that these are unintended outcomes. He says that it is often the case in economic development that …outcomes, that at first appear as mere ‘side effects’ of an unsuccessful attempt to engineer an economic transformation, become legible in another perspective as unintended … elements in a resultant constellation that has the effect of expanding the exercise of a particular sort of state power while simultaneously exercising a powerful depoliticising effect” (op. cit: 21)

- hence, the “anti-politics machine”. More specifically, Ferguson says later on: the ‘development’ apparatus in Lesotho is not a machine for eliminating poverty, that is incidentally involved with the state bureaucracy; it is a machine for reinforcing and expanding the exercise of bureaucratic state power, which incidentally takes ‘poverty’ as its point of entry … depoliticising both poverty and the state … Such a result may be no part of the planners’ intentions – indeed it almost never is – but resultant systems have an intelligibility of their own (op. cit: 255-6).

4.2 Discourses of Distance Education

Ferguson’s analysis of economic development in Lesotho is similar to Yates and Orivel’s analyses of the management of distance education. They found that distance education paradoxically often exacerbates inequity while increasing access. (Yates 2000, Orivel 2000).

Distance and Open Learning generally aims to provide access to quality education. The most important factors are:

- accessibility, cost, distance, equity of opportunity, and interaction in a supportive environment.

These are the stated aims of distance learning. But what actually happens? Or to put it another way, what is the effect of discourses of distance education on educational practices and provision, and what are the realities?

Perraton writes that research on distance learning can be interpreted in two ways. On the one hand, it has provided new forms and levels of access, and therefore increased equity in education, while on the other hand, it is a second-rate system used to offer a shadow of education while withholding its substance.
Perraton’s comments above (ibid) he not only says that distance learning can be interpreted in two different ways, but that “the evidence will fit either interpretation”. This is confusing and unhelpful. It would be better to analyse the different discourses that are at stake here, examining who maintains, defends and uses them, to what purpose, in which contexts and who successfully or unsuccessfully challenges them. Discourses at this level are not ‘equally valid’ options. They are political and social choices that have implications for what happens, what works, and for whom it works.

Within a discourse of input compliance for instance, one might use Perraton’s data to conclude that ‘access’ had been successfully provided. Then again, within an outcomes discourse, one might conclude that access had only been provided at the expense of equity and quality, and that it also functioned as a cross-subsidy from the poor to those who were already privileged and already had inequitable access to educational resources. Furthermore, one might conclude that the discourse was politically successful mainly in that it deceived the socially excluded into believing that what was being provided was part of welfare provision and promoted equity, rather than actually being a ‘dis-welfare’; in this case a double dis-welfare in that the recipients of dis-welfare usually subsidise the beneficiaries of welfare elsewhere in the system.

Orivel (2000) points out that:

The least developed countries have a simple choice to make: either they introduce new technologies in their schools at the expense of expanding school opportunities to currently excluded children, or they concentrate their limited resources on educational expansion, and thus renounce the chance to develop new technologies in their school systems. As long as GDP per capita remains highly unequal from one country to another, the capacity of new technologies to reduce the education gap will not constitute a viable option (op. cit. 138).

He takes a traditional, linear, economic approach to the discourse of Open and Distance Learning. An Economic Discourse looks for, and at, discrete variables that can be reduced to numbers. In this case, ‘technology’ is one discrete variable, and ‘education’ the other. ‘Technologies’ are further reduced to NICT (“new information and communication technologies”), which are further simplified by saying...
the best assumption one can make is that one hour of learning in both cases [face-to-face teaching vs. CAI] generates on average the same educational outcome.

At this stage the content has been so over-simplified that one wonders whether Orivel, is talking about anything at all, apart from numbers)

The only alternative for Orivel is the low-tech approach of teachers’ talk-and-chalk. He believes that there is, in effect, a ‘simple’ choice between low-tech and high-tech. And goes on to argue that for as long as we have large inequities in GDP per capita, virtually no developing country should use ICT in education. That might be a very long time, and seems a rash statement, even though he later qualifies this by specifying that the threshold for the use of ICT in education is $7,300 per capita GDP. Nevertheless, that too will be a long time in coming in many countries. There are many problems here, apart from the extensive economic reductionism. Technological change and the adoption and implementation of new technologies doesn’t happen in discrete variables – certainly not that discrete.

What is needed is not the sudden transformation of education through the use of technology, but rather the step-wise addition of features for communication and learning; not a complete change of systems. Besides, CAI has not been at the top of anyone’s priority list since the late 1980’s. What learners and educationalists are exited about now are the possibilities that ICT offers for interaction with humans, not machines. CAI will continue to have its place, if it can be justified in terms of costs, but it’s only a drill-and-practice box, and an interesting box to help you ask further questions. The enthusiasm for ‘expert systems’ has also faded, and what is left are useful simulation and modelling systems which are best used to find better questions, rather than better answers. What’s more, these simulation and modelling systems are even more specialised and more expensive than CAI, and are only appropriate and feasible in a business strategy environment, not a basic learning environment.

Not every teacher needs to have a desktop computer or a high-powered laptop. The issue is that learners and teachers need to be connected to humans and machines in a network that as a whole will provide them with incrementally better learning and teaching, and personal knowledge management opportunities, as well as support through a carefully structured environment, which includes materials that form a well-designed and integrated package. Too often e-Learning ‘opportunities’ are planned as low-budget ventures with little regard to the participants. It’s not a numbers game to see if everyone can master every skill that is available, nor should it be seen as a purely economic venture, although one clearly has to take account of budgets and costs.

Within a network configuration approach to learning-and-communication we are no longer dealing with independent variables in the strict sense of the term. Orivel’s approach assumes independent (and discrete) variables: he assumes that we are dealing with inputs such as CAI/NICT from the outside, which are applied to/inserted into a fenced-off domain called ‘education’, much as an economist would approach issues of production and consumption. Orivel’s application of traditional economic discourse to (N)ICT-enhanced education is not an example of a ‘possible’ and ‘equally valid’ discourse, which one might choose to analyse networked learning. It is simply wrong. It’s not applicable at all. The whole point about networked distance learning is that it is a configuration within which learning takes place, and where all of the learners (consumers) are potentially contributors (producers) as well. The learners and teachers are part of a network (which extends to many others, quite outside the education sector), which as a whole makes up the networked learning environment. They are no longer consumers of externally produced goods and services, in the way that the earlier beneficiaries of mass education were, and if they continue to be seen as such, networked learning will never take off.

Orivel makes revealing comments about the key factors that allow developing countries to achieve some measure of mass education in the current context. He cites the example of China, to which Rihani also refers (op. cit: chapter 3). China, says Orivel, is a “special case, where the dependency ratio [the ratio of people in the workforce to people not in employment] has fallen dramatically, and where unit costs are also very low. This unusual combination of factors allows China to allocate a lower percentage of GNP to education without sacrificing the objective of expanding education opportunities. In addition, China is able to allocate more resources to physical investment” (op. cit: 146). In other words, because China has lowered the birth
rate, the ‘dependency’ of young people - for funds to pay for their education, on older people - who are taxed to provide those funds, is lower. In comparison to other developing countries, more people are working and paying taxes, and fewer people are at school. That, combined with low ‘unit costs’ (i.e. low teachers salaries) enables China to provide mass education without eating too much into GNP.

This is a sound argument, and a good economic analysis. The answer would seem to be plain. Education for All can be achieved; you just need to reduce the birth rate, and everything will fall into place. But then Orivel ducks the issue, and defaults to the comfort zone of a linear economic discourse. He says, very tellingly, that although this argument may have some policy relevance in terms of priorities", one must remember, "it is easier to manipulate unit costs than fertility rates" (ibid, emphasis added).

In other words we are back to the overriding linear (modernist) discourse in which ‘education costs’ and ‘reproductive health’ are regarded as discrete variables and domains, an economic discourse in which such messy (and unmanageable) variables as ‘fertility rates’ are seen as ‘unsuitable’ for intervention, especially given the reductionist / correct, political environments of today. It’s a discourse in which objectifiable, quantifiable, discrete, independent variables are fore grounded, and in which continuous, complex adaptive human subjects and their behaviours are excluded because they are ‘more difficult to manipulate’.

4.3 Primary Health Care Management

Discourse analysis can also assist in analysing seemingly coherent management domains such as Primary Health Care, where there are in fact a number or disparate discourses in operation. These can undermine the very notion of a Primary Health Care system. One only needs to think of the ‘subjects who make up the communities of practice that intersect across the sets of ‘sub-disciplines’ of primary health care, all of whom may be intent on doing their job well, but few if any of them effectively contributing to the management of a Primary Health Care system. The examples from Distance Education and Development Discourse call attention to areas of contestation in the Health Care sector, and foreground how theories of discourse and Complex Adaptive Systems can inform the way we manage the demands presented by opposing subject positions, and ‘variables with attitude’.

5. Conclusion

We have examined the development of different modes of social organisation and knowledge, and outlined the ways in which modernism and post-modernism can be said to share a fundamental characteristic – radical scepticism. We have also argued that complex adaptive systems can be seen to be a synthesis of the thesis of modernism and the antithesis of post-modernism. Finally, we’ve touched on the how complex adaptive systems theory can be used to systematise the use of ‘discourse’ in the management of development economics and distance education. This requires a shift in our thinking from linear to non-linear systems, and from objective variables to human ‘variables with attitude’ – i.e. with identities as ‘dispersed subjects’. In terms of both discourse and complex adaptive systems, it is important to note that the intelligibility of a series of events and transformations [is to be found] not in the intentions of one or more animating subjects, but in the systematic nature of the social reality which results from those actions” (Ferguson 1994:18).

References

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<td><strong>Variables</strong></td>
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<td>Nature and Society as Objects of Study, with some cognisance of Individual Identity, the unconscious, etc.</td>
<td>Highly constructivist notion of variables as ‘socially constructed’. 'Individuals' replaced by 'dispersed subjects'.</td>
<td>Different types of variables, for which different modes of discourse are appropriate. ‘Subject positions’ within various CoP.</td>
</tr>
<tr>
<td><strong>Epistemology</strong></td>
<td>Experience</td>
<td>Reason</td>
<td>Ironic Experience/ configurations</td>
<td>Virtual/immediate experience/ configurations. Just-in-context Strategic Knowledge</td>
</tr>
<tr>
<td></td>
<td>Tradition</td>
<td>Falsifiability</td>
<td>Just-in-context Strategic Knowledge</td>
<td>Ecologies and Configuration of CoP</td>
</tr>
<tr>
<td></td>
<td>Metaphysics</td>
<td>Commoditised, Objectified knowledge/procedural information.</td>
<td>Useful algorithms &amp; discourses</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Metaphysics &amp; Truth</td>
<td>Rational Truth</td>
<td></td>
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<tr>
<td><strong>Management</strong></td>
<td>Tradition, Obedience</td>
<td>Compliance, Administration</td>
<td>Executive Management of Configurations</td>
<td>Ecologies and Configurations of CoP. Chaos, Emergent Properties, Sticky Events, Historical Accidents</td>
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<td></td>
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<td>..... Executive Management</td>
<td></td>
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</tr>
<tr>
<td><strong>Markets</strong></td>
<td>Local, barter +</td>
<td>Commodities</td>
<td>Globally transparent</td>
<td>Virtual / CoP.</td>
</tr>
<tr>
<td><strong>Entrepreneurs</strong></td>
<td>?? Preserving, expanding</td>
<td>New algorithms</td>
<td>New configurations</td>
<td>New ecologies &amp; configurations.</td>
</tr>
</tbody>
</table>

**Figure 1:** Cumulative Modes of Social and Epistemological Disciplines:
Telehealth in the UK: A critical perspective
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Abstract: This paper reports on the multi-layered research into telehealth in the UK conducted through a critical theory perspective. Telehealth is an umbrella term for health services delivered at a distance and, more specifically, over various telecommunication networks. The paper aims to offer an alternative perspective on telehealth, focusing on rationalities, knowledge claims and ways of legitimising telehealth. The paper concludes that there are competing and difficult to reconcile rationalities influencing telehealth, conflicting knowledge claims and no commonly agreed ways of legitimising telehealth.

Keywords: Telehealth, Information systems, Critical theory

1. Introduction
In healthcare, information systems are now expected to support goals of increased efficiency, effectiveness and quality of care. This is to be achieved by, for example, facilitating the move towards evidence-based medicine, monitoring performance, improving communication and co-operation between different organisations and professionals, and empowering patients (DOH 2000, DOH 2002, NHS Executive 1998).

New technologies and services – broadly defined as telehealth - are being implemented to support this vision. Telehealth is an umbrella term for health services delivered at a distance and, more specifically, over various telecommunication networks. This paper uses the term telehealth, rather than telemedicine, to highlight the diversity of services that can be offered (e.g. from remote surgery to monitoring systems or health information on the Internet), and the variety of settings in which such services are produced and delivered - in hospitals, doctors’ surgeries, community settings and homes.

Since telehealth appeared at least 40 years ago, the majority of early projects did not survive the end of grant funding or trial financing (Darkins and Cary 2000, Perednia and Allen 1995). In the late 1980s and early 1990s there was a renewed interest in telehealth. Today, services offered include teleradiology, teleneurosurgery, telepsychiatry, transmission of echocardiographic images, electronic referrals, and video conferencing between primary and secondary healthcare providers. In the UK, the majority of services are provided by pilot, small scale projects (Klecun-Dabrowska and Cornford 2002).

The research into telehealth has been primarily concerned with technology and its performance, technical and to a lesser extent economic and organisational feasibility of telehealth services, legal considerations and ways of evaluating telehealth. The majority of literature on telehealth reports on individual projects and often on this (limited) basis makes claims regarding benefits of telehealth. Alternatively, ‘visionary’ works make sweeping statements about telehealth and its potential for solving (all) shortcomings of current healthcare systems, particularly in terms of (immediate) access to specialists and medical knowledge. The proponents of telehealth point out its potential to contribute to more equitable healthcare reaching for example, geographically and socially excluded populations, to develop enhanced modes of service delivery for health, and to reduce or at least contain the escalating costs of healthcare provision. However, many claims regarding benefits of telehealth to healthcare professionals and, importantly, to their patients, are not well documented. The literature review suggests that research on telehealth suffers from methodological shortcomings and weaknesses in data, making it difficult to substantiate claims of its proponents (Hakansson and Gavelin 2000, Whitten et al. 2000).

The research reported here was undertaken by the author between 1996 and 2001. Although sharing many of the concerns voiced in the telehealth literature, this research sought to go beyond immediate and operational concerns and attempted to address fundamental assumptions about the nature and the role of telehealth, highlighting different rationalities underpinning telehealth. With this goal in mind a critical perspective was adopted, based primarily on the Frankfurt School but also enriched with more recent insights of post-structuralism, post-modernism and information society theories. The research also aimed to combine a local, situated study with a wider societal perspective. To this end a three-layer approach, spanning policy and strategy issues (macro layer), local strategies (community
The aim of this paper is to present critical analysis of telehealth in the UK, complementing the existing literature on the subject, and to provide an example of a critical study, still a rare occurrence in the information systems (IS) discipline. The focus is on different rationalities and knowledge claims underpinning telehealth and on legitimisation practices.

The paper’s structure is as follows. It starts by outlining critical theory and its position on technology. It then presents an overview of the main findings, discussing concepts of telehealth constructed at national, local and project levels and relating them to wider, societal trends. This is followed by a discussion of the contributions of the approach chosen to developing a greater understanding of telehealth.

2. Critical theory
This section introduces the main tenants of critical theory relevant to this study. This introduction is necessarily brief as the paper’s focus is on applied critical research rather than on theoretical discussion.

Critical theory is not homogenous and those who are classified as critical theorists did not present a unified front. Immediately, we can distinguish two different traditions concentrated around the Frankfurt School and more recent work of Jurgen Habermas. Also, Foucault’s works are often seen as belonging to both post-structuralist and critical schools (Olssen 1996).

Critical theory rejects the tenet of traditional science that the researcher needs to take a role of an uninvolved observer and his or her work should be free of value judgement. Meaning, in the critical tradition, defies the positivist imperative of reducing it to structural variables. At the same time, by referring to normative values, it goes beyond relativist interpretations. The central idea in the critical perspective is that all social phenomena are historically created and conditioned. Social conditions, often constraining emancipation and limiting one’s potential, are created and recreated by man. They cannot be easily changed because they are related to structures, which are historically constituted. Nevertheless, critical theorists aim to support people in the realisation of their potential and, through altering dialectic relations, influence structures that limit them (Horkheimer 1972a [1944], Horkheimer 1972b).

Critical theory comes under criticism from two corners, those who in principle agree with the main tenets of the theory but dispute some of its aspects or omissions and point out difficulties in its application, and those who dismiss critical theory altogether. The most fundamental criticism — and something we would not even consider refuting here — denies the notions of subjectivity and values in social investigations and instead considers social sciences to be (or at least should be) objective and neutral.

Others accuse critical theory of elitism, departing from its Marxists roots, overplaying the notion of human autonomy and consciousness, or point out difficulties in translating its principles into actions. We discuss these points and their refutations in Klecun-Dabrowska (2002a). Here we only highlight what we consider the most substantial criticism of critical theory, that is questioning of fundamental assumptions behind critical theory’s claim to provide a rational grounding for its normative standards. This is because these standards are based on knowledge, and knowledge is intersected with power (Foucault 1980, Lyotard 1984). This implies that the concept of emancipation cannot be unified and made coherent, or may itself become oppressive (Bauman 1993, Kincheloe and McLaren 1994).

Although acknowledging these problems, we argue that critical theory rejects totalities and dogmas and encourages reflexivity, even if it does make an appeal to some ‘intuitive’ normative values. Undermining those would lead to absolute relativity, when there is no good or bad — just different interpretations. Furthermore, the break with meta-narratives, proposed by post-modernists and post-structuralists, should lead to more, not less, critically aware works. When we accept that the old meta-narrative of class or economic emancipation no longer serves as the master narrative we can complement it by emancipation narratives of feminism, eco-warriors, human rights groups and other movements. Furthermore, the post-structuralist focus on localities does not make invalid grand critical projects, but rather illustrates the need for researching contextual specificity of the local, as well as larger organisations and structures.
Thus we believe that critical theory offers genuine insights into human condition and that it can be enriched by more recent theories. When considering what it means to be ‘critical’ in IS research, the researcher agrees with Brooke (2002) that it is the emancipatory interest rather than the detailed following of any one particular theorist that is important, providing that the underlying theoretical values and assumptions are explicated and, we would add, providing they are not incommensurable.

3. Critical theory and technology

Our assumptions with regard to technology, including ICT are rooted in critical theory position that sees technology not as autonomous but as an instrument of social control placed in the hands of the ‘vested interests’ which control society (Feenberg 1991, Marcuse 1970).

Critical theory argues that technology is not a thing in the ordinary sense of the term, but an “ambivalent” process of development suspended between different possibilities. This “ambivalence” of technology is distinguished from neutrality by the role it attributes to social values in the design, and not merely the use, of technical systems. On this view, technology is not a destiny but a scene of struggles. It is a social battlefield, or perhaps a better metaphor would be a parliament of things on which civilization’s alternatives are debated and decided. (Feenberg 1991 p 14)

Elaborating on this statement we suggest that technology embodies values and norms of its designers and sponsors (as, for example, illustrated by social constructivists) but these do not come into play until they are drawn upon in use, and then they (and the technology) can be re-interpreted (Woolgar 1996, Orlikowski 2000). Yet, we are not free to assign any interpretations to technologies, as we are bounded (to a greater or lesser extent) by their characteristics, by organisational context, by wider economic and political interests, and as critical theorists would argue, by our own consciousness. Often technology appears if not autonomous then at least self-augmenting (Ellul 1964, Winner 1977). Yet, critical theory contests the notion of inevitability and leads us to realise that we are conditioned to accept a techno-economic regime.

Critical theory is not specifically concerned with ICT and many, even contemporary works remain vague on this subject. In the field of information systems the call to follow emancipatory principles of critical theory have been explicitly voiced by a growing (although still somewhat limited) number of researchers (Doolin and Lowe 2002, Hirschheim and Klein 1989, Hirschheim and Klein 1994, Jonsson 1991, Lyytinen 1992, Lyytinen and Klein 1985, Myers and Young 1997, Ngwenyama 1991, Saravanamuthu and Wood-Harper 2001, Wilson 1997) and others. The majority of papers draw on Habermas theories, although there are calls for broadening this interest (Brooke 2002). Lyytinen (1992, p 171-172) presents general requirements for critical IS research:

In order to move from fragmentary critical IS research to systemic ‘praxis’-oriented research, future studies should change their goals and research content. The inquiry needs to shift from critique into more concrete and problem-focused studies of the implications of Critical Theory for IS. The studies should incorporate several dimensions into the analysis of computing in organizations: totality/concrete situations; lifeworld/system structure; current status and evolution/history etc., associated with an understanding of, and focus on, ideology criticism (for example detailed description of instrumental reason) and emancipation. […] In this research model, critical inquiry is concerned with the improvement of the human condition through IS, criticism of alienated and distorted practices, development of alternative IS forms and organizations, and with finding and enclaving an arena for emancipatory IS activity.

Yet, despite this call and an increasing interest in critical theory in the IS community, there are very few papers describing actual applications of critically led projects, with exceptions including papers by Waring (1999), Howcroft and Wilson (1999), Myers and Young (1997), Oliver and Romm (2002), Cecez-Kecmanovic et al. (2002) and McAulay et al. (2002).

4. Research approach

Critical theory is eclectic with respect to the use of techniques of investigation (Morrow and Brown 1994). However, somehow the gap between philosophical foundations and practical research must be bridged. In this study, the research methodology was based on hermeneutic inquiry within a normative framework. Hermeneutics was treated as a research method rather than a theoretical approach (it can serve as both). The researcher followed the hermeneutic circle of understanding (Gadamer 1976) when conducting the analysis of UK policy and
strategies documents and empirical research. The hermeneutic circle expresses the need to understand the parts of a text through the understanding of the whole, while the understanding of the whole is determined by our understanding of its parts. The process of reading and interpreting is not finite; there is no definite point at which our understanding becomes complete. Thus, a number of readings were conducted within different circles. Each document or interview transcript was considered as a whole and its sections as parts. However, the 'whole' was also understood as something much bigger. The policies, local initiatives and projects themselves were considered in the light of the health and medicine debate, other national and international policies, political discourse, and general trends in the society.

The empirical study was based on critically-interpretative and exploratory case study of interrelated strategies, initiatives and telehealth projects in South London. Qualitative research methods were used, including largely unstructured interviews and when possible direct observation. A number of public forums (discussing issues around health, ICT and the local population’s needs), local and national workshops and project specific meetings were attended. In total 43 people were interviewed, mainly healthcare professionals and researchers, those involved in telehealth projects, representatives of local government and the Telemedicine Policy Team.

5. Telehealth in the UK: Competing rationalities and legitimisation claims

Having described the research process, this section briefly outlines some of the research findings. These are necessarily very general and a more detailed description can be find in (Klecun-Dabrowska 2002a). Our aim here is to highlight main themes and controversies.

We start by situating telehealth in the context of recent trends in healthcare. In the field of medicine scientific rationality has become dominant in the last century (although never totally eradicating other rationalities). The focus has shifted from caring for the person to curing the disease. Nevertheless, at least in the last two decades, the scientific rationality has been challenged by changing understanding of health and illness. The debates about new models of care based on notions of health, wellness and holistic model of care have permeated societal and policy discourse.

However, these developments do not necessarily constitute a major shift in practice. Moreover, the implementation of ICT-based systems and services, including telehealth could be perceived as a continuation of the process of managerialist rationalisation that has permeated healthcare provision in the western world in the past half century. This process can be seen, for example, in the long history of reorganisation of the UK’s National Health Service (NHS) and in the recent trend towards evidence-based medicine (DOH 1997). Critics see this process as going further, as a medicalisation of peoples’ problems, people themselves, and the services that they are offered (Hillier 1987). For example, Cribb & Barber (1997, p 298), discussing drug-prescribing practices, suggest that "The biomedical paradigm does not only dominate in research, but is also employed to frame policies and guidelines."

In the UK’s policy ICTs are often given a transformative role and telehealth is increasingly understood and projected as being able to re-shape the way health care is delivered, remotely instead of person-to-person, in home rather than in hospital, to groups rather than to individuals, and across traditional institutional boundaries (DOH 1997 1999, DOH, 2000). Yet this transformative role is perceived firmly within boundaries of long-established goals, particularly of providing care regardless of people’s social class or geographical location. Understood in this way, this role fits in well within the overall discourse of social responsibility and community values present in the policy documents.

Such a discourse then implies that telehealth can develop within a framework of actions aimed at combating social exclusion, increasing social cohesion and bringing better health care to the worst off. In policy documents ICTs are explicitly depicted as means of (positive) social control. Telehealth is then not only seen as medicine or a medical technology or even as a clinical practice but as a societal and community service.

Yet, the policy documents give rise to other expectations too. The intertwined managerial discourse directs attention to efficiency and effectiveness. This means that the role of telehealth is seen additionally, or perhaps most importantly, as helping to contain costs of healthcare.
The policy papers imply that these different roles can be reconciled and that telehealth can provide better and at the same time more cost efficient services. Yet, this may not be so easily achievable and one of the discourses, probably the managerial, may exert a dominant influence on the developments in telehealth.

Furthermore, a number of authors note that information systems not only acquire meanings within a managerialist discourse, but may also in turn reinforce the trend towards managerialisation (Bloomfield 1991, Doolin 1999a, Doolin 1999b, Ferns and Mowshowitz 1995). In this vein, telehealth too is expected to subtly alter medical practice, e.g. by facilitating the practice of evidence based medicine (through access to on-line information resources and introduction of protocols). Such changes are promoted by the government as positive, as setting standards, increasing (and equalising) levels of performance and identifying poor performance. Yet, as critical theory invites us to consider, technologies and technological systems may have less welcomed effects. Thus they may lead to increased rationalisation of healthcare, stifling innovation, artificially standardising treatments and assessments of performance (without taking into account local conditions and situated rationalities) and thus limiting professional freedom. We could imagine rationalisation of healthcare expanding towards rationalisation of our lifeworld (to use Habermas’ expression), for example in the way the elderly and fragile are being cared for. To the degree that this is the case or becomes the case, telehealth would then serve a health service dominated by techno-economic rationality.

However, in addition to the managerialist discourse there are other potentially counter-active powers, e.g. of healthcare professionals. Thus, managerialist-driven applications of IS are resisted by the medical profession and often fail or are re-interpreted (Doolin 1998, Doolin 1999a). Thus different discourses and interests (uncomfortably) co-exists, without achieving total dominance.

The figure 1 below summarises, in very simple terms, different meanings of telehealth that arise from different trends.

<table>
<thead>
<tr>
<th>Concordist</th>
<th>Antagonist</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Trends</strong></td>
<td><strong>Trends</strong></td>
</tr>
<tr>
<td>Discourse of social responsibility &amp; community values; health prevention, primary care-based &amp; patient-centred services; patient empowerment</td>
<td>Managerialist discourse; ‘reform’ agenda with focus on efficiency &amp; effectiveness; limited resources</td>
</tr>
<tr>
<td><strong>Meanings (roles) of telehealth</strong></td>
<td><strong>Meanings (roles) of telehealth</strong></td>
</tr>
<tr>
<td>Improving healthcare &amp; making it more equitable (fighting geographical &amp; social exclusion); Empowering patients &amp; professionals; Supporting communication &amp; co-operation between different groups &amp; organisations</td>
<td>Enabling financial control (e.g. monitoring budgets); Enabling clinical governance (e.g. enforcing standardisation); Shifting power relations and responsibilities; Technical solutions to save money</td>
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</table>

**Figure 1** Meanings of telehealth

In our study of projects in South London we wanted to see if local rationalities reflected these trends. We investigated a number of different projects in the area; four at a greater depth: (1) a telepsychiatry service allowing consultations to take place in a family doctor’s practice linked to a hospital-based consultant via teleconferencing equipment, (2) an early pregnancy assessment unit with a telemedicine link for ultrasound scans and teleconferencing to hospital consultants, (3) web-based information and limited interactive services for people with mental health problems, (4) SeaHorse project utilising the potential of ICT (e.g. the Internet, CD-ROM) for supporting people with HIV/AIDS and facilitating collaboration between carers. We noted that these projects did not seem to follow exclusively or narrowly techno-economic or managerialist rationality. They did not focus on cost-efficiency, managerial control or even techno-medical solutions. Rather they seemed to support models of care based on a holistic understanding of ‘wellness’, framed in social
rather than purely medical terms, and are often aimed at serving socially excluded groups. The first reading of the projects indicated that the overall aim to which telehealth was employed was to improve the health of the population. However, as in national policy papers, in local strategies and project reports telehealth was conceptualised as largely unproblematic.

Our subsequent interpretations or ‘readings’ of the projects gave hints of sometimes conflicting interests or approaches adopted by different stakeholders, their struggle to find common meanings, constraining structures (e.g. the organisational culture, legal matters or lack of funds and skills), and different ways in which the notions of empowerment and social exclusion are perceived and acted upon.

The projects studied alleviated some of aspects of social exclusion (of individuals, patients groups or healthcare workers) in terms of access to information or services, and to a lesser extent, opening new communication channels, and forming self-support groups. However, not always the processes of exclusion were adequately addressed. Furthermore, the interpretation of the projects in the context of financial pressures faced by the NHS and the social services implies that eventually such services may be seen in terms of ‘saving costs’ and that this can only be achieved if traditional services are reduced.

Similarly, we must be wary of the empowering claims attributed to different technologies. The projects discussed suggest that telehealth can be used towards empowering patients, citizens and healthcare workers but also that technologies can only play a small part in the process of self-empowerment or self-emancipation. The projects’ claims regarding empowerment of patients/citizen seemed to be overstated. Also, sometimes ‘empowerment’ can mean unwelcome shifts in responsibility and workloads and privileging one group over another. Thus, empowerment (and emancipation) cannot be seen in absolute terms and there are many competing, situated rationalities.

What is interesting from the critical perspective, is that the projects were bottom-up, reflecting aspirations of critical theorists of post-modernist era (Bauman 1993) promoting emancipation as a local and situated concept. The projects’ evaluation practices revealed how difficult it is to evaluate telehealth projects and that an assessment of societal aspects, as well as in terms of social exclusion and empowerment, is particularly challenging, and often left undone. Evaluation, if done, is often limited to patient satisfaction studies and technical performance of the system.

Evaluation of telehealth is a hotly debated subject. Often, seeing telehealth as a ‘drug’ or medical technology means that legitimisation is sought through the strongest medical approaches, including randomised-controlled trials (RCT). One of our interviewees saw RCT as a way of protecting the public against techno-managerialist rationality and vested interests of commercial suppliers. While another suggested that in some cases RCT seem more motivated by a desire to achieve credibility in the medical community than belief in the value of findings.

Although in the contemporary context the medical dimension of telehealth is perhaps the strongest, telehealth may also be conceptualised as an information system in the context of organisational transformation, and this implies a need for different a type of evaluation (and legitimisation). In the information systems discipline the dominant scientific / engineering rationality has been challenged by interpretive (and to lesser extent) critical perspectives. Much of the discussion about evaluation has evolved around the appropriateness of ‘scientific’ methods, e.g. cost-benefits analysis, return on management or return on investment. It is increasingly acknowledged that information systems are socio-technical ensembles that need to be evaluated in their organisational (and situated) context and that the process of evaluation itself is political.

Similarly, within the area of telehealth some researchers suggest undertaking evaluation of telehealth projects in their normal settings (rather than under laboratory conditions), using qualitative methods, and focusing not only on the clinical or therapeutic outcomes but also on changes to work processes, institutional structures, and the doctor/patient relationship (Heathfield et al. 1998, May and Ellis 2001, McDonald et al. 1997).

Critically-led evaluation appears to be missing although a societal/community dimension of telehealth is often acknowledged. Yet, we cannot stop asking: what sort of health service and, more generally, society would telehealth encourage and re-enforce? Would it support the view that health care is a public good or alternatively a private commodity? Ultimately, will it support caring society, based on human
contact and social inclusion, as well as individual and community empowerment, or will it further extend the hold of instrumental reason, increasing alienation, and distorting the concept of individual choice and empowerment to mean commodification of health and information?

This study suggests that telehealth will always have not one but many ambiguous meanings and ‘consequences’, and the ‘transformation within’ of telehealth technologies will always be a difficult process of negotiating between conflicting aims and vested interests, and constrained by existing structures (e.g. organisational boundaries or budgets). Many of the issue concerning telehealth mirror wider debate about information society, e.g. centralisation versus decentralisation, devolution of power versus control and standardisation. Nevertheless, our findings suggest the need to contextualise telehealth and place it within people’s and communities working practices and daily lives, as well as within wider reforms striving towards (some form of) emancipation.

6. Conclusions: Contributions of the critical approach to our understanding of telehealth

Having presented our findings, this section considers if and how critical theory contributed to a (better?) understanding of telehealth, or more generally: What does critical theory bring to the research of telehealth?

A critical approach, of course, requires emancipatory intent. This is what primarily differentiates it from an interpretive research. This is important, as although norms and values are not absolute and often controversial, this does not mean that we should adopt a totally relativist perspective and abdicate any social responsibility. However, the problem is that emancipatory intent does not always lead to emancipation. For example, this study cannot claim to have changed the world. Nevertheless, as critical theorists would argue, emancipation arises from enlightenment. This research, we suggest, leads to (some form of) enlightenment as it challenges common perceptions about telehealth, for example by revealing different rationalities underpinning telehealth, and conflicting legitimisation processes. Critical theory contests the notion of inevitability and illustrates how we are conditioned to accept a techno-economic regime and believe alternatives to be unrealistic. In depicting the existence of different rationalities we have hoped to show that alternatives do exist. Telehealth technologies are not simply autonomous but they are socially constructed (through often interrelated actions on macro and micro levels), and thus can be potentially directed (in their development and use) towards emancipatory aims.

In addition to emancipatory intent, a critical approach makes the critique of existing knowledge claims an explicit requirement and focuses the researcher on this task and thus it may lead to insightful results, i.e. insights that question taken for granted assumptions (hold by others and the researcher himself/herself). For example, this research questions the simplistic notion of telehealth as a ‘savour’ (particularly in relation to claims about empowering and socially inclusive potentials of telehealth, and its ability to deliver better care at lesser or same costs). It also shows how evaluation was used as a way of legitimising telehealth (e.g. in some cases it was primarily done for legitimisation reasons) and how it can be used as an argument/weapon in a battle of different vested interests and rationalities (e.g. ‘scientific’ evaluation was seen by some as guarding the interests of patients and opposing decisions driven by managerialists rationality or commercial interests).

Furthermore, a critical approach encourages self-reflection and the researcher was spurned to question her own assumptions and reflect on the research process. The research suggests opportunities for future inquiries. For example, a more user (particularly patient/citizen) centred approach to telehealth-in-practice would deliver a more situated analysis. Further analysis of telehealth through the notion of power may lead to additional insights and complement this study. This is because, knowledge, as Foucault would argue, is interlaced with power. Similarly, different rationalities are built and sustained through power relations.

The field of telehealth and more generally health informatics is exciting, ever-changing and driven by many competing rationalities and thus, we would argue, particularly suitable to conducting critical, applied research.

References
Health Service: Action at a Distance and the Fetish of Calculation”, Social Studies of Science, 21 pp. 701-734.
Doolin, B. (1999a) "Sociotechnical Networks and Information Management in Health Care", Accounting, Management and Information Technologies, 9 pp. 95-114.


