

Research Methods – a Case Example of Participant Observation

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Abstract: This paper discusses the role of the researcher as a participant observer and reflective practitioner. The paper aims to assess the benefits and limitations of participant observation, and offer guidance as to how to manage the challenges inherent in this technique. The paper draws on the lead author's experience as a participant observer when working on her doctoral thesis: 'Factors Affecting the Viability of Electronic Marketplaces: an Empirical Investigation into International Steel Trading'. It discusses the issues and concerns resulting from participant observation and how these were dealt with in the case example. The empirical research was a longitudinal study tracking the evolution of steel electronic commerce between December 1998 and the present time. The events examined in this study were observed during the lead author's ten years at a large steel producer/trading house. As a trader and a manager, the lead author was directly involved in the conduct of business. The study represents the contribution of an industry practitioner and, as such, provides a unique insight into a real-world setting.

Keywords: participant observation, qualitative research methods, qualitative data, longitudinal case work, steel trading case

1. Introduction

Qualitative methods, such as ethnography, action research, case study research, were developed in the social sciences, and were deemed to be more appropriate to the study of social and cultural phenomena than the quantitative methods of the physical sciences, such as survey methods, laboratory experiments, mathematical modelling. The rationale for conducting qualitative analysis stems from the observation that, given the human capacity to talk, the object of understanding a phenomenon from the point of view of the actors is largely lost when textual data are quantified.

Participant observation has its roots in anthropological studies, where researchers would travel to faraway places to study the customs and practices of less known societies. It involves participating in a situation, while, at the same time, recording what is being observed. Hence, participant observation has been associated with qualitative methods, as the data collected by this technique tend to be predominantly qualitative. It is potentially rewarding but presents unique challenges to the researcher. It offers the chance to obtain unique insights into the organization or social group. Challenges for the researcher include obtaining access and agreeing his/her role within the organizational or social setting.

This paper discusses the role of the researcher as a participant observer and reflective practitioner, and elaborates on the epistemology of practice. The paper aims to assess the benefits and limitations of participant observation, and offer guidance as to how to manage the challenges inherent in this technique. The paper draws on the lead author's experience as a participant observer when working on her doctoral thesis 'Factors Affecting the Viability of Electronic Marketplaces: an Empirical Investigation into International Steel Trading'.

The paper begins with a discussion of qualitative research methods. It establishes the main aspects of qualitative research, and discusses the data collection techniques, which cannot be divorced from the type of analysis being carried out. It then introduces participant observation and elaborates on the role of the researcher as a reflective practitioner. It discusses issues and concerns resulting from participant observation and how these were dealt with in the case example.

2. Qualitative research methods

'A research method is a strategy of enquiry which moves from the underlying philosophical assumption to the research design and data collection' (Myers and Avison, 2002, p. 7). It is possible

to identify two opposing philosophical traditions based upon distinct underlying ontological assumptions about the nature of reality. Realism posits that reality exists independently of our perception of it; idealism posits that what we call the external world is a creation of mind (Williams and May, 1996; Orlikowski and Robey, 1991). These opposing philosophical perspectives are represented in the social sciences by two traditions: positivism and phenomenology (Easterby-Smith et al., 1991). Positivism posits that reality is external and objective; hence, the observer is independent of what is being observed and objectivity is both possible and desirable. Phenomenology posits that reality is not external and objective, but is a creation of individual minds; hence, reality is subjective. Inevitably, many different variants are associated with both schools, particularly phenomenology (e.g. hermeneutics, from Greek 'hermeneuein', to interpret). The sharp division between these two views of the world seemed to dictate very different approaches to research design and hence data collection and analysis methods.

It is possible to classify research methods as quantitative (based on numerical data) or qualitative (based on verbal data). Quantitative methods are associated with the scientific approach to research, while qualitative methods have been traditionally associated with phenomenology. Early social researchers sought to apply the methods so successfully developed for the hard sciences to social research and the results can be seen in the positivist philosophical tradition (Lee, 1989; Eisenhardt, 1989; Yin, 1994). The sharpest distinction between quantitative and qualitative work can be seen in the approach taken at the analysis stage. In quantitative research a clear distinction can be made between data collection and data analysis. In qualitative research collection, analysis, interpretation and reporting are often carried on in parallel and the results of one activity can alter the direction of the others. The differences between research based on qualitative data and that based on quantitative data have seemed of great significance to many social researchers (Bryman, 2004). However the type of data is no longer automatically considered as the determining factor in the research design or research method. A mixed approach that combines both quantitative and qualitative data and uses more than one research method is now fully accepted for IS research (Cavaye, 1996; Myers, 1999; Myers, 2003).

2.1 Participant observation and qualitative research

A number of qualitative methods are open to the researcher, of which ethnography and case research are the main methods that utilise participant observation for data collection.

Ethnographic research derives from social and cultural anthropology whereby a researcher is required to spend considerable time in the field, and study the phenomenon within its social and cultural context. Ethnographers try to immerse themselves in a setting and become part of the group being investigated, in order to understand the meanings that actors put upon events or situations. The prevailing data collection technique is participant observation (Myers, 1999). Thus, Jean Briggs conducted her fieldwork among Canadian Eskimos; Liza Dalby among Kyoto geishas. Ethnographic research is very time consuming. The main benefit is its depth, and therefore the contribution of rich insight. One weakness is that it lacks breadth, as the focus is typically on one particular situation or phenomenon. Hence, one common criticism is lack of generalisability. In fact, it is possible to generalise from ethnography to theory (= theoretical generalisation). Also, the main data collection technique, participant observation, has strengths and weaknesses, and these are discussed further in this paper.

The case study is a research strategy which focuses on understanding a phenomenon within its natural setting. In the case study attention is paid to contextual conditions, regarded as highly relevant to the phenomenon being investigated, whereas an experiment typically deliberately separates the phenomenon from its context and focuses on a number of variables.

Case studies are the preferred research strategy when the phenomenon cannot be divorced from its context, the focus is on contemporary events, and the experience of the actors is important. The case study is the most common qualitative method used in information systems (Myers, 2003), and is particularly suited to the study of information systems in organisations, when the focus is on organisational rather than technical issues. The discipline of IS is characterised by continuous, often revolutionary change and researchers often lag behind practitioners in promoting and/or evaluating change. Researchers are often unable to provide guidance on how to manage the introduction of new systems, and often find themselves investigating how practitioners implemented and managed change, and developing theories from it. Case study research can be employed to capture and

formalise the knowledge of practitioners, develop theories from practice, and move on to the testing stage (Benbasat et al., 1987).

The case study relies on multiple sources of evidence and multiple data collection techniques. Yin (1994) lists six major sources of evidence: documents, archival records, interviews, direct observation, participant observation and physical artefacts.

In qualitative research, such as ethnographic and case research, data collection and analysis pose particular concerns. Data collection can be time consuming and tedious, and can result in the accumulation of large amounts of data. Subjectivity in the data collection and analysis process is considered one of the main disadvantages of case research. Bias arises from two sources: the influence of the researcher over participants' behaviours and the impact of the researcher's own beliefs. The last part of the procedure - reporting - can be difficult, as the researcher needs to establish the rigour of the process followed and the validity of the findings (Darke, Shanks & Braodbent, 1998). Data collection and data analysis form an iterative process with the choice of further data collection dependent on the results of previous analysis. Analysis is a subjective process dependent on the researcher's approach. Hence, the role of the researcher is key.

2.2 The Weberian tradition and the self

The expression '*value free sociology*' was created by Max Weber in an attempt to establish a less naïve and more sophisticated methodology. Weber agrees with the positivists that a fact-value distinction ought to be preserved, and social science should only concern itself with questions of facts, while remaining ethically neutral on questions of values. Weber argues that an adequate description of social practice requires us to understand the meaning of the practices to the agents involved, which, in turn, also presupposes an understanding of values (which demands the implementation of the '*verstehen*' sociology). Thus, Weber insists that the researcher must understand the values of agents and consider both the subjective and objective dimensions of social life. It could be objected that, in order to understand, one ought to decide between values. In fact, it has been observed that Weber's work itself evidences the struggle between the author's personal views and those of the agents he should be investigating neutrally, in that it contains value judgments in terms of praise or blame. Yet, it is precisely within this tension that the best social research is conducted.

Rosaldo (1989), writing in the context of the Weberian tradition, criticises the identification of detachment with scientific objectivity and the myth of the observer as a '*tabula rasa*'. He argues that it is rare, if not impossible, for a researcher to become truly detached. Rosaldo argues that Weber's advocated neutrality does not exclude the scientist's passion and enthusiasm, and that the Weberian perspective underestimates the analytical capability of feelings of anger, frustration, depression, passion etc. and results in the elimination of other valid sources of knowledge. Rosaldo quotes the example of Jean Briggs, who, in her fieldwork among Canadian Eskimos, utilised her feelings of anger, frustration, solitude and depression to understand the mentality and values of her informants, in contrast to hers. Rosaldo concludes that the researcher is a '*positioned subject*', whose '*life experiences both enable and inhibit particular kinds of insight*' (Rosaldo, p. 19). This argument implicitly acknowledges the role of the researcher in the research process, and reintroduces the self in social research.

Subsequent research challenged the idea of a social science in which the experience and values of the researcher had to be obliterated. Opinions differ whether an acknowledgement of the self is all that is required, or whether the self may legitimately be relied upon in the research process. Harris (2001) argues that the self ought not only to be disclosed, but may legitimately be utilised as a source of knowledge. The author discusses how her own life has been affected by non-profit and voluntary organizations, which later led to her involvement in charitable work, and stimulated her academic interest in the subject. Thus the academic work is influenced by the researcher's family history, and the researcher's knowledge is enriched by her life experience and charitable work.

Re-placing the self in the research process does not mean that the research should be less rigorous. Ultimately it is incumbent upon the researcher to keep the subjectivity in check and present and analyse the evidence objectively (then again, what constitutes evidence depends on the philosophical perspective).

3. The participant observer in qualitative research

Since organisations can be viewed as societies with their own peculiar customs and practices, participant observation has become increasingly popular in organisational research. Evered and Louis (2001) identify two different paradigms of organisational research, and term the two approaches '*inquiry from the outside*' and '*inquiry from the inside*', whereby the former is characterised by the researcher's detachment from the organizational setting, and the latter by the personal involvement of the investigator in the research process. Knowledge of an organisation can be acquired in two ways: by examining data generated by the organisation e.g. company files, financials etc. (enquiry from the outside) or by functioning within the organisation (enquiry from the inside) and '*being there*', becoming immersed in, and part of the phenomenon under study. The authors reflect upon their own personal experience entering an unfamiliar organizational setting. They became aware that, despite their training in the scientific method, they were adopting a different mode of enquiry to make sense of the new organisation: '*It was a multisensory, holistic immersion*' (p. 387) whereby the authors were '*noticing acutely*'. They did not test hypotheses, but relied on improvisation learned in practice. Published academic research offered little guidance in understanding the new organizational setting, whereas papers by industry practitioners appeared more meaningful and relevant. The authors conclude that the knowledge acquired through '*inquiry from the inside*' is inherently more valid and relevant to the organizational actors. Management research presents challenges of its own. Managers are busy individuals, and are typically reluctant to allow access unless they can see some benefit to the organisation. Hence, access for fieldwork may be difficult to obtain, and, if granted, it may be subject to various conditions about confidentiality.

Sometimes participant observation arises from an ongoing working situation, as is the case when the observer is an industry practitioner. Professional practice is a process of problem setting and problem solving. Practising managers are called upon to manage problematic situations characterised by indeterminacy, uniqueness and instability. Schon (1991, quoting Ackoff, 1979) appropriately terms such situations '*messes*'. The best professionals are able to make sense of these '*messes*', discern patterns, identify deviations from a norm, recognise phenomena and adjust their performance. Such processes may be intuitive, tacit, unconscious. The author terms this '*reflection-in-action*'. The art of management is '*science in action*', so that practising managers may become developers of management science (Schon, 1991). The researcher in this position acquires an in-depth and first-hand insight into a real-world setting.

A major criticism levelled at participant observation is the potential lack of objectivity, as the researcher is not an independent observer, but a participant, and the phenomenon being observed is the subject of research. The notion of participant observer does presuppose a degree of emotional detachment from the subject matter, the clear objective of the researcher being the conduct of the research. American Liza Dalby moved to Japan and lived as a geisha among geishas to conduct the fieldwork for her PhD thesis, and later recounted her experience in the field in the book '*Geisha*' (Dalby, 2000). As a researcher, she faced a similar challenge, namely, how to reconcile her very personal experience and views with the need for detachment traditionally expected of a researcher for her work to be regarded as scientific.

Inevitably participant observation raises ethical dilemmas: the investigation should not be conducted in a covert manner; informants should be informed of the nature and scope of the investigation. On the other hand, participant observation carries with it the concern that the presence of the investigator may influence the way informants behave. Informants may be suspicious of the researcher and reluctant to participate or be eager to please; they may interject their own impressions and biases etc. The personal relationship between researcher and informants may also influence the interaction (e.g. the researcher may empathise with his/her informants and vice versa). This ought to be taken into consideration when conducting the fieldwork. It is incumbent upon the researcher to build a relationship based on trust, and collect, analyse and display the evidence objectively. Liza Dalby, '*the only foreigner to ever become a geisha*' became quite famous in Japan during the fourteen months devoted to the fieldwork: '*I cannot pretend that I was the invisible observer, seeing but not seen*' (p. XV), she writes. In fact, she was interviewed almost as often as she interviewed and admitted that it would be naïve of her to pretend that her presence did not influence the way informants behaved. Although she lived as a geisha and participated in the daily routine of geisha life, she remained an outsider (= she *isn't* a geisha, she is an anthropologist) and never completely blended in.

Both outside and inside research have pros and cons. The former may be methodologically precise, but yield results epistemologically irrelevant; the latter, on the other hand, may appear to lack rigour and/or objectivity. These shortcomings may be overcome by alternating between the two modes.

Thus, participant observation can be a very powerful technique, but presents the researcher with unique challenges. These include securing access to the site, finding a role acceptable to the social group or organization, accurately assessing the effect that the presence of the investigator has on the informants, and managing the analysis and reporting of the findings, so as to gain the insight without compromising the rigour and objectivity.

4. The research project

The case research examined in this paper was carried out for the lead author's doctoral thesis '*Factors Affecting the Viability of Electronic Marketplaces: an Empirical Investigation into International Steel Trading*'.

It was predicted that the advent of electronic marketplaces would revolutionise current business practice. These predictions were supported by economic theory and academic research into the conceptual advantages of electronic marketplaces. The Electronic Market Hypothesis ('EMH', Malone et al., 1987) posits that IT will produce greater market governance through increased automation and the disintermediation of the middleman. Yet, while the economic rationale for the development of an electronic marketplace is in principle sound, hard evidence for such a definite trend towards greater market governance remains elusive, and academic research carried out hitherto suggests that additional variables must be considered and further studies are needed in different settings in order to fully understand how IT may affect market structures.

The doctoral thesis looked for evidence in support of the EMH in the steel industry. The study focused on the global physical Business-to-Business ('B2B') spot steel trading market, that is to say, business which is not under (short or long-term) contract. The empirical research was a longitudinal study tracking the evolution of steel electronic commerce between December 1998, when galvanised coils first changed hands via MetalSite, arguably the first steel electronic marketplace, and the summer 2007. Longitudinal studies are observational, and the events examined in this study were observed during the author's ten years in the trading arm of a large industry incumbent.

Between 1998 and 2000 it was predicted that the advent of steel electronic marketplaces would lead to the disintermediation of the middleman, namely, the steel trading companies (Forrester, 1998; Andersen Consulting, 1999a; 1999b; Merrill Lynch, 2000; Best and Frazer, 1999; World Steel Dynamics, 1999, and others). Many trading platforms were established during the 'dot.com bubble', but there was no mass migration to anybody's site and none attracted paying customers in any great number.

In the winter of 2000 the lead author's employer also began to investigate the opportunity for the establishment of an e-commerce venture targeted to serve the intercontinental steel trading market. The lead author was seconded to the project in April 2000, and assigned to investigate the aspects related to order fulfilment/logistics. Over a period of eighteen months a number of activities (meetings, workshops, presentations) took place, involving representatives from the steel community and banking, insurance and logistics sectors. The lead author was a participant observer in these activities and had unlimited access to relevant information for the duration of the project. Throughout the research project and subsequently she continued to work in the industry as a trader and a manager, and witnessed the launch and demise of other B2B initiatives. The professional experience stimulated the intellectual curiosity of the lead author; her MBA dissertation investigated the impact of e-commerce on the steel industry. This investigation raised a number of issues, which reasons of space and time constraints prevented the author from exploring. Thus the PhD thesis builds upon the previous work by the author. In 2006 the lead author started utilising the services of electronic marketplaces to dispose of defective/reject steel lots, gaining valuable insight into the workings of online auctions.

Thus, the study represents the contribution of an industry practitioner and provides a unique insight into a real-world setting. A case method was adopted because it permitted the collection of rich qualitative data through participant observation, and allowed the author to capitalise on her experience in the field to contribute new insight and a different perspective to the subject matter.

4.1 The research design

The study has a multiple case design. The author undertakes a cross-case analysis of multiple IT-powered initiatives in order to test the working hypotheses and tentatively identify the determinants of e-marketplace viability. The selection of cases relies on theoretical sampling. The cases were chosen from a larger sample for literal and/or theoretical replication, because of the intrinsic similarities and/or differences between them, so that the researcher could test the same theory in different settings. The deciding factor was, *ceteris paribus*, accessibility. In this sense, the selection of cases was partly opportunistic; the choice of the cases allowed the writer to capitalise on unparalleled access to data and sites.

Good research design is an iterative, not a linear process (Lampel, 2004). The initial research design featured two cases, each representing a failed attempt at launching an electronic marketplace allowing one-stop shopping. Later it seemed appropriate to add a descriptive case at the beginning, to provide the reader with an understanding of the dynamics of international steel trading. When in the autumn of 2006 the lead author started selling steel rejects over electronic marketplaces, the research design was enhanced to feature additional cases. The final research design features seven cases; the experience of other electronic marketplaces is incorporated by reference in the study, and attention is paid to relevant context.

Case study research relies on multiple sources of evidence and data collection techniques. In the research project sources of evidence include:

- Documentation and archival records: company files, business plans, financials, published reports by management consultants, magazine and newspaper articles, slide-shows, emails etc.
- Personal communications: the author had informal exchanges with colleagues, senior executives of electronic marketplaces, journalists and logistics services providers (business and personal contacts of the author) during the normal course of business (face-to-face or by telephone, email, or instant messaging) or at industry events.
- Participant observation: in six out of seven cases the prevailing data collection technique is participant observation.

The role of the researcher in the study was that of:

- Professional: the researcher has unparalleled access to sources and contacts (enquiry from the inside);
- Ethnographer: the researcher is immersed and functioning within the organisation (enquiry from the inside);
- Historian: the researcher examines – retrospectively – data generated by the organisation (e.g. company files, financials, etc.) and is detached from the organizational setting (enquiry from the outside).

5. The benefits and limitations of participant observation in the research project

The study is about steel traders. In order to understand the role of the steel trader it is necessary to understand the business environment, the culture, the business practice and the interpersonal relations; the experiences of the agents are highly relevant and intelligible only within the social and cultural context of the industry. The steel trading business is highly dynamic. Each observation is, in a sense, unique and non-replicable. The industry knowledge is largely tacit, yet, little is done to capture and retain the tacit knowledge of practitioners, so that critical incidents, anecdotes, etc. are not recorded for future professionals; the pressure to be 'lean and mean' means that the writing up of 'learning logs', for example, is not encouraged. On the other hand, due to concerns over confidentiality, access for fieldwork is not easily granted to outsiders.

As discussed in section three, academic literature recognises the knowledge-yielding character of inquiry from the inside, and legitimises the contribution of industry practitioners to management research. In the research project participant observation arises from an ongoing working situation and fits the purpose of the investigation and the researcher's circumstances. Participant observation enables the lead author to capture the tacit knowledge of industry experts and introduce the viewpoint of buyers, sellers and traders.

It has been said that managers in all industries get two thirds of the information at a personal level; data have sometimes been collected in a non-systematic manner though informal personal communications during the course of business, and informants are colleagues, business associates and personal contacts. Inevitably this raises the issue of methodological rigour (e.g. no formal interviews were conducted; none of the verbal exchanges were recorded; there are no transcripts). Notes were taken and these were revisited as soon as possible after the event to ensure accuracy, and filed electronically. Emerging issues were analysed and, where appropriate, further explored by telephone, email or instant messaging at the first opportunity; thus data collection and analysis proceeded in parallel. Inevitably an element of subjectivity is involved in processing qualitative data – while the views of the researcher are enriched by the practitioner's experience, the angle is not strictly neutral.

Section three has elaborated on the role of the researcher as a participant observer and highlighted issues and concerns. The following section discusses how these were dealt with in the case example.

6. Managing participant observation

The research project draws upon the lead author's experiences and the experiences of others in the industry. Hence, the study is an '*inquiry from the inside*'; the author has included subjective material, and written about her own experience as a businesswoman. The objectivity, the analysis and the reflection ('*inquiry from the outside*') came later, at the time of writing the thesis. The study therefore alternates between inside and outside enquiry following Evered and Louis (2001).

The lead author has attempted to present the evidence in an unbiased and clear manner. The study features a sample of vignettes of practice, from real life situations, quotes from company files, and a selection of photographs to illustrate concepts and substantiate statements. Care has been taken to fully display the evidence, and analyse the evidence objectively through within-case and cross-case analysis and pattern-matching, comparison with the extant literature, triangulation of data sources and of theories in order to satisfy methodological rigour, eliminate alternative interpretations and produce a compelling case. The reader is able to follow the researcher's argument, assess the validity of the findings, but form his/her own opinion.

Unlike Liza Dalby, who remains an outsider in the geisha society and never really blends in, the lead author, as a trader and a manager, *is* an insider. Hence, data are collected *discreetly* during the normal course of business, so that, although informants are aware of the research project, this awareness need not affect the interaction. The choice of data collection methods reflected the preference of the writer for unobtrusive techniques, and a concern to minimise disruption (managers are busy people) and maintain a low profile.

A previous section has elaborated on the place of self in social research. In this study the self is not only explicitly acknowledged (for example, in the use of the first person pronoun 'I' to distinguish facts from personal reflections), but utilised as a source of knowledge; the experience of the lead author is treated as data. The lead author's professional experience influences the research process, from the initial choice of the research topic (the professional experience stimulated the academic interest in the discipline of management) and of the research method, to the presentation and interpretation of the findings. The academic work is enriched by the experience of the practitioner, and the reliability of the findings is increased by the credibility of the researcher as an industry insider. The academic work in turn gives the lead author, through the collection and analysis of empirical data, further insights into the culture of the industry and the role of the steel trader. During the course of the research project the lead author becomes more critical and reflective, increasingly aware of her reflecting in action, and better able to reflect upon her reflection in action and articulate the tacit knowledge. The use of self enables the reader to understand how the knowledge has been constructed and to better evaluate the research findings.

In the research project concerns over subjectivity and/or lack of rigour were minimised by:

- Incorporating vignettes of practice, photographs, quotes from company files etc., and letting the facts speak for themselves;
- Analysing the evidence objectively through within-case and cross-case analysis and pattern-matching, comparison with the extant literature, triangulation of data sources and of theories;
- Alternating between inside and outside enquiry;

- Distinguishing as appropriate facts from personal reflections (e.g. in the use of the first person pronoun 'I').

These guidelines are recommended to other researchers in order to increase the robustness of the argument and satisfy methodological rigour.

7. Conclusions

The value of the study (apart from the contribution to the EMH debate) resides in the lessons learnt with regard to the contribution of industry practitioners to management research through participant observation. This paper has discussed the issues and concerns arising from participant observation and illustrated how these were dealt with in the case example, and has set forth guidelines as to how to manage this technique. Clearly, the challenge of being a PhD student while in full-time employment in the industry should not be underestimated. Industry executives are on call 24/7 and travel extensively. Still, the investigator has an advantage over full time 'pure' researchers, in that accessibility to the sites need not constitute an insurmountable problem, and there is so much to be gained from the research, professionally also, in terms of self-development and learning.

Ultimately the quality of the research ought to be assessed based on the appropriateness of the research method to the scope of the investigation, and the researcher should select the mode of enquiry to fit the topic, the state of knowledge and his/her own skills and style. Participant observation allows practising managers to capitalise on their unique circumstances to produce academic research which is interesting, contemporary, accessible and relevant to industry practitioners and scholars alike.

References

- Andersen Consulting (1999a) 'North American Steel Industry e-Commerce Market Study'.
Andersen Consulting (1999b) 'Wired for Change: Beyond 'Business as Usual', e-Commerce and the Steel Industry'.
- Benbasat, I., Goldstein, D., Mead, M. (1987) 'The Case Research Strategy in Studies of Information Systems' in MIS Quarterly, Vol. 11, pp. 369-386.
- Best, W. and Frazer, D. (1999), 'Steel Business-to-Business E-Commerce – It's Not Just Books And CDs: Enter The Steel 'Vortex'', Morgan Stanley Dean Witter, Sept. 24th.
- Bryman Alan, (2004) 'Social Research Methods' 2nd ed. OUP.
- Cavaye A (1996) 'Case Study research: a multi-faceted research approach for IS' Information Systems Journal 6, pp. 227-242.
- Dalby, L. (2000) Geisha Vintage.
- Darke, P., Shanks, G., & Broadbent, M. 1998, "Successfully completing case study research: combining rigour, relevance and pragmatism", Information Systems Journal, vol. 8, no. 4, pp. 273-289.
- Easterby-Smith, M., Thorpe, R., Lowe, A. (1991) Management Research Sage.
- Eisenhardt K (1989) 'Building Theories from Case Study Research' Academy of Management Review vol14 no 4 pp. 532-550.
- Evered, R. and Reis Louis, M. (2001) 'Alternative Perspectives in the Organizational Sciences: 'Inquiry from the Inside' And 'Inquiry from the Outside'' in Academy of Management Review, Vol. 6, No. 3, pp. 385-395.
- Forrester Research (1998), www.forrester.com.
- Harris, M. (2001) 'The Place of Self and Reflexivity in Third Sector Scholarship: An Exploration' in Nonprofit and Voluntary Sector Quarterly, Vol. 30, No. 4, pp. 747-760.
- Lampel, J. (2004) 'A Note on Research Design' Working Paper, City University, Cass Business School.
- Lee, A. (1989) 'A Scientific Methodology for MIS Case Studies' in MIS Quarterly, Vol. 13, No. 1, pp. 33-50.
- Malone, T.W., Yates, J., Benjamin, R.I. (1987) 'Electronic Markets and Electronic Hierarchies' in Communications of the ACM, Vol. 30, No. 6, pp. 484-497.
- Merrill Lynch (2000) 'B2b Meets Steel/Metals'.
- Myers, M.D. (1999) 'Investigating Information Systems with Ethnographic Research' in Communications of the AIS, Vol. 2, Article 23 pp. 1-20.
- Myers, M.D. (2003) 'Qualitative Research in Information Systems' in MISQ Discovery, at www.qual.auckland.ac.nz
- Myers, M.D. and Avison, D. (Eds.) (2002) Qualitative Research in Information Systems London: Sage.
- Orlikowski, W.J., Robey, D. (1991) 'Information Technology and the Structuring of Organisations' in Information Systems Research, Vol. 2, No. 2, pp. 143-169.
- Rosaldo, R. (1989) Culture and Truth London: Routledge.
- Schon, D.A. (1991) The Reflective Practitioner Ashgate.
- Seale, C. (ed) (2001) Researching Society and Culture London: Sage.
- Williams, M. and May, T. (1996) Introduction to the Philosophy of Social Research London: UCL Press.
- World Steel Dynamics (1999) 'Who Are The Winners? Who Is E-Lectrocuted?'.
Yin, R.K. (1994) Case Study Research Sage.