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Author

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The Practical Challenges of Case Study Research: Lessons from the field

Leigh Ellen Potter
School of Information and Communication Technology
Griffith University
Nathan, Australia
Email: L.Potter@griffith.edu.au

Liisa von Hellens
School of Information and Communication Technology
Griffith University
Nathan, Australia
Email: L.vonhellens@griffith.edu.au

Sue Nielsen
School of Information and Communication Technology
Griffith University
Nathan, Australia
Email: S.Nielsen@griffith.edu.au

Abstract

Case study research explores a specific situation in a real world context. This paper presents a narrative exploring the practical challenges that were faced when conducting case study research for a qualitative PhD research project which investigated the experiences with and attitudes towards technology held by several groups of individuals. We describe the case study approach, and present the experience of implementing the approach within two real world organisations. We describe the two sites used and the challenges faced and outline the lessons learned from this experience: that the case study site is an active participant in the research, that the personalities within the case study sites will in turn influence the conduct of the research, and that organisations (and individuals) are political.

Keywords

Case study, research methods, challenges.

INTRODUCTION

All research methods have their advantages and disadvantages and many factors must be considered when choosing a research method to follow for a particular research project. In undertaking a doctoral dissertation, a range of approaches may be taken including the candidate considering the research requirements in consultation with their supervisor and then developing a research plan. This was the case for the authors when the first author undertook PhD research with the second and third authors as supervisors.

The dissertation in this case was titled “The information technology gap: Exploring the factors that potentially separate and differentiate IT professionals and users” (Potter 2007). This study explored the experiences with and attitudes towards technology held by several groups of individuals employed both within and external to the Information Technology industry. The goal of this research was to understand a specific relationship, in this case the nature of the relationship between IT professionals and individuals using technology, and the divide between the two. As the focus was on the attitudes and experiences of each individual, the research methods used were qualitative, focusing on words and meanings (Darke et al. 1998). Qualitative research techniques were chosen for this situation as the goal was to understand the attitudes of the individual, and to explore these within the individual’s environment (Myers 2009). One of the specific qualitative methods chosen was case study research.

The process of selecting a method for undertaking the research project was relatively straight forward. Putting the choice into practice and completing the research proved to be neither simple nor unproblematic. While care was taken to deal with the known theoretical and methodological challenges involved with the case study method, it was the practical aspects of it’s application that proved difficult. This paper presents a narrative discussing the specific, practical challenges that were faced in conducting this particular case study research and

looks at lessons that we learned from the experience, particularly for the PhD student personally. A narrative as it is used here is defined in its simplest terms as a "tale, story, recital of facts" (Myers 1997), with our experience presented as such a story. 'Lessons learned' in this context is taken to mean "knowledge gained through experience, which if shared, would benefit the work of others" (Abecker and van Elst 2009).

We will start by describing the case study technique itself, before moving on to a description of the case study sites that were part of the research project. This description provides a narrative background describing the nature of the sites and the practical challenges that were faced in conducting research within these sites. Finally, the lessons that we took from the experience will be discussed.

CASE STUDIES

For the purposes of this research the term 'case study' was taken to mean the investigation of a specific situation in a specific real-life context. Case study research focuses on an understanding of a given situation and context and may involve a range of techniques including interviews, observation, questionnaires and document analysis (Darke et al. 1998). Case studies are appropriate where the research focus is on questions of 'how' or 'why' (Yin 2003) and can be used in cases where the research aim is 'to provide descriptions of phenomena, develop theory, and test theory' (Darke et al. 1998). This was consistent with the aim of the research project of exploring the attitudes and experiences of IT professionals and non-IT professionals. Darke et al. (1998) specifically cite situations where "the experiences of individuals and the contexts of actions are critical" as appropriate for case study research.

Case study research can consist of single or multiple cases. The approach taken in the research project discussed in this paper was a multiple-case approach consisting of a set of preliminary interviews, interviews within a project undertaken between a large consultancy firm and a tertiary institution (Site One), interviews within a government organisation (Site Two), and the deployment of a questionnaire to an online community. Darke et al. (1998) describe this approach as allowing for an exploration and comparison of a phenomena in diverse settings. It was hoped that by exploring the situation within the differing sites a broader range of views would be illuminated allowing a deeper exploration of the factors that potentially differed between IT professionals and non-IT professionals. A limitation of the multiple case study approach in this instance was the nature of the research as a doctoral study. This limitation meant that the selection of case study sites was limited by the scope of the research, both in relation to the restriction of a single researcher and in relation to time available.

Case study research has been criticised due to a perception that it cannot be generalised. Walsham (1995) described generalisations for interpretive case studies in terms of concept development, theory generation, the drawing of specific implications, and rich insight development. The aim of the research was consistent with the principles of qualitative research: to describe, understand and explain (Myers 1997). While common themes emerged it was not expected that the attitudes and perceptions of one individual would be widely generalisable to another individual or situation. In this way the research contributed to the development of a richer insight into the relationship between IT professionals and the individuals they work with.

Case study research has also been criticised due to a perceived lack of rigour (Yin 2003). Darke et al. (1998) list a range of difficulties associated with case study research in this regard including the influence the researcher has on data collection and analysis. The approach taken in the research acknowledged this influence and the role of the researcher and their interpretations in the research process. Walsham (1995) dealt with this by stressing the importance of 'thick description' in understanding an explored situation in information systems research in order to deal with the "complex and intertwined conceptual structures which it is difficult to grasp and render intelligible". To this end, a detailed description of the case study sites and interview extracts were provided when reporting the research results.

The primary technique used in conducting this case study research was an in-depth interview, which is appropriate for an interpretive study (Walsham 1995). The interviews were semi-structured in nature consisting of a set of open-ended questions allowing for exploration of different ideas and concepts during the interview itself. In the case of the two primary sites that will be described in this paper, the principal researcher for the project had also been involved with each site for a period of some years, giving an in-depth understanding of the organisational context.

These issues are methodological in nature, relating to case study research in general. Much has also been written concerning the conduct of this style of research in terms of data gathering and analysis (such as Miles and Huberman (1994), Silverman (2006) or Denzin and Lincoln (2005)). This paper does not seek to reflect on these issues of conduct, but to focus on the practical challenges we experienced in conducting a particular case study research project, and the lessons that we learned from the experience. Discussions relating to practical difficulties within case study research are not new: Cassell and Symon (2004) describe a range of practical considerations when undertaking case study research, including the selection of the case study site, issues of site

access, and how to manage your exit from the site. Pereira and Vallance (2006) list available time and resources, and the large volume of data collected as particular challenges in a multiple site project they undertook. These issues are echoed by Gable (1994), who also cites budget and experience as practical issues to consider. Watts (2010) discussed the specific ethical and practical challenges she faced when conducting a case study in the health field including issues of consent and her role within the research, a challenge also described by Trauth (1997). The nature of case study research and the involvement of people tend to lead to practical challenges, and a discussion of these challenges may assist researchers considering case study research as an approach.

The background to the research project presented in this paper is required in order to describe the practical challenges encountered. While four groups of individuals participated in the research project, the focus of this discussion will be on the two organisations used as research sites. The preliminary interviews were conducted in the early stages of the research with four IT professionals and four non-IT professionals who were known to the first author, primarily to gather early findings and to improve the interviewing approach. This initial process proceeded smoothly and so will not be discussed. The final group of participants in the research were sourced from an online community through the use of a questionnaire. The deployment of this questionnaire was a direct result of difficulties encountered in Site Two. While lessons were learned from this process in terms of questionnaire development, the tool was deployed remotely and on only one occasion, and so will not be discussed here. The primary sources of information for the research project were originally planned to be the two organisations used and these will now be discussed as Site One and Site Two.

CASE STUDY SITES

As stated, this research was part of a larger doctoral study that explored the relationship between IT professionals and users focusing on the experiences with and attitudes towards technology held by each group. Two organisations were approached to participate in the research. Interviews were conducted with IT professionals and users within a project undertaken between a large consultancy firm and a tertiary institution (Site One), and with a group of IT professionals within a government organisation (Site Two). Documentation from both organisations was a secondary source of information.

Site One

The first case study site was a specific information systems development project undertaken between a large consultancy firm and a tertiary institution. The site was sourced through a large IT consultancy firm that the first author had worked for prior to commencing the research project. The project team for this project was small and consisted of a group of IT professionals from the university and the consultancy firm and users from the university involved in the development of an internet application. All individuals involved directly in the project team at the time of access were interviewed, including development staff, analyst staff, management and user representatives. Two of the original members of the team had left at the time of the interviews and did not participate in the research.

Six of the participants were employees of the tertiary institution and one participant was an employee of the consultancy firm. Beatrice was a 35 year old admissions officer, Belinda was a 30 year old marketing officer, and Boris was a 49 year old senior administrator and researcher and the project manager. They were all required to use technology extensively at work. Bernadette was a 23 year old junior intern on the development team, Brenda was a 24 year old technical developer, Beth was a 36 year old business analyst, and Basil was a 31 year old technical architect brought into the team from the consultancy firm.

The project progressed well, however tension developed between the project manager, Boris, and the university developer which appeared to be exacerbated by the influence of a senior technical advisor on the project manager. This tension resulted in the removal of the university developer in the weeks prior to the interviews. Two weeks prior to the interviews the student administration user representative also went on leave and was replaced by another member of the student administration team, Beatrice. These two personnel replacements occurred quite late in the project life cycle.

The Challenges

A number of factors influenced the gathering and interpretation of information from Site One. The key influencing factor was related to access difficulties. Several interview participants suggested that the primary factor underlying the access difficulties was in fact Boris. As access to the site had been provided by the consultancy firm contact rather than directly through the university, the author was not able to influence the access provided by Boris at the time.

Access to the case study site was delayed pending the resolution of the conflict between Boris and the university developer mentioned earlier. Information relating to this conflict was obtained from other participants, however had access been granted earlier more insightful information may have been obtained as it was evident that a personality clash had occurred and this may have illuminated the IT professional-user relationship in this case study. Access to the staff member who had left the team was not available, although he was still an employee within the university. Brenda was the new team member brought in to replace this employee, and she had only been on the project for a short period of time and as such could provide limited information relating to the long-term dynamics within the team.

The loss of the key user representative when she went on extended leave during the delay also hindered access to information relating to the case study site. Beatrice was the user representative who was seconded to the position, and she was able to provide general user perceptions for the interviews, however she had only been onsite for a short period and did not possess knowledge relating to the history of the project. As the focus of the research was on the attitudes and experiences of the individual, her insights from her perspective as a user representative in the development team were crucial. Given her short time on the project her insights into the IT professional-user dynamic within the case study site were limited. Her perspectives based on her general IT experience and attitudes however provided more detailed information into this aspect of the research.

An opportunity to observe interaction between users and IT professionals during the testing phase of the project was initially promised, however it did not eventuate due to delays from Boris. Some of the research participants suggested that he was concerned with impressions of success and how the conduct of the project reflected on him, and that this was why he created access difficulties, both in the initial delay of the interviews and in preventing access to the system testing sessions.

Access to a second case study site was achieved subsequent to Site One. The second site will now be described.

Site Two

The second case study site was an information technology development section within a large federal government organisation. The first author had worked in this organisation prior to commencing the research and this site was sourced through a former colleague in the organisation. In this organisation all information system development was completed internally by development groups in technical departments on behalf of the users.

An initial research project proposal was submitted and a meeting with a senior department member was held to discuss a suitable project for observation. Access to a project within the site was granted, however the project was cancelled one month later. This research site was seen as a valuable site for the research project due to the prior experience within the site and the long term information that was available because of this experience. Due to this value, an alternative approach was sought, and access was granted for a set of interviews with available members of the IT team and a set of users.

On the day of the interviews it transpired that only three IT professionals and no users had been made available for interviews, and a later date for further interviews was not possible due to an imminent restructuring process. Carol was in a team lead position within the organisation and had been using technology since school. Clark was a programmer specialising in Lotus Notes. Charles was a general programmer.

As this had become a general set of interviews rather than an exploration of a specific project no project related documentation was available. This site had been used in previous research by us and some general documentation containing descriptive information about the organisation was still available from that research project.

The limited access to the site and the lack of users available for interview resulted in a change to the overall approach for the research project. It was this change that led to the pursuit of an additional source of information and the deployment of the questionnaire instrument in an online community.

The Challenges

As stated, interviews were only possible with three IT professionals within this organisation. Clearly the cancellation of the initial project and the limited nature of the participants in the interview process was a major hindrance to information gathering. The absence of users for interview meant that only one side of the story was told in this case study site. Each of the IT professionals mentioned user issues in the organisation, however these issues could not be confirmed with users themselves. The opportunity to interview the IT professionals in this organisation did however provide a different set of characteristics than those provided by the IT professionals in either the preliminary interviews or Site One and this helped provide a new perspective to the issues explored in the larger research project. Unfortunately these issues could not be explored further with follow-up interviews due to the restructure that then took place within the organisation.

LESSONS LEARNED

There are a range of lessons that we learned from our experience with the particular case study sites within this research project. As an early career researcher, these were lessons personally learned by the first author. In their simplest form, these lessons revolve around the changing nature of both organisations and individuals, and can be grouped into three primary points as follows:

A case study site is an active participant in your research. While the research may be a participant observer in a research site with the potential to change the situation observed, in our research the sites themselves became active participants in the research with the potential to change the research itself. Rather than remaining fixed and stable, both case study sites changed between the time when we first approached them and the time when we entered the site. In Site One these changes appeared to be influenced by an individual, with Boris delaying access and altering the range of access provided as compared to what was originally discussed. In Site Two the changes seemed driven more by changes within the larger organisation itself, with the research project an 'innocent bystander' rather than the victim of a deliberate attempt to hinder access. Regardless of the motive or specific actions, in both sites the nature of the research was required to evolve to meet the changes within the case study site, making the site an active participant in our research.

A researcher needs to be prepared for elements affecting their research to change and be aware that as the researcher they are external to and not in control of their case study site. We experienced this when staffing changes were made to the case study site. No notice of these changes was given to us, which meant that changes to the research plan were required. These changes were made, however the staffing changes affected the information that was available to us. The cancellation of the original project from the organisation in Site Two also meant that we needed to develop an alternate approach to sourcing the information required to complete the research. Ultimately this meant less information was available overall for the research project, and a change in approach was required with the additional deployment of the questionnaire within the online community.

The personalities within a case study site must be managed. When entering a case study site the researcher becomes involved with the people within the organisation. These participants will have their own motivations, opinions, approaches, and personalities and these must be allowed for and managed within the research context (if not in a practical context). Many examples of this were encountered during the conduct of the research project, varying from low level incidents during interviews to major events affecting the research as a whole.

At a low level, an immediate example of the influence of personality on case study research occurred during the interviews. In Site One, the interviews conducted with Bernadette and Brenda yielded very different results. Bernadette was an outgoing IT professional who was easy to interview and who freely provided information. While this made the interview process very easy for the interviewer at the time, it became apparent during the analysis phase that certain key issues had not been adequately covered during the interview. It was felt that because the interview was so 'easy', some areas of investigation were missed. Brenda represented the opposite extreme – she was an introverted IT professional who did not provide information readily. She answered all questions put to her, however she did so in the briefest way possible and with no additional information. For the majority of the interview her responses were incomplete sentences, such as her response to a question concerned her early use of technology (in her case a computer): "Parents bought one for christmas, would have been probably about 11." From that perspective it was difficult to maintain a natural, conversational flow to the interview, in that the interview consisted of a question-answer structure rather than as a conversation between participants. All questions were answered, however it was difficult to explore the answers in depth as little information was forthcoming. These issues were personality issues that we had to be aware of, both during the interviews and during data analysis.

At a high level, an example of the influence of personality on the research was found with Boris, the project manager of the project used in Site One. As described earlier, access to the site was delayed for some weeks and it was during this delay that staff members within the project team were changed. During interviews with the project team it was suggested that the delay may have been caused by Boris, and that he was concerned about how the progress of the project may be reported and in turn how those reports would reflect on him. It was felt that he was protecting his own interests by delaying access to the site by an external researcher. Access had originally been granted for onsite observations of the interactions between IT professionals and user representatives within the project team, however this access was also revoked by Boris. While the focus of the research project was on this interaction and relationship between IT professionals and users, Boris appeared to feel threatened by what this observation might reveal about his management of the project. This is a reminder that the researcher must remain aware of the larger context that their research sits within, and how this relates to the people within the case study.

Organisations (and individuals) are political. When conducting case study research the researcher is dealing with organisations and individuals with their own goals and objectives. These entities within a case study may

exert their influence in order to affect a situation, either within or external to the scope of the research and the researcher must be aware of how these influences will relate to and affect the conduct of their research. In Site One this was evidenced by an external stakeholder who was felt to be influencing Boris. It was suggested during interviews that it was this external stakeholder who had exerted political pressure to remove the original university developer from the team. While this was beyond the scope of the research, it still had an influence on the conduct of the interviews and affected both the time that was available for interviews and the information that was able to be obtained. It is possible that the influence of this external stakeholder may also have contributed to the cancellation of the participant observations that were originally planned. It could also be viewed that the behaviour of Boris in delaying and reducing the access we had to Site One was political in nature, protecting perhaps his personal reputation or standing. Again, the cause of his behaviour was not specifically examined during the research project.

In Site Two it was the larger political machinations of the organisation that resulted in the cancellation of the project that was to serve as the case study site for the research. These same manoeuvrings also led to the restructure that prevented further research from taking place. Again, this was beyond the scope of the research project however it heavily influenced the availability and quality of the information gathered. The researcher may not be able to influence the political motivations and subsequent actions of organisations and individuals within case study sites, however an awareness of the possibilities when first exploring and describing sites may help prepare a researcher for subsequent events.

CONCLUSION

Case study research involves the investigation of situation within a real-life context (Yin 2003). A challenge for the researcher of working with and within an organisation in the real world is the lack of control over the situation itself. This lack of control can work to provide greater illumination of concepts than may otherwise have been discovered – while many of the challenges faced in this research project were based in difficulties encountered within the case study sites, they also provided additional information that would not have been discovered in a set of static interviews. However, the challenges within the case study sites inevitably affect the conduct of the research, whether by forcing changes to the conduct of interviews or by forcing changes to the entire research approach to the site. The issue for the researcher is how to handle these challenges, to either capitalise on opportunities that arise or accept a difficult situation and move on.

This paper presented the experiences from a PhD research project within two case study sites. Site One presented a range of challenges that eventuated in less site exposure than had been originally planned while still providing diverse information and new insights that would not have been possible without these difficulties. Site Two also presented challenges, however in this case the difficulties were so extreme as to severely limit the information that was available and cause a major change to the research approach and the pursuit of additional information from a different source.

While the conduct of the case studies was at times challenging, it also gave the PhD researcher the opportunity to develop and improve. With the benefit of hindsight and experience, if faced again with the situation in Site One a better outcome may have eventuated with a more proactive approach to seeking site access. Reassuring Boris of his confidentiality and assuring him that the aims of the research project were not in conflict with his own aims may have secured more access to team members, and potentially greater insight into the conflict taking place. Understanding that organisations are political environments, more information concerning the situation with Site Two may have been obtained, leading to an earlier decision in relation to access to the Site and potentially allowing the researcher more time to obtain access to a different case study organisation in order to fulfil the original aim of observing a complete project team.

Of course, therein lies another challenge in case study research – with the move to a third case site a new set of challenges to face and a new set of lessons to learn.

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