Work Experience and Student Research

A case, methodology and methods for researching student work experience

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Abstract

Dissertations tend to be problematic for undergraduate and postgraduate students. Supervision experience reveals particular bottlenecks in the areas of choosing a topic, identifying suitable research questions, selecting an appropriate research methodology and method, and gathering data. The circumstances of student research lead to limited access to subjects, poor response rates to surveys and ethical issues that dissuade engagement with human subjects. Many research modules on management courses also tend to favour particular research approaches and methods.

An alternative is available to mature students in utilising prior work experience to contribute research problems, point to research questions and offer researchable phenomena. Work experience also offers a wealth of data, ranging from interesting and useful insights to rich and detailed situations. Work experience may underpin valid research if rigorously investigated and analysed. A number of research methods are suited to studying experience, including the case study method, content analysis, grounded theory and critical reflection. This paper argues for the incorporating of work experience into student research, reviews several methods, and suggests research strategies that may be followed.

Keywords

Work experience, student research, dissertations, research strategies, research methods

The case for researching work experience

Supervision of undergraduate and postgraduate students' dissertations reveals numerous research decisions can form bottlenecks in the research process. Choosing a topic and identifying suitable research questions are early hurdles to

overcome. Selecting an appropriate research methodology and finding the right method to gather data are problematic decisions that must be made early in the research process, followed by the practical choices of selecting, gathering, analysing and interpreting of data. Most research decisions can be resolved through a thorough review of topical literature and a better understanding of research, but some are an inevitable consequence of the nature of student research.

Dissertation topics and questions may be identified through reviewing subject literature, but this is an imperfect solution. Well-documented or thoroughly debated theoretical problems may be difficult to research. Popular topics offer abundant literature and opportunities to pool knowledge, but offer fewer opportunities for originality. Examiners may also know the subjects quite well and therefore find it easier to identify poor research or find marking quite monotonous.

Selecting a suitable methodology and method are complex decisions. Some, like Holden and Lynch (2004), feel that the choice of research methodology should be based on the researcher's stance and on the phenomena being investigated. Others like Daniel (1996, in quoting Kerlinger) feel the choice should be more concerned with the best way to develop and test a theory. My undergraduate and postgraduate students are strongly advised to consider choosing their research topic, questions, methodology and methods on the basis of available literature and data. This is consistent with the position taken by Holden and Lynch (2004), and, in so doing, many of the research decisions mentioned are simplified and sufficient material is readily available for the student to proceed to completion.

Gaining sufficient knowledge in order to make an informed decision is not easy since research is a broad and deep subject. Taught research modules can help, but many are limited in their focus on quantitative treatment of data, statistical analysis, and survey and questionnaire instruments. Quantitative research is arguably an inappropriate strategy for studying phenomena that involve people, including management in its many forms. In most cases it will be difficult to impossible to separate the subject from the context, and phenomena may be very subtle and influenced by a wide range of factors. Experiments are not suited to the study of social and socio-technical phenomena like the management of projects, information systems and construction. Observation and interpretation can also influence the subjects and the findings. Questions require careful design and pilot testing, accurate sampling, careful implementation, good data recording and comprehensive data analysis. Experience suggests that most undergraduate and many postgraduate students have insufficient understanding of question design, deployment of instruments, and inferential statistics to administer these techniques correctly and derive valid conclusions.

Data gathering is an activity that is seldom adequately planned for. In addition to choosing phenomena that are difficult to research, students are inexperienced, have too little time to solicit respondents, face ethical issues that dissuade engagement with human subjects, and are hampered by a distant relationship between industry and academia. This leads to limited access to respondents and the phenomena, poor observation opportunities, low response rates to surveys and excessive reliance on responses from fellow students and academics.

An alternative is available to students with relevant prior work experience, with mature and gap-year students potentially having a rich pool of research material at their disposal. Work experience represents lengthy and deep immersion in situations and subjects that is impossible to attain in the timescales involved in writing a dissertation. Immersion exposes a researcher to nuances and context, resulting in an arguably better understanding of the phenomena and improved understanding of the underlying theory. Students may not be the only ones to benefit from researching work experience.

Management research is arguably better informed by practice than by theory. Academic tutors may find the resulting dissertations more interesting to read, experiential insights are a source of research ideas, and this experience can often challenge and enrich the theoretical work of supervisors.

Student work experience is a sound and useful alternative source of research material. As with any subject, appropriate planning and action must be taken to ensure the research is rigorous and valid. This paper will examine what constitutes researchable work experience, propose suitable research strategies (methodologies), and suggest a few of the more common research methods that may be used.

Researchable work experience

Work experience refers to knowledge and skills gained whilst engaged in a job, occupation or practice. Work experience confers procedural knowledge, or understanding how to do a task or job. Work experience may be gained through gap-year placements, previous employment or ongoing employment.

For work experience to be considered 'researchable', and to help avoid what Goldacre (2009) refers to as "outrageous pseudoscientific claims, four broad criteria should be met:

- The experience should be *relevant* to the field being studied and the phenomena under investigation. Students studying project management should have experience in managing or coordinating projects. Students examining team motivation should have experience in motivating, not just being motivated.
- The experience should have been acquired by the student practicing in an *emic* role, as an insider rather than as an external observer. Experience gained whilst working with a project team would not normally provide suitable data to draw conclusions about the managing of that team.

- Experience should be *accessible* to the researcher, meaning it is available, in a researchable form, and that appropriate methods can be applied to gather and analyse it. Project documentation, correspondence, emails and other tangible artefacts offer strong and accurate data and support objective analysis. Intangible evidence, such as recollection, tends to be very unreliable, difficult to accurately investigate and validate, and prone to subjective treatment.[1]
- Experience should be *sufficient*. There should be enough data available to comprehensively research the phenomena, and enough cases to make appropriate generalisations. Deep, intensive investigations will require fewer cases but more detailed information about each case, whereas broad but shallow investigation will require many cases.

Research concepts

Students often and justifiably feel intimidated and confused by the field of research. It is a broad and vaguely structured subject, with numerous methods, ambiguous definitions and synonymous terminology. This paper is not a review of research, so students are advised to acquire the necessary knowledge from prescribed general research textbooks like Bryman and Bell (9999) or Saunders *et al.* (9999). Research methodology and research method will however be defined here since they are specifically referred to.

Goddard and Melville (2007) describe research methodology as a broad range of activities from identifying the problem to selecting data, designing the research, gathering data, analysis and writing up. Similarly, Buckley *et al.* (1976) define it as "*the*

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[1] Some like Jankowicz (2001) feel that managers deal with uncertainty all the time, and that managers (and hence management students) should learn to be comfortable with subjectivity.

strategy or architectural design by which the researcher maps out an approach to problem-finding or problem-solving." O'Leary (2004, p.85) defines it as "*the framework associated with a particular paradigmatic assumptions that will be used to conduct your research.*" O'Leary goes on to clarify the relationship between methodology and other terms saying:

- *Research methodology* focuses specifically on the research project and the particular paradigmatic assumptions used to conduct it.
- *Research method* refers to the specific techniques used to collect data, such as surveys, experiments and observation.
- *Research tools* are devices used to help collect data, such as questionnaires and checklists.

Research methodology will therefore be taken to mean the overall strategy and plan of action for the research project, and research method as the techniques used to collect and analyse data. Other research terminology used here includes phenomena, or perceptible situations and observable events; and hypotheses, or an untested theory.

Appropriate research strategies

Five broad research strategies are recommended to students wishing to utilise work experience. Choice of strategy would be based primarily on the quality of researchable data and on the nature of the research problem. Each strategy will have different implementation, methodological and methodical implications, and these are discussed briefly here.

Proposing a set of research questions

Mature and gap-year students often encounter researchable problems or phenomena during the course of their employment. Work experience can yield interesting and relevant research problems the student may have encountered in industry. Illustrative examples taken from recent student dissertations

include adoption of project management in Nigeria, construction procurement practices in the UK, use of value management in the charity industry, and the failure of information systems development in small and medium enterprises.

This strategy simply aims to identify a dissertation topic and/or set of research questions from relevant work experience. In implementing this strategy, students may reflect on the experience to identify issues that affect practice. The problem or phenomena would be described along with context in introductory chapters. The literature review and research questions should then refer to the problem, and conclusions may be followed by recommendations that discuss how the findings or conclusions relate to or could be applied to the original problem.

This strategy is suitable where the data (work experience) is barely researchable, where there are ethical or confidentiality complications, or where the student wishes to examine the problem from a theoretical perspective. Choice of methodology and method will not be influenced by this strategy.

Providing illustrative insights

Work experience can be used to illustrate the application of theory in practice, to inform arguments, and to help explain ideas. Illustrative insights may be used where a non-critical review of theory can be perfunctory, not meet assessment requirements to be critical, and fail to show the student understands the theory.

Insights, anecdotes or observations can represent very weak evidence, even unsubstantiated opinion. Students should document their expertise in introductory chapters so as to establish why their insights are valid evidence for the argument. Relevance is important, so students should ensure the insights have been derived from situations that are similar or relevant to the theory, argument or situation being illustrated.

This strategy is more appropriate when the student has extensive experience, but where the experience is not researchable or weakly relevant, or where the student does not wish to research a specific work experience topic. There will be few (if any) methodical implications to adopting this strategy.

Investigating a phenomena

The workplace is a good source of interesting and relevant phenomena, and investigating them is particularly appropriate for management since management is practice-based and management theory is arguably focused on problem-solving.

Investigating phenomena is an inductive research approach, a theory or explanation is derived from observations[2]. Investigations can take two forms; describing or explaining. Describing requires accurate analysis of the situation; identifying the what, where and when of is happening, who is involved and how the situation arose. Explanation involves describing the situation and identifying why it happened.

To investigate a phenomenon, work experience is used to identify a problem and to provide research data. Discussion of context becomes more important in introductory chapters, with the background informing the reader and establishing the relevance of the data. Empirical analysis would then use a suitable method to gather data from the work experience and analyse it. Generalisation of conclusions and recommendations would then be limited to the organisation/s the data was drawn from and/or phenomena with a similar context.

This strategy is appropriate where researchable data is available and the experience is relevant. Broader or deep investigations are both possible, depending on the number of cases and on the

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[2] As opposed to deductive logic, where a hypothesis is proposed and then tested through empirical observation.

generalisations the researcher wishes to make, but investigation is often more suited to intensive investigation of a few cases.

Comparing theory to practice

Theory and practice diverge in a number of ways and for different reasons. Smith (2006) notes performative contradictions and a mismatch between theory and empirical evidence. Theory focuses on knowledge creation whilst practice is concerned with knowledge application, knowledge exploitation and implementation. Truch et al. (2000) observe three different groups (academics, consultants and business) and that they have different agendas and different understandings of the fundamental concepts. Comparing theory to practice can highlight and bridge any gaps between these worlds.

> *"The academic literature is full of advice and descriptions of the advantages to be gained from emphasizing knowledge while practitioners' accounts alternatively reflect excitement and frustration at the costs and time taken to realize benefits. The two groups are often not quite in agreement about which are the most pressing problems and the order in which they need to be tackled."* (Jacob and Ebrahimpur, 2001)

This strategy aims to compare theory, which is a generalisation, with practice which is a specialisation. Theory and cases need to be chosen carefully to ensure they cover the same subject areas. Background of each case should be discussed so as to establish relevance. Theory should then be modelled by identifying and critically evaluating (Onions, 2009) key theories, concepts, entities and their relationships. Treatment of phenomena in practice will then critically analysed (Onions, 2009), and the differences identified and explained in findings and conclusions. This strategy may also produce recommendations for practice or for theory. Limitations should be treated carefully by not making broad generalisations and recommendations from the findings.

Comparison is suitable when there is researchable data, where there are obvious or important differences between what the students has experienced and been taught, the student possesses good skills in critical analysis and evaluation, and where the limitations are acceptable.

Solving a problem

Practitioners implement knowledge and solve problems. Research can be an interactive process, finding solutions and testing their impact.

This strategy focuses on situational improvement whilst developing and testing practical knowledge. Problem solving may be undertaken using an action research methodology. Problem definition, solution identification, implementation and assessment are undertaken iteratively until the project is completed or problem is solved. The literature review can focus on identifying solutions, findings will assess performance and note any changes, and conclusions and recommendations will discuss the value of the solution.

Students considering this strategy require a single suitable case, to be executed concurrent to the research process, and ideally to be completed within the timeframes of the dissertation. This strategy has ethical considerations, particularly around responsibility for project failure.

Proving a theory

Writing a dissertation will be a unique experience for most students. Some students use the opportunity to study a subject that has interested them, research and prove a hypothesis, or prepare for a new career. In a few cases, students have used the time to investigate, design and even develop an idea they acquired whilst at work.

Proving a theory involves defining the problem, formulating a hypothesis, testing the hypothesis, and making generalisations on the basis of findings. This is a deductive approach, according to Wallace's (1969) model of research logic (Vuorimaa, 2005).

There are considerable methodological complications to trying to prove a theory through retrospective analysis of data that was not generated from application of the theory. This strategy may only be used where the logical cause-and-effect relationship has not been broken, and it is highly unlikely this would be found. It is therefore recommended that this strategy be avoided by students wishing to use work experience, and investigatory or comparative strategies used instead.

Appropriate research methods

Research methods are tools for gathering and analysing data. In the case of work experience, this data can include observations, knowledge, documentation, correspondence, notes, work product and other artefacts. Data may be held tacitly, in the mind of the student or colleague who can be questioned, or explicitly in a tangible written or other form.

The following methods have been selected from a much broader collection of methods on the basis of being well documented, widely used, suited to intensive investigation, and suited to researching real world problems. They may be also categorised as qualitative methods as they do not rely on numerical data or on quantifying phenomena.

Case study method

According to Yin (1984, p.23), the case study research method is "… *an empirical enquiry that investigates a contemporary phenomenon within its real-life context; when the boundaries between phenomenon and context are not clearly evident; and in which multiple sources of evidence are used.*"

Implementing… The researcher analyses and interprets the situation loosely, asking questions as they go along, and building a picture. New evidence can prompt new questions. The case is then written up in a narrative format so as to provide

the reader with information about the context, phenomena or problems, components and dynamics. The product is a theory.

The case study method is used to build an understanding of the "what" and "why", or to explore a situation. Tellis (1997a) distinguishes between descriptive cases, explanatory cases and exploratory cases. According to Kohn (1997), the case study method is particularly suited to situations where little theory is available, where measurement is difficult, or where situations are complex. It is effective tool for exploring complex and unclear causal relationships, and Yin (1984) finds it useful in examining contemporary events. The case study method is suited to the research adopting either an emic (insider) or an etic (outsider) role. Sufficient data has to be available to build up a satisfactory picture of the context, and detailed data is needed to explore or explain the phenomena or problems in question.

One criticism of the case study method is the small number of cases do not provide for reliability or generalisability. Another is that the researcher's bias may impose on the interpretation and findings. These weaknesses may also lead to case study strengths. The detailed and close investigation allows the research to understand the how or why of a situation. The research is not necessarily tied to a hypothesis, so the researcher can explore phenomena and discover unpredicted explanations. Multiple sources and multiple techniques may be used to collect the evidence, so researchers should ensure the study is well constructed and data collection is comprehensive and systemic.

Students selecting this method are advised to read Yin (2007) and Tellis (1997a) and Tellis (1997b).

The case study method has been used to study why projects fail, understanding knowledge management in organisations, practices in large construction organisations, information systems implementation and agricultural economics.

Content analysis method

Content analysis is used to identify and analyse the presence of words or concepts in written evidence. Content analysis can be applied to any form of document, and be used to study any subject where written text is available.

There are two forms of content analysis; conceptual and relational. Conceptual analysis examines frequency and nature of particular concepts, an approach that would employ descriptive statistics in analysis. Relational analysis examines the relationships between two or more concepts, potentially using differential statistics in the analysis. Some examples of the use of content analysis include studies of online communications, health care, social work, performance management and job opportunities.

Citation analysis is a specialisation of content analysis that has been used to evaluate research and its importance. Although this approach is limited in its applications and findings, it can produce interesting and important findings. A good example that demonstrates use of the technique is Loebbecke et al. (2007).

The basic steps to conducting a content analysis are:

- Identify the question/s the analysis will answer
- Select a representative sample of texts
- Scan each text for words or concepts
- Code, or record, the occurrences
- Perform statistical analysis
- Prepare a theory or model of the analysis findings

Mayring (2000) and Neuendorf (2002) offer flowcharts that describe the content analysis research process. Neuendorf's approach shows more emphasis on validity of findings and rigour of the coding process than the above steps. Further quantification of the process leads towards machine extraction of ontologies, a technology used in building dictionaries and

classification mechanisms for knowledge bases and portals. On the other hand a greater emphasis on analysis of concepts (rather than words) leads to the technique of conceptual mapping.

Content analysis is a suitable technique to use when extensive documentary evidence is available, such as online forums and published literature. It may also be used in conjunction with the case study method to analyse specific problems or questions.

Document analysis method

Document analysis is similar to content analysis in that both study written texts. Whilst content analysis looks at frequency and patterns of words or concepts with each text, document analysis focuses on the text as a whole.

Document analysis focuses on asking what the document is about, the main argument, the evidence to support that argument, the writer's authority and bias, values reflected, the format and presentation of the document, the intended audience, and the purpose and agenda behind the document. It is therefore a critical evaluation of a document, and could be used to perform a rigorous literature review.

Researchers choosing this technique should take care not to be limited to drawing overly general conclusions on the basis of an incomplete sample. Furthermore, researcher will most likely only be able to interpret the writer's intent and values.

Grounded theory method

Grounded theory was first proposed by Glaser and Strauss in 1967, and has subsequently evolved into two different approaches (Bryant, 2009; Onions, 2006). It is an interpretive and investigatory technique allows the theory to emerge from the data as analysis takes place, rather than starting with a hypothesis that the researcher wishes to test. This is termed *tabula rasa*, or beginning one's research with a clear mind.

Grounded theory may be outwardly attractive since it does not impose a detailed literature review or hypothesis formulation on the student at the beginning of the project. Nevertheless, students will have to engage with literature in order to evaluate and inform their findings. Grounded theory is also a rigorous process, involving coding (similar to content analysis) and iterative construction of theories through the use of memos.
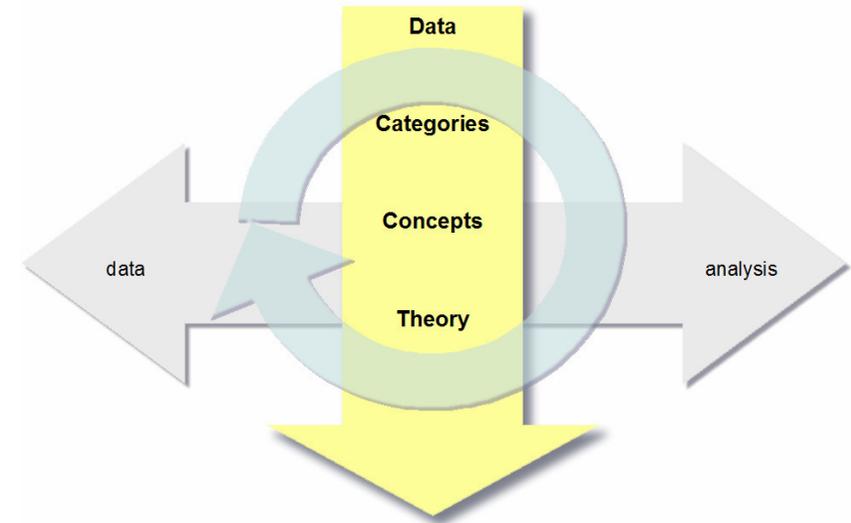

Figure 1. Iteration in Grounded Theory (and other inductive approaches)

Grounded theory has been used to research subjects like health care, psychology, information systems, knowledge management, entrepreneurship and process engineering. It is suited to complex situations that involve people and events, and is suited to research of unfamiliar or disputed territory. Detailing the Grounded Theory Method is beyond this paper, so recommended reading includes Charmaz (2006), who provides a readable and informative introduction, and Charmaz and Bryant (2009) who offer more in-depth reading on the subject.

Critical reflection

Critical reflection has a long history, with Dewey (1933) regarded by Clark (2008) as the modern originator of the concept. Critical reflection involves critical analysis (Onions, 2009) of a situation that the research has been a part of. The researcher will analyse their assumptions, examine the context around the situation, imagine alternative outcomes, study the events from multiple perspectives, and question their role and that of others. Critical reflection is quite different from other methods in its approach to evidence in that this evidence may be quite tacit, or held in the researcher's (or participant's) head/s, and in that the researcher is encouraged to reject the available evidence in order to "establish the truth or viability of a proposition or action." (Clark, 2008)

Reflection may occur during, immediately after or a long period after the event (Liston and Zeichner, 1996). Reflection underpins industry techniques like the post project review of the COLA methodology (Orange, Cushman and Burke, 1999)

Critical reflection is used to explain a situation and to imagine alternative outcomes that may have been possible. It is a learning tool and is suited to research where evidence is anecdotal or tacitly held. Researchers should be aware of the challenges to the validity of any study based on reflection, and should take care to support their empirical data with theory and secondary data wherever possible.

Action research

Action research is an approach that allows the researcher to simultaneously solve a real world problem and create knowledge (McNiff and Whitehead, 2006). It is more a methodology than a method, an approach that may employ different methods to construct solutions and research a subject.

Action research is an iterative, critical and reflective process. The researcher will plan each step, monitor execution, reflect on the outcomes and plan the next step accordingly. Each step's activities should be informed by theory, and analysed in a rigorous manner. The success of the research may be measured in terms of the situational improvements, the quality of the research, and the quality of the knowledge produced (although supervisors and examiners would recognise that situational improvement may be beyond the control of the student researcher).

Action research is suitable where the researcher is a practitioner, and who wishes to make a situational improvement or undertake a project as part of their research (and who will have to adopt an emic (insider) role). Action research involves flexibility, where the final solution is unknown at project inception, and methods and outcomes may evolve through the course of the project. Students should only consider this method if the project begins and ends within the time allocated to researching a dissertation, and if the project has a good chance of being brought to completion.

Conclusion

The research decision to use work experience as data is a far-reaching one. This paper has proposed work experience is a valid source of research questions and empirical data for undergraduate and postgraduate students to base their dissertations upon. Several alternative strategies have been suggested, and students are introduced to a range of research methods that are suited to studying this type of data.

Research projects involve numerous choices, and some advice has been offered in the selection of appropriate strategies and methods. Nevertheless, there is no substitute for knowledge and further information is provided here. Ultimately a choice has to be made, and whilst students in the UK are given more freedom and independence in their dissertation work than in other countries, it is recommended that students seek the approval and advice of their supervisors before proposing to use work experience.

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