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Independent Study and Mentorship - 3A

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**Case Study Approach**

**Assessment 15**

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**Citations:**

Crowe, Sarah, et al. "The case study approach." *BMC Medical Research Methodology*, vol. 11,

2011, p. 100. *Academic OneFile*, <http://link.galegroup.com/apps/doc/A262081253/AONE>

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**Assessment:**

 The case study approach was an appropriate topic of research for this assessment because the case study is used in many disciplines, including anthropology, and I am completing a case study for my Final Product. The topic of my case study will be the subculture of sports in the Dallas/Ft. Worth area. I read this article to gain a further understanding of case studies and to design my case study based on the typical case study set-up.

 The article defines a case study as a research approach that is useful when attempting to obtain an understanding or appreciation of a phenomenon in its real-life context. This idea applies to the case study which I intend to perform, as I am trying to understand more about the subculture from the point of view of citizens and what makes the subculture behave in the way that it does. Until the study has begun, how the sports subculture behaves must remain unknown and uninfluenced by my personal views to allow for accurate data collection. The categories that my Final Product case study will fall under are collective and instrumental. A collective case study involves multiple cases being studied at the same time to gain a better understanding of issues. An instrumental case study focuses on one case to study a broader overall phenomenon. The sports subculture case study will include both of these since it will include five different sports, but the phenomenon, or the subculture of sports, is shared between the five subjects of the study.

 After researching the design of a case study and how I will implement these choices into my case study, I learned about the steps of conducting a case study. The first part is defining the case and selecting the topic of the case study. My case study topic has already been chosen and the study has been defined in the Final Product proposal, so this step has been completed. Next, the data must be collected. The methods of data collection that I plan to use include quantitative data through a questionnaire or survey, and qualitative data through interviews and observation. I plan to begin conducting research on the sports subculture in DFW by looking over previous projects that are similar to mine, working on securing contacts and scheduling interviews, and choosing events to observe. The article suggests that case studies include both quantitative and qualitative data because using both can lead to more accurate and comprehensive results. Additionally, it is recommended that when carrying out a collective case study, data collection methods should be flexible enough to allow for descriptions of each individual case as well as a description of the issue as a whole. The final step in performing a case study is analyzing, interpreting, and reporting the data. Since the study that I have set up is collective, it will be necessary to first analyze the data from each individual situation, then look at the data as a whole. This will help in the reporting stage as well, in which I plan to include short reports about each of the individual subcultures associated with the five sports chosen. The article mentions that is is also important to include contextual information so that the readers of the case study report are able to thoroughly understand the situation and implementation of the case study.

 Researching the process and approach of completing a case study was very helpful in finishing the design of my Final Product case study and moving forwards in the Final Product process. Learning more about how to perform a case study was one of the first items to complete on my Final Product calendar, and now that I have learned more about the basics to a case study, I can look deeper into areas that specifically affect my project.

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**Introduction**

The case study approach is particularly useful to employ when there is a need to obtain an in-depth appreciation of an issue, event or phenomenon of interest, in its natural real-life context. Our aim in writing this piece is to provide insights into when to consider employing this approach and an overview of key methodological considerations in relation to the design, planning, analysis, interpretation and reporting of case studies.

The illustrative 'grand round', 'case report' and 'case series' have a long tradition in clinical practice and research. Presenting detailed critiques, typically of one or more patients, aims to provide insights into aspects of the clinical case and, in doing so, illustrate broader lessons that may be learnt. In research, the conceptually-related case study approach can be used, for example, to describe in detail a patient's episode of care, explore professional attitudes to and experiences of a new policy initiative or service development or more generally to *'investigate contemporary phenomena within its real-life context'*. Based on our experiences of conducting a range of case studies, we reflect on when to consider using this approach, discuss the key steps involved and illustrate, with examples, some of the practical challenges of attaining an in-depth understanding of a 'case' as an integrated whole. In keeping with previously published work, we acknowledge the importance of theory to underpin the design, selection, conduct and interpretation of case studies. In so doing, we make passing reference to the different epistemological approaches used in case study research by key theoreticians and methodologists in this field of enquiry.

This paper is structured around the following main questions: *What is a case study? What are case studies used for? How are case studies conducted? What are the potential pitfalls and how can these be avoided?* We draw in particular on four of our own recently published examples of case studies and those of others to illustrate our discussion.

**Discussion**

**What is a case study?**

A case study is a research approach that is used to generate an in-depth, multi-faceted understanding of a complex issue in its real-life context. It is an established research design that is used extensively in a wide variety of disciplines, particularly in the social sciences. A case study can be defined in a variety of ways, the central tenet being the need to explore an event or phenomenon in depth and in its natural context. It is for this reason sometimes referred to as a "naturalistic" design; this is in contrast to an "experimental" design (such as a randomised controlled trial) in which the investigator seeks to exert control over and manipulate the variable(s) of interest.

An *intrinsic* case study is typically undertaken to learn about a unique phenomenon. The researcher should define the uniqueness of the phenomenon, which distinguishes it from all others. In contrast, the *instrumental* case study uses a particular case (some of which may be better than others) to gain a broader appreciation of an issue or phenomenon. The *collective* case study involves studying multiple cases simultaneously or sequentially in an attempt to generate a still broader appreciation of a particular issue.

These are however not necessarily mutually exclusive categories. In the first of our examples, we undertook an *intrinsic* case study to investigate the issue of recruitment of minority ethnic people into the specific context of asthma research studies, but it developed into a *instrumental* case study through seeking to understand the issue of recruitment of these marginalised populations more generally, generating a number of the findings that are potentially transferable to other disease contexts. In contrast, the other three examples employed *collective* case study designs to study the introduction of workforce reconfiguration in primary care, the implementation of electronic health records into hospitals, and to understand the ways in which healthcare students learn about patient safety considerations. Although our study focusing on the introduction of General Practitioners with Specialist Interests was explicitly *collective* in design (four contrasting primary care organisations were studied), is was also *instrumental* in that this particular professional group was studied as an exemplar of the more general phenomenon of workforce redesign.

**What are case studies used for?**

According to Yin, case studies can be used to *explain, describe* or *explore* events or phenomena in the everyday contexts in which they occur. These can, for example, help to understand and explain causal links and pathways resulting from a new policy initiative or service development. In contrast to experimental designs, which seek to test a specific hypothesis through deliberately manipulating the environment (like, for example, in a randomised controlled trial giving a new drug to randomly selected individuals and then comparing outcomes with controls), the case study approach lends itself well to capturing information on more explanatory '*how* ', *'what'* and '*why* ' questions, such as '*how* is the intervention being implemented and received on the ground?'. The case study approach can offer additional insights into *what* gaps exist in its delivery or *why* one implementation strategy might be chosen over another. This in turn can help develop or refine theory, as shown in our study of the teaching of patient safety in undergraduate curricula. Key questions to consider when selecting the most appropriate study design are whether it is desirable or indeed possible to undertake a formal experimental investigation in which individuals and/or organisations are allocated to an intervention or control arm? Or whether the wish is to obtain a more naturalistic understanding of an issue? The former is ideally studied using a controlled experimental design, whereas the latter is more appropriately studied using a case study design.

Case studies may be approached in different ways depending on the epistemological standpoint of the researcher, that is, whether they take a critical (questioning one's own and others' assumptions), interpretivist (trying to understand individual and shared social meanings) or positivist approach (orienting towards the criteria of natural sciences, such as focusing on generalisability considerations). Whilst such a schema can be conceptually helpful, it may be appropriate to draw on more than one approach in any case study, particularly in the context of conducting health services research. Doolin has, for example, noted that in the context of undertaking interpretative case studies, researchers can usefully draw on a critical, reflective perspective which seeks to take into account the wider social and political environment that has shaped the case.

**How are case studies conducted?**

Here, we focus on the main stages of research activity when planning and undertaking a case study; the crucial stages are: defining the case; selecting the case(s); collecting and analysing the data; interpreting data; and reporting the findings.

**Defining the case**

Carefully formulated research question(s), informed by the existing literature and a prior appreciation of the theoretical issues and setting(s), are all important in appropriately and succinctly defining the case. Crucially, each case should have a pre-defined boundary which clarifies the nature and time period covered by the case study (i.e. its scope, beginning and end), the relevant social group, organisation or geographical area of interest to the investigator, the types of evidence to be collected, and the priorities for data collection and analysis. A theory driven approach to defining the case may help generate knowledge that is potentially transferable to a range of clinical contexts and behaviours; using theory is also likely to result in a more informed appreciation of, for example, *how* and *why* interventions have succeeded or failed.

For example, in our evaluation of the introduction of electronic health records in English hospitals, we defined our cases as the NHS Trusts that were receiving the new technology. Our focus was on how the technology was being implemented. However, if the primary research interest had been on the social and organisational dimensions of implementation, we might have defined our case differently as a grouping of healthcare professionals (e.g. doctors and/or nurses). The precise beginning and end of the case may however prove difficult to define. Pursuing this same example, when does the process of implementation and adoption of an electronic health record system really begin or end? Such judgements will inevitably be influenced by a range of factors, including the research question, theory of interest, the scope and richness of the gathered data and the resources available to the research team.

**Selecting the case(s)**

The decision on how to select the case(s) to study is a very important one that merits some reflection. In an *intrinsic* case study, the case is selected on its own merits. The case is selected not because it is representative of other cases, but because of its uniqueness, which is of genuine interest to the researchers. This was, for example, the case in our study of the recruitment of minority ethnic participants into asthma research as our earlier work had demonstrated the marginalisation of minority ethnic people with asthma, despite evidence of disproportionate asthma morbidity. In another example of an *intrinsic* case study, Hellstrom et al. studied an elderly married couple living with dementia to explore how dementia had impacted on *their* understanding of home, *their* everyday life and *their* relationships.

For an *instrumental* case study, selecting a "typical" case can work well. In contrast to the *intrinsic* case study, the particular case which is chosen is of less importance than selecting a case that allows the researcher to investigate an issue or phenomenon. For example, in order to gain an understanding of doctors' responses to health policy initiatives, Som undertook an *instrumental* case study interviewing clinicians who had a range of responsibilities for clinical governance in one NHS acute hospital trust. Sampling a "deviant" or "atypical" case may however prove even more informative, potentially enabling the researcher to identify causal processes, generate hypotheses and develop theory.

In *collective* or multiple case studies, a number of cases are carefully selected. This offers the advantage of allowing comparisons to be made across several cases and/or replication. Choosing a "typical" case may enable the findings to be generalised to theory (i.e. analytical generalisation) or to test theory by replicating the findings in a second or even a third case (i.e. replication logic). Yin suggests two or three literal replications (i.e. predicting similar results) if the theory is straightforward and five or more if the theory is more subtle. However, critics might argue that selecting 'cases' in this way is insufficiently reflexive and ill-suited to the complexities of contemporary healthcare organisations.

The selected case study site(s) should allow the research team access to the group of individuals, the organisation, the processes or whatever else constitutes the chosen unit of analysis for the study. Access is therefore a central consideration; the researcher needs to come to know the case study site(s) well and to work cooperatively with them. Selected cases need to be not only interesting but also hospitable to the inquiry if they are to be informative and answer the research question(s). Case study sites may also be pre-selected for the researcher, with decisions being influenced by key stakeholders. For example, our selection of case study sites in the evaluation of the implementation and adoption of electronic health record systems was heavily influenced by NHS Connecting for Health, the government agency that was responsible for overseeing the National Programme for Information Technology (NPfIT). This prominent stakeholder had already selected the NHS sites (through a competitive bidding process) to be early adopters of the electronic health record systems and had negotiated contracts that detailed the deployment timelines.

It is also important to consider in advance the likely burden and risks associated with participation for those who (or the site(s) which) comprise the case study. Of particular importance is the obligation for the researcher to think through the ethical implications of the study (e.g. the risk of inadvertently breaching anonymity or confidentiality) and to ensure that potential participants/participating sites are provided with sufficient information to make an informed choice about joining the study. The outcome of providing this information might be that the emotive burden associated with participation, or the organisational disruption associated with supporting the fieldwork, is considered so high that the individuals or sites decide against participation.

In our example of evaluating implementations of electronic health record systems, given the restricted number of early adopter sites available to us, we sought purposively to select a diverse range of implementation cases among those that were available. We chose a mixture of teaching, non-teaching and Foundation Trust hospitals, and examples of each of the three electronic health record systems procured centrally by the NPfIT. At one recruited site, it quickly became apparent that access was problematic because of competing demands on that organisation. Recognising the importance of full access and co-operative working for generating rich data, the research team decided not to pursue work at that site and instead to focus on other recruited sites.

**Collecting the data**

In order to develop a thorough understanding of the case, the case study approach usually involves the collection of multiple sources of evidence, using a range of quantitative (e.g. questionnaires, audits and analysis of routinely collected healthcare data) and more commonly qualitative techniques (e.g. interviews, focus groups and observations). The use of multiple sources of data (data triangulation) has been advocated as a way of increasing the internal validity of a study (i.e. the extent to which the method is appropriate to answer the research question). An underlying assumption is that data collected in different ways should lead to similar conclusions, and approaching the same issue from different angles can help develop a holistic picture of the phenomenon.

Brazier and colleagues used a mixed-methods case study approach to investigate the impact of a cancer care programme. Here, quantitative measures were collected with questionnaires before, and five months after, the start of the intervention which did not yield any statistically significant results. Qualitative interviews with patients however helped provide an insight into potentially beneficial process-related aspects of the programme, such as greater, perceived patient involvement in care. The authors reported how this case study approach provided a number of contextual factors likely to influence the effectiveness of the intervention and which were not likely to have been obtained from quantitative methods alone.

In *collective* or multiple case studies, data collection needs to be flexible enough to allow a detailed description of each individual case to be developed (e.g. the nature of different cancer care programmes), before considering the emerging similarities and differences in cross-case comparisons (e.g. to explore why one programme is more effective than another). It is important that data sources from different cases are, where possible, broadly comparable for this purpose even though they may vary in nature and depth.

**Analysing, interpreting and reporting case studies**

Making sense and offering a coherent interpretation of the typically disparate sources of data (whether qualitative alone or together with quantitative) is far from straightforward. Repeated reviewing and sorting of the voluminous and detail-rich data are integral to the process of analysis. In *collective* case studies, it is helpful to analyse data relating to the individual component cases first, before making comparisons across cases. Attention needs to be paid to variations within each case and, where relevant, the relationship between different causes, effects and outcomes. Data will need to be organised and coded to allow the key issues, both derived from the literature and emerging from the dataset, to be easily retrieved at a later stage. An initial coding frame can help capture these issues and can be applied systematically to the whole dataset with the aid of a qualitative data analysis software package.

The Framework approach is a practical approach, comprising of five stages *(familiarisation; identifying a thematic framework; indexing; charting; mapping and interpretation)* , to managing and analysing large datasets particularly if time is limited, as was the case in our study of recruitment of South Asians into asthma research. Theoretical frameworks may also play an important role in integrating different sources of data and examining emerging themes. For example, we drew on a socio-technical framework to help explain the connections between different elements - technology; people; and the organisational settings within which they worked - in our study of the introduction of electronic health record systems. Our study of patient safety in undergraduate curricula drew on an evaluation-based approach to design and analysis, which emphasised the importance of the academic, organisational and practice contexts through which students learn.

Case study findings can have implications both for theory development and theory testing. They may establish, strengthen or weaken historical explanations of a case and, in certain circumstances, allow theoretical (as opposed to statistical) generalisation beyond the particular cases studied. These theoretical lenses should not, however, constitute a strait-jacket and the cases should not be "forced to fit" the particular theoretical framework that is being employed.

When reporting findings, it is important to provide the reader with enough contextual information to understand the processes that were followed and how the conclusions were reached. In a collective case study, researchers may choose to present the findings from individual cases separately before amalgamating across cases. Care must be taken to ensure the anonymity of both case sites and individual participants (if agreed in advance) by allocating appropriate codes or withholding descriptors.

**What are the potential pitfalls and how can these be avoided?**

The case study approach is, as with all research, not without its limitations. When investigating the formal and informal ways undergraduate students learn about patient safety, for example, we rapidly accumulated a large quantity of data. The volume of data, together with the time restrictions in place, impacted on the depth of analysis that was possible within the available resources. This highlights a more general point of the importance of avoiding the temptation to collect as much data as possible; adequate time also needs to be set aside for data analysis and interpretation of what are often highly complex datasets.

Case study research has sometimes been criticised for lacking scientific rigour and providing little basis for generalisation (i.e. producing findings that may be transferable to other settings). There are several ways to address these concerns, including: the use of theoretical sampling (i.e. drawing on a particular conceptual framework); respondent validation (i.e. participants checking emerging findings and the researcher's interpretation, and providing an opinion as to whether they feel these are accurate); and transparency throughout the research process. Transparency can be achieved by describing in detail the steps involved in case selection, data collection, the reasons for the particular methods chosen, and the researcher's background and level of involvement (i.e. being explicit about how the researcher has influenced data collection and interpretation). Seeking potential, alternative explanations, and being explicit about how interpretations and conclusions were reached, help readers to judge the trustworthiness of the case study report. Stake provides a critique checklist for a case study report.

**Conclusions**

The case study approach allows, amongst other things, critical events, interventions, policy developments and programme-based service reforms to be studied in detail in a real-life context. It should therefore be considered when an experimental design is either inappropriate to answer the research questions posed or impossible to undertake. Considering the frequency with which implementations of innovations are now taking place in healthcare settings and how well the case study approach lends itself to in-depth, complex health service research, we believe this approach should be more widely considered by researchers. Though inherently challenging, the research case study can, if carefully conceptualised and thoughtfully undertaken and reported, yield powerful insights into many important aspects of health and healthcare delivery.

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