Case study as a research method

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Abstract

Although case study methods remain a controversial approach to data collection, they are widely recognised in many social science studies especially when in-depth explanations of a social behaviour are sought after. This article, therefore, discusses several aspects of case studies as a research method. These include the design and categories of case studies and how their robustness can be achieved. It also explores on the advantages and disadvantages of case study as a research method.

Introduction

Case study research, through reports of past studies, allows the exploration and understanding of complex issues. It can be considered a robust research method particularly when a holistic, in-depth investigation is required. Recognised as a tool in many social science studies, the role of case study method in research becomes more prominent when issues with regard to education (Gulsecen & Kubat, 2006), sociology (Grassel & Schirmer, 2006) and community-based problems (Johnson, 2006), such as poverty, unemployment, drug addiction, illiteracy, etc. were raised. One of the reasons for the recognition of case study as a research method is that researchers were becoming more concerned about the limitations of quantitative methods in providing holistic and in-depth explanations of the social and behavioural problems in question. Through case study methods, a researcher is able to go beyond the quantitative statistical results and understand the behavioural conditions through the actor's perspective. By including both quantitative and qualitative data, case study helps explain both the process and outcome of a phenomenon through complete observation, reconstruction and analysis of the cases under investigation (Tellis, 1997).

Past literature reveals the application of the case study method in many areas and disciplines. Among them include natural examples in the fields of Sociology (Grassel & Schirmer, 2006), Law (Lovell, 2006) and Medicine (Taylor & Berridge, 2006). In addition, there are also other areas that have used case study methods extensively, particularly in government, management and in education. For instance, there were studies conducted to ascertain whether particular government programmes were efficient or whether the goals of a particular programme were reached. In other examples, such as in education, evaluative applications were conducted to assess the effectiveness of educational programmes and initiatives. In these types of study, limiting to only quantitative method would obscure some of the important data that need to be uncovered.

Definition of case study

Case study method enables a researcher to closely examine the data within a specific context. In most cases, a case study method selects a small geographical area or a very limited number of individuals as the subjects of study. Case studies, in their true essence, explore and

investigate contemporary real-life phenomenon through detailed contextual analysis of a limited number of events or conditions, and their relationships. Yin (1984:23) defines the case study research method "as an empirical inquiry 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."

In some case studies, an in-depth longitudinal examination of a single case or event is used. The longitudinal examination provides a systematic way of observing the events, collecting data, analysing information, and reporting the results over a long period of time. For instance, studies on child language development can be conducted using this longitudinal case study method. Data collected through observations are recorded to ascertain the language development of a child. In another example, a researcher conducting a case study may examine the reading processes of only one subject over a period of time. In other words, a case study is a unique way of observing any natural phenomenon which exists in a set of data (Yin, 1984). By unique it is meant that only a very small geographical area or number of subjects of interest are examined in detail. Unlike quantitative analysis which observes patterns in data at the macro level on the basis of the frequency of occurrence of the phenomena being observed, case studies observe the data at the micro level.

Design of case study

Since case study method receives criticism in terms of its lack of robustness as a research tool, crafting the design of case studies is of paramount importance. Researchers can adopt either a single-case or multiple-case design depending on the issue in question. In cases where there are no other cases available for replication, the researcher can adopt the single-case design. For instance, a social study on the effects of the collapse of Highland Towers in Kuala Lumpur in the 1990s, or the effects of tsunami in Acheh in 2004 can be conducted using a single-case design, where events are limited to a single occurrence. However, the drawback of a single-case design is its inability to provide a generalising conclusion, in particular when the events are rare. One way of overcoming this is by triangulating the study with other methods in order to confirm the validity of the process.

The multiple-case design, on the other hand, can be adopted with real-life events that show numerous sources of evidence through replication rather than sampling logic. According to Yin (1994), generalisation of results from case studies, from either single or multiple designs, stems on theory rather than on populations. By replicating the case through pattern-matching, a technique linking several pieces of information from the same case to some theoretical proposition (Campbell, 1975), multiple-case design enhances and supports the previous results. This helps raise the level of confidence in the robustness of the method. For instance, research on dyslexic children with reading problems requires a number of replication that can be linked to a theory before conclusive results are generalised.

Careful design of a case study is therefore very important. This is because case study method, through interviews or journal entries, must be able to prove that:

    i.   it is the only viable method to elicit implicit and explicit data from the subjects
    ii. it is appropriate to the research question
    iii. it follows the set of procedures with proper application
    iv. the scientific conventions used in social sciences are strictly followed
    v. a 'chain of evidence', either quantitatively or qualitatively, are systematically recorded and archived particularly when interviews and direct observation by the researcher are the main sources of data
    vi. the case study is linked to a theoretical framework (Tellis, 1997)

Category of case study

There are several categories of case study. Yin (1984) notes three categories, namely exploratory, descriptive and explanatory case studies. First, exploratory case studies set to explore any phenomenon in the data which serves as a point of interest to the researcher. For instance, a researcher conducting an exploratory case study on individual's reading process may ask general questions, such as, "Does a student use any strategies when he reads a text?" and "if so, how often?". These general questions are meant to open up the door for further examination of the phenomenon observed. In this case study also, prior fieldwork and small-scale data collection may be conducted before the research questions and hypotheses are proposed. As a prelude, this initial work helps prepare a framework of the study. A pilot study is considered an example of an exploratory case study (Yin, 1984; McDonough and McDonough, 1997) and is crucial in determining the protocol that will be used.

Second, descriptive case studies set to describe the natural phenomena which occur within the data in question, for instance, what different strategies are used by a reader and how the reader use them. The goal set by the researcher is to describe the data as they occur. McDonough and McDonough (1997) suggest that descriptive case studies may be in a narrative form. An example of a descriptive case study is the journalistic description of the Watergate scandal by two reporters (Yin, 1984). The challenge of a descriptive case study is that the researcher must begin with a descriptive theory to support the description of the phenomenon or story. If this fails there is the possibility that the description lacks rigour and that problems may occur during the project. An example of a descriptive case study using pattern-matching procedure is the one conducted by Pyecha (1988) on special education children. Through replication, data elicited from several states in the United States of America were compared and hypotheses were formulated. In this case, descriptive theory was used to examine the depth and scope of the case under study.

Third, explanatory case studies examine the data closely both at a surface and deep level in order to explain the phenomena in the data. For instance, a researcher may ask the reason as to why a student uses an *inferencing* strategy in reading (Zaidah, 2003). On the basis of the data, the researcher may then form a theory and set to test this theory (McDonough and McDonough, 1997). Furthermore, explanatory cases are also deployed for causal studies where pattern-matching can be used to investigate certain phenomena in very complex and multivariate cases. Yin and Moore (1987) note that these complex and multivariate cases can be explained by three rival theories: a knowledge-driven theory, a problem-solving theory, and a social-interaction theory. The knowledge-driven theory stipulates that eventual commercial products are the results of ideas and discoveries from basic research. Similar notions can be said for the problem-solving theory. However, in this theory, products are derived from external sources rather than from research. The social-interaction theory, on the other hand, suggests that overlapping professional network causes researchers and users to communicate frequently with each other.

Other researchers also mention about other categories of case study. For instance, according to McDonough and McDonough (1997) other categories include interpretive and evaluative case studies. Through interpretive case studies, the researcher aims to interpret the data by developing conceptual categories, supporting or challenging the assumptions made regarding them. In evaluative case studies, the researcher goes further by adding their judgement to the phenomena found in the data.

Yin (1984) cautions researchers against any attempt to separate these categories or to conceive them as a hierarchy. Yin (1984:15) postulates that:

> A common misconception is that the various research strategies should be arrayed hierarchically. Thus, we were once taught to believe that case studies were appropriate for the exploratory phase of an investigation that surveys and histories were appropriate for the descriptive phase, and that experiments were the only way of doing exploratory or causal inquiries.

The hierarchical view, however, is incorrect. Experiments with an exploratory motive have certainly always existed. In addition, the development of causal explanations has long been a serious concern of historians, reflected by the subfield known as historiography. Finally, case studies are far from being only an exploratory strategy.

In defining case studies, Stake (1995) distinguishes three types, the intrinsic, the instrumental and the collective. In an intrinsic case study, a researcher examines the case for its own sake. For instance, why does student A, age eight, fail to read when most children at that age can already read? In an instrumental case study, the researcher selects a small group of subjects in order to examine a certain pattern of behaviour, for instance, to see how tertiary level students study for examination. In a collective case study, the researcher coordinates data from several different sources, such as schools or individuals. Unlike intrinsic case studies which set to solve the specific problems of an individual case, instrumental and collective case studies may allow for the generalisation of findings to a bigger population.

Advantages of case study

There are a number of advantages in using case studies. First, the examination of the data is most often conducted within the context of its use (Yin, 1984), that is, within the situation in which the activity takes place. A case study might be interested, for example, in the process by which a subject comprehends an authentic text. To explore the strategies the reader uses, the researcher must observe the subject within her environment, such as reading in classroom or reading for leisure. This would contrast with experiment, for instance, which deliberately isolates a phenomenon from its context, focusing on a limited number of variables (Zaidah, 2003).

Second, variations in terms of intrinsic, instrumental and collective approaches to case studies allow for both quantitative and qualitative analyses of the data. Some longitudinal studies of individual subjects, for instance, rely on qualitative data from journal writings which give descriptive accounts of behaviour. On the other hand, there are also a number of case studies which seek evidence from both numerical and categorical responses of individual subjects (such as Block, 1986; Hosenfeld, 1984). While Yin (1984:25) cautions researchers not to confuse case studies with qualitative research, he also notes that "case studies can be based … entirely on quantitative evidence".

Third, the detailed qualitative accounts often produced in case studies not only help to explore or describe the data in real-life environment, but also help to explain the complexities of real-life situations which may not be captured through experimental or survey research. A case study of reading strategies used by an individual subject, for instance, can give access to not only the numerical information concerning the strategies used, but also the reasons for strategy use, and how the strategies are used in relation to other strategies. As reading behaviours

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involve complex cognitive processes, each reading strategy cannot be examined in isolation but rather in relation to other strategies (Zaidah, 2003).

Disadvantages of case studies

Despite these advantages, case studies have received criticisms. Yin (1984) discusses three types of arguments against case study research. First, case studies are often accused of lack of rigour. Yin (1984:21) notes that "too many times, the case study investigator has been sloppy, and has allowed equivocal evidence or biased views to influence the direction of the findings and conclusions".

Second, case studies provide very little basis for scientific generalisation since they use a small number of subjects, some conducted with only one subject. The question commonly raised is "How can you generalise from a single case?" (Yin, 1984:21).

Third, case studies are often labelled as being too long, difficult to conduct and producing a massive amount of documentation (Yin, 1984). In particular, case studies of ethnographic or longitudinal nature can elicit a great deal of data over a period of time. The danger comes when the data are not managed and organised systematically.

A common criticism of case study method is its dependency on a single case exploration making it difficult to reach a generalising conclusion (Tellis, 1997). Yin (1993) considered case methodology 'microscopic' because of the limited sampling cases. To Hamel *et al.* (1993) and Yin (1994), however, parameter establishment and objective setting of the research are far more important in case study method than a big sample size.

Conclusion

In summary, we provide some discussion of case studies in terms of the different types of case studies found in the literature. Case studies are considered useful in research as they enable researchers to examine data at the micro level. As an alternative to quantitative or qualitative research, case studies can be a practical solution when a big sample population is difficult to obtain. Although case studies have various advantages, in that they present data of real-life situations and they provide better insights into the detailed behaviours of the subjects of interest, they are also criticised for their inability to generalise their results.

Case study method has always been criticised for its lack of rigour and the tendency for a researcher to have a biased interpretation of the data. Grounds for establishing reliability and generality are also subjected to scepticism when a small sampling is deployed. Often time, case study research is dismissed as useful only as an exploratory tool. Despite these criticisms, researchers continue to deploy the case study method particularly in studies of real-life situations governing social issues and problems. Case studies from various disciplines and domains are widely reported in the literature.

References:

Block, E., (1986). The comprehension strategies of second language readers. *TESOL Quarterly*, 20, 3, 463-494.

Campbell, D., (1975). Degrees of freedom and the case study. *Comparative Political Studies, 8*, 178-185.

Grassel, E. and Schirmer, B., (2006). The use of volunteers to support family careers of dementia patients: results of a prospective longitudinal study investigating expectations towards and experience with training and professional support. *Zeitschrift Fur Gerontologie Und Geriatrie* 39 (3): 217-226 Jun.

Gulsecen, S. and Kubat, A., (2006). Teaching ICT to teacher candidates using PBL: A qualitative and quantitative evaluation. *Educational Technology & Society*, 9 (2): 96-106.

Hamel, J., Dufour, S. and Fortin, D., (1993). *Case Study Methods*. Newbury Park, CA: Sage Publications.

Hosenfeld, C., (1984). Case studies of ninth grade readers. In J.C. Alderson and A.H. Urquhart (Eds.), *Reading in a Foreign Language*. London: Longman.

Johnson, M.P., (2006). Decision models for the location of community corrections centers. *Environment And Planning B-Planning & Design* 33 (3): 393-412 May.

Lovell, G.I., (2006). Justice Excused: The Deployment Of Law In Everyday Political Encounters. *Law & Society Review*, 40 (2): 283-324 June.

McDonough, J. and McDonough, S., (1997). *Research Methods for English Language Teachers*. London: Arnold.

Pyecha, J., (1988). *A Case Study Of The Application Of Noncategorical Special Education In Two States* Chapel Hill, NC: Research Triangle Institute.

Stake, R.E. (1995). *The Art of Case Study Research: Perspective in Practice*. London: Sage.

Taylor, S. and Berridge, V., (2006). Medicinal plants and malaria: an historical case study of research at the London School of Hygiene and Tropical Medicine in the twentieth century. *Transactions Of The Royal Society Of Tropical Medicine And Hygiene* 100 (8): 707-714 August.

Tellis, Winston, (1997). Introduction to Case Study. *The Qualitative Report*, Volume 3, Number 2, July. (http://www.nova.edu/ssss/QR/QR3-2/tellis1.html).

Yin, R.K., (1984). *Case Study Research: Design and Methods*. Beverly Hills, Calif: Sage Publications.

Yin, R., (1994). *Case study research: Design and methods* (2nd ed.). Beverly Hills, CA: Sage Publishing.

Yin, R., and Moore, G., (1987). The use of advanced technologies in special education. *Journal of Learning Disabilities, 20*(1), 60.

Zaidah Zainal, (2003). An Investigation into the effects of Discipline-Specific Knowledge, Proficiency and Genre on Reading Comprehension and Strategies of Malaysia ESP Students. Unpublished Ph.D. Thesis. University of Reading.