

Research methods: Is everything a case study?

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"...while theory building from cases is increasingly prominent, challenges in writing publishable manuscripts using this research strategy exist. Some reviewers ... may misunderstand the method (e.g., expect random sampling), or simply regard their own methods as superior"¹.

Introduction

This two-pager discusses case research methodology, Case study research involves examining a small number of cases in great detail, while at the same time seeking findings that are generalisable². Why you might use this approach is discussed next, followed by an outline of two key issues in case research: the duality criterion and the sampling approach. The two-pager closes with commentary about whether "everything" is really just a case study anyway, and consequences for our research.

Why use case research methodology?

Case research is particularly useful for "how" and "why" questions about current events, but where the researcher(s) cannot control what happens (ruling out an experimental case-control approach).

Method	Research question	Control of events?	Contemporary events?
Experiment	how, why?	Yes	Yes
Survey	who, what, where, how many, how much?	No	Yes
Archival analysis	who, what, where, how many, how much?	No	Yes/No
History	how, why?	No	No
Case study	how, why?	No	Yes

It can be useful in building new theory or testing existing theory, as even a single case might be enough to disprove a hypothesis³. Looking at only a small number of cases allows great depth of research so as to better understand the complexities, causal links and reasons behind a phenomenon, in contrast to random sampling methods where many cases are examined, but only shallowly^{4,5}.

Case research, however, is often considered inferior, including because of: confusion with other methods or the use of case studies for non-research purposes⁶; misconceptions that the cases themselves have to be representative⁷ or that statistical significance is the only

¹ Kathleen M. Eisenhardt and Melissa E. Graebner. Theory building from cases: Opportunities and challenges. *Academy of Management journal*, 50(1):25–32, 2007. ISSN 0001-4273

² Robert K. Yin. *Case study research: design and methods*. SAGE Publications, Thousand Oaks, CA, USA, 4th edition, 2009; Mark Barratt, Thomas Choi, and Mei Li. Qualitative case studies in operations management: Trends, research outcomes, and future research implications. *Journal of Operations Management*, 29(4):329, 2011. ISSN 02726963; Mikko Ketokivi and Thomas Choi. Renaissance of case research as a scientific method. *Journal of Operations Management*, 32(5):232, 2014. ISSN 02726963; and

Table 1: When to use each research method. Source: Yin [2009].

³ This red horse disproves the hypothesis that all of the horses are black or brown.

⁴ Martyn Denscombe. *The good research guide*. McGraw-Hill International UK Ltd, Maidenhead, Berkshire, UK, 2nd edition, 2007

⁵ Correlation is not causality!

⁶ e.g. for teaching or in journalism

⁷ A critical case (that might be non-representative) might be selected to explore why something happened (e.g. Why is this horse red, but all the others are black or brown? Did someone paint it red?).

way to achieve scientific rigor⁸.

The "duality criterion"

Case research needs to be grounded in the cases' context⁹, while at the same time seeking generalised findings applicable to cases not included in the study^{10,11}. Denscombe (2007) suggests providing "an explicit defence against the allegation that you cannot generalize from (the) case study findings"¹² so as to formally address this issue.

Sampling approaches

The case research methodology literature describes theoretical reasons to include a case in your sample, including because it is a: leading example; critical case; particularly revelatory case; representative case; case that can be studied over time; particularly unusual case; or, together with other selected cases, provides an opposite result, similar results (for replication) or represents polar extremes. Non-theoretical reasons for including a case might be convenience (especially if geographically proximate), a forced choice (e.g. because of study funding source) or opportunistic (e.g. data access)¹³. Such non-theoretical reasons are ok, but should be acknowledged and addressed. As well, a case included for non-theoretical reasons might also be justifiable on theoretical grounds.

How many cases? Only a few might not provide sufficient breadth. Too many and getting the depth of research necessary to fully understand the context and mechanisms may be impossible. Eisenhardt (1989) suggests four to ten, Yin (2009) six to ten including two to three chosen for replication and the others chosen to explore differences. One might be enough, especially for theory testing¹⁴.

Is everything in transport research a case study?

Most transport research is grounded in the context of a city, country or other unit of analysis. Even experimental transport modelling might make assumptions about local traffic laws, cultural practices with respect to pedestrian behaviour or queuing, or other elements grounded in the context of a case. A *key consequence for us* therefore is to recognise the need to seek generalisable findings¹⁵, that can be confidentially applied to other places and cases. The case research methodology literature also includes recommendations with respect to: framing study questions, writing case study protocols, case reports and cross-case comparisons to ensure and demonstrate academic rigor and help to direct and formalise the study; and a body of theory that supports use of case studies as a research tool.

⁸ Thomas V. Bonoma. Case research in marketing: opportunities, problems, and a process. *Journal of Marketing Research*, 21(4):199, 1984. ISSN 0022-2437; and

Eisenhardt & Graebner (2007); Denscombe (2007), Yin (2009).

⁹ Allowing cases to be examined at great depth, so as to understand how and why something is the way it is.

¹⁰ i.e. making/seeking findings than can be confidently assumed to apply to some/many/most/all fields of horses.

¹¹ Ketokivi and Choi (2014)

¹² i.e. I checked that the red horse in my field was not a brown horse painted red, so therefore we can confidently generalize that red horses do actually exist and that they may be found in some fields.

¹³ Kathleen M. Eisenhardt. Building theories from case study research. *Academy of Management. The Academy of Management Review*, 14(4), 1989. ISSN 03637425; Jack Meredith. Building operations management theory through case and field research. *Journal of Operations Management*, 16(4):441, 1998. ISSN 0272-6963; I. Stuart, D. McCutcheon, R. Handfield, R. McLachlin, and D. Samson. Effective case research in operations management: a process perspective. *Journal of Operations Management*, 20(5):419-433, 2002. ISSN 0272-6963; Chris Voss, Nikos Tsikriktsis, and Mark Frohlich. Case research in operations management. *International Journal of Operations & Production Management*, 22(2):195-219, 2002. ISSN 0144-3577. DOI: 10.1108/01443570210414329; and Barratt et al. (2011), Denscombe (2007), Ketokivi and Choi (2014), Yin (2009)

¹⁴ This one red horse disproves the theory that all horses are brown or black. No, there is no need for me to find another red horse, one is enough. Also, I looked closely at its hair, did genetic analysis and all sorts of other things and now understand HOW a horse might be red.

¹⁵ Are the findings of this survey of Melbourne cyclists/scooter users/passengers/vehicle movements/etc. applicable elsewhere?