

Reilly, Rosemary C.
Encyclopedia of case study research

Process tracing

Process tracing is a data analysis method for identifying, validating, and testing causal mechanisms within case studies in a specific, theoretically informed way. When first popularized by George and McKeown, this method referred to a within-case analysis to evaluate causal processes of decision-making, charting various initial conditions to their linked outcomes. Van Evera, and more recently George and Bennett, use this term to mean the tracing of *any* causal process by which the initial conditions are translated into outcomes. Process tracing is a robust technique to test theories of causality-in-action by examining the intervening steps, and, as claimed by Checkel, brings theory closer to what is going on in the real world. It has been used within the fields of political science, comparative politics, organizational studies, and international relations, in addition to examining cognitive processes underlying decision-making, creativity, and problem-solving.

Conceptual Overview and Discussion

Process tracing effectively captures how an issue, situation, or pivotal event evolves, especially when the focus of the case is subject to the dynamics of change, and time is an organizing variable. It is used to “unwrap” the causal links that connect independent variables and outcomes, by identify the intervening causal processes, i.e., the causal chain and causal mechanisms linking them. It also is able to consider responses of social actors in their context, and to trace events from a static pre-causal point to the eventual outcome of interest. A process trace allows case researchers to account for equifinality, i.e. a characteristic of open systems by which given ends state can be reached by many potential means. It offers the possibility of

mapping out one or more potential causal trajectories that are consistent with the outcome and the evidence in a case. When applied to multiple cases, researchers are able to chart the potential complexity of differentiating alternative causal paths.

The issue of the starting point of the tracing process is highly contentious. Some researchers begin their process trace in moments of critical junctures, whereas others argue that only contingent events can trigger path-dependent processes. Whichever position one adopts, it is crucial for case researchers to theoretically justify their choice of the period under study. Though the starting point may be contested, the end point is easier to establish, since it is determined by the outcome of interest.

Why would researchers use process tracing? This methodology can encapsulate all of the intricacies and nuances leading to the outcome of a dependent variable more successfully than other theoretical frameworks. It is particularly suited to contexts where decision-making lies at the heart of the investigation (e.g. policy studies) or for grand scale events (e.g. international relations). It can also explore the various stimuli (defined as independent variables), which the different social actors react to in relation to the internal and external conditions influencing the issue, situation, or pivotal event. Since it is based on a chronology, process tracing identifies important emergent influence that a more “snapshot” approach may miss and can control for the impact of omitted variables. The data used for this method are qualitative in nature, and can include historical memoirs, interviews, press accounts, and archival documents. Multiple data streams are necessary since rich and varied sources are required for process tracing. As well, the method is time intensive, frequently requiring years to collect the data and complete the analysis.

Applications

In order to use this method, case researchers first need to state their theories of causality.

Researchers generate a set of hypotheses, preferably competing hypotheses, about the relevant causes and how these causes connect to the final outcome under examination. It is this central reliance on hypotheses that distinguishes the process trace as a scientific method. Secondly, case researchers must set the criteria for the independent variables and operationalize the outcomes (the dependent variables). The next step is to explicate the expectations about what one should observe in the case if the theory is valid; as well, case researchers must spell out what would be observed if the causal theory is false. These expectations are the theoretically predicted intermediate steps that allow for statements about causality; this stage of the process brings theory and data into close proximity. Researchers then reconstruct an explicit chronology of the sequence of events, which comprises the process under investigation. This sequenced connection is not a simple task; it requires a precise conceptualization of the types of events that created the causal chain, as well as those that did not. Generally, this chronology takes the form of a narrative-- storytelling in order to uncover a causal mechanism. Embedded within this narrative are the theoretical variables that have been identified in the research design. The narrative functions as an explanation in which the movement through time and space of the process or event under investigation is deliberately couched in an analytic framing of interactions with the dynamics that will explain the phenomenon of interest.

The final step is to explore the case looking for congruence or incongruence between the expectations and the observations. Process tracing only works if case researchers hold the operational definitions constant in a series of elucidated steps: A causes B; B then causes C; C then causes D, until the identified dependent variable (the outcome) is reached. This step-wise procedure produces a series of mini-checks, which cause case researchers to think hard about the connection (or lack of) between expected patterns and what the data say. This procedure

minimizes any theoretical bias that case researchers may hold and any inferential errors that may arise from relying on only structured focused comparisons. Process tracing produces a qualitative description of how an event unfolded, which can form the basis for a comparison with similar situations.

There are, however, significant challenges to using this analysis technique. Case researchers can easily lose sight of the impact of larger social forces by examining the fine grain of process. In their attempt to uncover the micro underpinnings of individual behavior that connect the hypothesized cause and outcome, they can become blind to the "bigger picture." As well, there are significant data requirements. A variety of sources must be drawn upon because of the very nature of complex social events.

Checkel has outlined an epistemological trap that may ensnare researchers using this technique. Qualitative data form the basis of the data examined in process tracing. Qualitative data, generally, invoke constructivist epistemological assumptions (i.e., subjectivism). However, the process tracing methodology of testing causality has strong roots in positivist or post-positivist traditions, suggesting the method brings a philosophical assumption of objectivism into the analysis. This clash of assumptions can undermine the soundness of any analysis using process tracing. Since method is inextricably linked to epistemology through theoretical perspectives, it behooves case researchers to fully explicate their epistemological assumptions.

Critical Summary

Process tracing permits the study of complex causal relationships especially those characterized by multiple causality, feedback loops, nonlinear dynamics, tipping points, and complex responsive processes. It can also lead to the formulation of new theories on the causal mechanisms that connect correlated phenomena, and permit the testing of these theories on other

cases. It provides a strong basis for causal inference if an uninterrupted causal path exists linking the purported causes to the observed outcomes as specified by the hypotheses being tested. However, in order for case researchers to effectively use process tracing, cases must be sufficiently data rich, allowing researchers to see the multitude of stimuli, dynamics, and interactions that can ripple to events. As well, this technique can present challenges to the validity and reliability of the measures of the variables. In terms of validity, a key issue is whether the independent variable and its criteria sufficiently capture what it is intended to measure. In terms of reliability, the challenge lies in the ability of other researchers to duplicate the results given the idiosyncratic nature of the operationalization of outcomes and the explication of the expectations. The use of a predefined yardstick or a clear and concrete description can greatly enhance validity and reliability. Though unable to generate grand scale theory, process tracing's strength lies in its ability to examine interactions and question of "how something came to pass" using qualitative data sources, generating mid-range theory.

See also: Complexity; Constructivism; Postpositivism

Further reading and references:

Checkel, Jeffrey. (2005). *It's the process, stupid! Process tracing in the study of European and international politics*. Retrieved from http://www.arena.uio.no/publications/working-papers2005/papers/wp05_26.pdf on August 8, 2008.

Checkel, Jeffrey. (2008). Process tracing. In Audie Klotz & Deepa Prakash (eds.), *Qualitative methods in international relations: A pluralist guide*. New York: Palgrave Macmillan.

George, Alexander, & Bennett, Andrew. (2005). *Case studies and theory development in the*

social sciences. Cambridge, MA: MIT Press.

George, Alexander, & McKeown, Tim. (1985). Case studies and theories of organizational decision-making. In R. Coulam & R. Smith (Eds.), *Advances in information processing in organizations* (vol.2) (pp. 43-68). Greenwich, CT: JAI press.

Van Evera, Stephen. (1997). *Guide to methods for students of political science*. Ithaca, NY: Cornell University Press.