Understanding Different Types of Research: What’s the difference between qualitative and quantitative approaches?

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In the world of research, there are two general approaches to gathering and reporting information: qualitative and quantitative approaches. The qualitative approach to research is focused on understanding a phenomenon from a closer perspective. The quantitative approach tends to approximate phenomena from a larger number of individuals using survey methods. In this research corner, I describe methods that are generally used in each strand of research. Each approach has its benefits and detriments, and is more suitable to answering certain kinds of questions.

Qualitative Approach

The qualitative approach to gathering information focuses on describing a phenomenon in a deep comprehensive manner. This is generally done in interviews, open-ended questions, or focus groups. In most cases, a small number of participants participate in this type of research, because to carry out such a research endeavor requires many resources and much time. Interviews can vary from being highly structured and guided by open-ended questions, or be less structured and take the form of a conversational interview. Because of the investment in this type of research and the relatively few number of participants, findings from qualitative research cannot be generalized to the whole population. However, such research serves as a springboard for larger studies and deeper understanding that can inform theory, practice, and specific situations.

Example from youth mentoring research

Ahrens, DuBois, Garrison, Spencer, Richardson, & Lozano (2011) used semi-structured interviews to outline themes of mentor characteristics and factors that youth perceive to influence mentor relationships. They spoke with participants on the phone and asked them open-ended questions. In identifying barriers and facilitators for relationship initiation and maintenance, Ahrens et al. provide important points of inquiry to be used in a larger scale survey-based research. One of the cautions in using qualitative approaches is that the findings apply only to this small group of 23 individuals. This research was crucial in providing evidence that these factors should be examined and further elaborated through quantitative methods prior to making any wide-range recommendation. Summary of this study (bit.ly/10sKnDQ).

Benefits of the qualitative approach

Using open-ended questions and interviews allows researchers and practitioners to understand how individuals are doing, what their experiences are, and recognize important antecedents and outcomes of interest that might not surface when surveyed with pre-determined questions.
Although qualitative research can be thought of as anecdotal, when pooled across a number of participants it provides a conceptual understanding and evidence that certain phenomena are occurring with particular groups or individuals.

- Allows identification of new and untouched phenomena
- Can provide a deeper understanding of mechanisms
- Gives a one-on-one and anecdotal information
- Provides verbal information that may sometimes be converted to numerical form
- May reveal information that would not be identified through pre-determined survey questions

Limitations

- Cannot generalize to the general population
- Challenges in applying statistical methods
- Difficulty in assessing relations between characteristics

Quantitative Approach

The quantitative approach to gathering information focuses on describing a phenomenon across a larger number of participants thereby providing the possibility of summarizing characteristics across groups or relationships. This approach surveys a large number of individuals and applies statistical techniques to recognize overall patterns in the relations of processes. Importantly, the use of surveys can be done across groups. For example, the same survey can be used with a group of mentors that is receiving training (often called the intervention or experimental groups) and a group of mentors who does not receive such a training (a control group). It is then possible to compare these two groups on outcomes of interest, and determine what influence the training had. It is also relatively easy to survey people a number of times, thereby allowing the conclusion that a certain features (like matching) influence specific outcomes (well-being or achievement later in life).

Example from youth mentoring research

Grossman and Rhodes (2002) examined duration of matched relationships in over 1,100 Big Brothers Big Sisters mentor-mentee matches. Because the information they used was survey-based and numerical, they were able to employ statistical techniques examining how duration of match was related to different outcomes of interest.

In using a variety of statistical techniques, they concluded that “youth who were in [matched mentoring] relationships that lasted a year or longer reported improvements in academic, psychosocial, and behavioral outcomes” (p. 213). If Grossman and Rhodes had not used survey-based quantitative research, they would not have had such a large sample of matches and therefore could not generalize to matches in general. In addition, with a smaller number of participants, it is challenging to apply some statistical techniques to examine emerging patterns across such a large group of mentored matches. The current rule of thumb to using complex statistical modeling is that you need a sample of at least 130 participants. However, for more complex modeling that controls for characteristics, a larger pool of participants is needed.
**Benefits of the quantitative approach**

Using survey methods across a large group of individuals enables generalization. For example, if policy makers wanted to instantiate a policy about mentor training, they would likely require some evidence that this training actually works. Interviewing a few individuals, or conducting a focus group with forty matches, might be reflective of specific cases in which the mentoring training worked, however, it would not provide strong evidence that such training is beneficial overall. Stronger support for successful training would be evident if using quantitative methods.

- Enables gathering information from a relatively large number of participant
- Can conduct in a number of groups, allowing for comparison
- Allows generalizing to broader population
- Provides numerical or rating information
- Informative for instantiating policy or guidelines
- Lends to statistical techniques that allow determining relations between variables (think of better word)

**Limitations**

- Difficulty in recognizing new and untouched phenomena
- Caution in interpretation without a control group

In summary, the qualitative and quantitative approaches to research allow a different perspective of situations or phenomena. These two main approaches to research are highly informative, especially if used in combination. Each approach has its benefits and detriments, and being aware of the methods used to gather information can help practitioners and policy-makers understand the extent to which research findings can be applied.
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