

## Correlational Research

### Introduction:

This research strategy seeks to clarify patterns of relationships between 2 or more variables. Here the researcher focuses on naturally occurring patterns, measures specific variables, and generates statistics for clarification:

- Focus on naturally occurring patterns: Complex real-world situations are the basis of the investigation. The idea is to clarify these through pattern-making.
- Measurement of specific variables: the researcher simply measures the variables of interest and analyzes relations among them. These are always variables that can be measured and quantified in some way (the data is quantitative; as 'solid' as measurements or object counts, or more 'abstract', including people's attitudes, meaning-making, or perceptions).

### Two Types of Correlational Research:

- Relationship: Here the specific focus is the predictive power of relationships between variables. Here the researcher knows what variable he/she wants to focus on, and then these are applied in some context to see how they relate.
- Causal-Comparative: this is an 'intermediate' position between the predictive orientation of relationship studies and the focus on causality that characterizes experimental research. Here the purpose is to isolate factors that cause differences in variables between contexts. Here the first step is to identify a group of particular contexts. Variables are then selected as they seem to vary from context to context.

### Measurement of variables:

Data in correlational research is quantified and tallied through the following:

- Categorical measurements: Variables are sorted into discrete categories (for example, painting, sculpting, digital design, and photography would be categories for 'design method').
- Ordinal scales: Here variables are ordered on some basis (a range, from 'lesser' to 'greater').
- Interval-ratio scales: Measurement of exact intervals; any established and consistent unit of measurement (dollars, feet, degrees, etc.). These should not be used for 'abstract' data (attitudes, feelings, etc.).
- Generation of statistics: The researcher develops either descriptive statistics (description of important relationships among variables, through graphs, charts, etc.) or correlational statistics (descriptions of the strength-direction relationship between 2 variables;  $-1.00$  = negative correlation and  $1.00$  = positive correlation).

As opposed to interpretive-contemporary research, here the amounts of data are not vast, so small data subsets must be representative of a larger 'universe'. This is made possible through established data-gathering methods:

- Survey questionnaire: This is perhaps the most frequently employed tool. It allows the researcher to cover an extensive amount of information across a large number of people in a limited amount of time. Questionnaires are drafted through the following procedure: first, determine main topics to be covered (orient questions towards these), then choose either open-ended or closed-ended formats (as well as categorical, ordinal, interval-ratio), phrase questions clearly (use short sentences, avoid making multiple queries in a single question, avoid framing questions in the negative, avoid using ambiguous wording, employ non-threatening language), use a logical sequence of topics (start with interesting and non-challenging issues, but don't place important items at the very end), use appealing but simple graphics, introduce the survey properly (provide a reason for the survey, provide a description of what the respondent is expected to do, explain where to turn in the survey, state provisions for keeping individual responses confidential).

- Observation: Direct or indirect. Indirect observation (videotape, time-lapse photography, etc.) is useful in order to catch all the details. The observer cannot simply follow his/her eye, for the complexity of any situation will be overwhelming. Good observations consider the following: the study site should help achieve your informational objectives, the site should be available to you, time and access restrictions should be predetermined, uncertainties in observations should be predetermined, consider whether your presence will affect the situation, focus of research should be consistent (in the case of several observers and/or observed sites).
- Mapping: The ways in which people map or draw particular data allows researchers to derive personalized patterns.
- Sorting: This is a great method for generating a creative foundation to a project. Very useful for establishing patterns between a client and a designer in a design project (it is a very effective alternative to simply asking people to state their preferences). The process typically involves asking a respondent to sort a set of cards (usually between 20 and 30) with either words or pictures presented on them. The respondent is then directed to sort these according to directed, free, q-sort, or f-sort groupings (categorical, ordinal, and/or interval-ratio).
- Archives: For inanimate objects or 'removed' individuals, researchers establish patterns from archived information.
- Multiple Regression: Focusing on interval-ratio data, this is more complex data analysis, used to describe the strength and direction of variable relationships. Mathematical equations indicate the amount of variance contributed by each variable.
- Factor Analysis: Also for interval-ratio data. Instead of using key variables to predict the outcomes of other variables, factor analysis aims to articulate an overall pattern. Variables that share similar patterns are grouped into clusters known as 'factors'.
- Multidimensional Scaling: Useful for nominal or interval-ratio data. This process creates a graphic plot that locates relationships in a spatial manner (variables are plotted as points; points plotted in close proximity represent similar patterns, while distant points represent dissimilar patterns).

### Strengths and weaknesses:

#### Strengths:

- This strategy is well suited to studying the breadth of a phenomenon.
- Predictive relationships can be established.

#### Weaknesses:

- The investigation cannot produce in-depth descriptions, or causality.

### Recommended Readings:

Dona Mertens, 'Survey Research' (pages 105-143 in 'Research Methods in Education and Psychology'; 1998)

John Zeisel, 'Inquiry by Design' (1981): Includes 'Observing Environmental Behavior', 'Standardized Questionnaires', 'Asking Questions', and 'Archives'.

Michael Brenner, 'The Multiple Sorting Procedure' (pages 79-114 in 'The Research Interview'; 1985): Great source on the sorting procedure.

H. Blalock, 'Social Statistics' (1979): Statistics.

Thomas Black, 'Doing Quantitative Research' (1999): Statistics.