

LABORATORY 3

Using Archival Data: Personality Assessment with the Q-Sort Technique

Purpose

- to introduce the concepts of **inter-observer agreement**, **reliability**, and **validity**;
- to give you experience with coding unstructured archival data using the **Q-sort technique**;
- to give you practice with using the **Pearson correlation coefficient** as a research tool;
- to illustrate how to conduct an empirical test of a hypothesis about personality constructs like *ego-resiliency* and *ego-control*.

Introduction

This lab shows one way to glean from archival data information about personality, information which can then be used to look for relations between personality characteristics and outcome variables like success in school or social delinquency. For this lab, you will use a technique called a **Q-sort** to characterize the personality of a target individual. This technique can be used with a wide variety of materials, and it has been shown in many cases to provide a reliable and useful measure. The materials in this lab are transcripts of interviews with people who were asked to describe the target individual. Thus, you will be trying to judge the personality of one person through the prism of another person's view of that individual. The success of this task depends partly on whether personality is a characteristic that can be measured and partly on whether information about someone's personality can be extracted from the way that person is described by others.

As a matter of science, answers to these questions start with the determination of whether the coding of personality is **reliable**. We can say that personality coding is reliable when different people provide the same coding for a given individual or when one person does coding of an individual at different times and finds the same coding each time. If the coding is not reliable, then scientific investigation cannot proceed. One important way to determine the reliability of a coding system is to measure the *inter-observer agreement*, and this will be measured using the **Pearson correlation coefficient, r** .

If the coding is reliable, then we ask another kind of question, which is whether knowing someone's personality allows us to predict other characteristics of the person or the person's behavior. This is a question about the **validity** of the coding of personality. We can say that a given personality coding is valid when the coding is related to other characteristics, such as success, health, attitudes, or even other aspects of personality. The degree of relationship to other characteristics will be measured also with the **Pearson correlation coefficient, r** .

Personality is an example of a multi-dimensional construct, and evaluations of such constructs can focus on individual dimensions, as when we say that someone is self-

disciplined and neurotic but fun-loving and imaginative. In this case, the assessment typically tries to measure the amount of each dimension that is found in a particular individual or situation. An alternative kind of evaluation is one that tries to provide an overall assessment of a person or a situation, as when one says of someone “Now, there’s a Type A personality!” In this case, the construct is measured by the similarity of a particular case to a prototypical example. The similarity of one case to a prototypical example is also measured by the **Pearson correlation coefficient**, r .

Thus, this lab uses the **Pearson correlation coefficient** in three ways: as a measure of reliability, as a measure of validity, and as a measure of similarity. For each use, the statistical significance of the correlation can be determined, but each use can give rise to a different interpretation of what a statistically significant result means. It will be important to keep track of the different ways of using the correlation coefficient.

Getting Started

To begin, you need a packet of transcripts and a set of Q-sort cards. The Q-sort packet consists of 100 personality descriptor cards and 9 category cards, each labeled “Category 1,” “Category 2,” and so on up to “Category 9.” Each of the category cards is also identified with a descriptive label (e.g. “**Extremely uncharacteristic or negatively salient**”) and an indication of the number of cards permitted in that category (e.g., for Category 1, “11 Cards”).

To begin the sorting procedure, place the nine category cards in a row in front of you on a table or other large clear area. Leave ample room to place the personality descriptor cards above or below the category cards, depending on your preference.

Finally, shuffle the Q-sort cards.

Collecting Data

Forming an impression and doing a Q-sort

Read through the packet of transcripts for the individual you are coding. As you read the descriptions, try to form an accurate impression of the individual under consideration.

Place each of the 100 personality descriptor cards into one of the 9 categories so that the resulting distribution reflects your impression of the individual described in the interviews. (Remember to follow the guidelines for the number of cards that go in each category. For example, place 11 cards in Category 1, “**Extremely uncharacteristic or negatively salient**”, 11 cards in Category 2, and so on).

This procedure will take about 20-30 minutes (you must sort through the cards, place them in categories, examine them, and, if necessary, re-arrange them, in order to best represent your impression of the person yet still put the required number of cards in each category). When you are done sorting, the 100 personality traits should be arrayed in 9 columns.

Once you are satisfied that the sorted cards accurately represent your impression, record the arrangement on the Q-sort Data Sheet. This page has spaces for all 100

descriptors and for your categorization of each descriptor. Start with the cards in Category 1, and put a “1” next to the number for each descriptor in this category. Then take the cards in Category 2 and put a “2” next to the number for each descriptor in this category. Continue in this fashion through the remaining categories.

Creating a “Big 5” personality profile

Next, create a personality profile of the individual in terms of the “Big Five” personality traits. Using the 5 point scales on the next page, in which “1” means “low” and “5” means “high”, rate the individual on each trait.

Evaluating ego-control and ego-resiliency

Finally, indicate your characterization of the individual’s personality in terms of the global characteristics of *ego-resiliency* and *ego-control* (terms developed by Jack and Jeanne Block (1980). Ego resiliency refers to the ability to the ability to modify one's behavior in accordance with contextual demands and show flexibility in responding to new situations. Ego-control refers to the ability to show impulse control and delay gratification. Use the rating scale on the next page to indicate whether the person has a high or a low degree of ego-resiliency. Similarly, use the rating scale to indicate whether the person has a high or a low degree of ego-control.

“Big Five” Personality Traits

Rate the individual on each trait, using the scales and anchor points provided.

		Neuroticism					
	1	2	3	4	5		
calm, secure, self-satisfied pitying						worrying, insecure, self-	
		Extraversion					
	1	2	3	4	5		
retiring, sober, reserved						sociable, fun-loving, affectionate	
		Openness					
	1	2	3	4	5		
conforming, down-to-earth, preference for routine						independent, imaginative, preference for variety	
		Agreeableness					
	1	2	3	4	5		
ruthless, suspicious, helpful uncooperative						soft-hearted, trusting,	
		Conscientiousness					
	1	2	3	4	5		
disorganized, careless, weak-willed						organized, careful, self- disciplined	

Ego-Resiliency and Ego-Control

Rate the individual in terms of ego-resiliency: 1 2 3 4 5
Low High

Rate the individual in terms of ego-control : 1 2 3 4 5
Low High

Data Analysis

Step 1. Transfer Q-sort data to spreadsheet

The first step in the data analysis is to transfer the category numbers you have entered on the coding sheet into a spreadsheet. Leave column **A** blank (the computer will generate numbers 1 to 100 in this column as will be described in Step 2). In Column **B**, starting in row **1**, enter the category numbers from your data sheet, for all 100 descriptors.

Step 2. Generate descriptor numbers

Enter the number "1" in cell **A1**, then scroll down to cell **A100**. When the cursor, in the shape of an open, white cross, is in cell **A100**, press and hold the "Shift" key, then click on the mouse. This should highlight all the cells between **A1** and **A100** (indicating they have been selected). From the top Menu Bar, select "Edit", then from the drop-down menu, select "Fill". From the next menu select "Series" to open the "Series" control window. In this window, under the heading "Series in", select "Columns". Under the heading "Type", select "Linear". Then in the box for "Step value" select "1". Lastly, click "OK". Numbers from 1 to 100 should fill in the selected cells.

Step 3. Measuring "Big 5" traits

Calculate scores for each of the "Big Five" personality traits. Making sure to skip at least one line, select a row (e.g., Row 102) that is below your last data entry.

Enter "Neuroticism" in the Column A cell. In the next cell to the right (e.g., Row 102, Column B), enter the formula

=average(B23, B24, B39,10-B43, B46, B48, B50, B60, B77, B78)

- *The cells in this formula are the descriptors related to "neuroticism"*

Select the next cell in Column A and enter "Extraversion". In the next cell to the right (e.g., Row 103, Column B), enter the formula

=average(10-b1,10-b8,b28,10-b35,b58,b63,b84,10-b98,10-b100)

- *The cells in this formula are the descriptors related to "extraversion"*

Select the cell in the next row that is in Column A and enter "Openness". In the next cell to

the right (in Column B), enter the formula

=average(b40,b68,b69,b70,b74,b96,b97)

- *The cells in this formula are the descriptors related to “openness”*

Select the cell in the next row that is in Column A and enter “Agreeableness”. In the next cell to the right (in Column B), enter the formula

=average(b2, b3, b4, b6, b9,b14,10-b22)

- *The cells in this formula are the descriptors related to “agreeableness”*

Select the cell in the next row that is in Column A and enter “Conscientiousness”. In the next cell to the right (in Column B), enter the formula

=average (b36,b41, b47,b59,b66,b67,b76,b89,b99)

- *The cells in this formula are the descriptors related to “conscientiousness”*

Step 4. Copying the benchmark data

On the M drive, open the file **qsortarchiv** in the Q-sort folder. Select and copy columns B, C, D and E. Switch back to your spreadsheet by going to the Menu Bar, clicking on “Window”, and, from the pull-down list, clicking on the name of your spreadsheet. When the spreadsheet is displayed, click on cell **D1**, then paste the copied columns into your spreadsheet, to the right of your data. These data consist of Q-sort ratings, by experts, of the personalities of the two individuals describe in this exercise, and *prototypical* ratings.

Step 5. Labeling the data columns

Insert a row at the top of the spreadsheet for column labels. To do this, highlight Row 1 by clicking on the number “1” on the far left side of the row. From the Menu Bar, click “Insert” and select “Rows” (this inserts a blank row). Use this blank row to label the 4 columns you copied into your spreadsheet with the labels “**Boy**”, “**Girl**”, “**Resiliency**”, and “**Control**”. Also label your data columns (make up your own labels for these).

Step 6. Measuring *reliability* by calculating *Inter-observer agreement*

Calculate a Pearson correlation coefficient between your data and the corresponding ratings from the columns you pasted in. The corresponding column will be labeled “Boy”, if you evaluated the boy, and “Girl”, if you evaluated the girl. The resulting correlation is your

measure of **inter-observer agreement**. What does your correlation show about inter-observer agreement?

Step 7. Measuring *validity* by comparing the Q-sort and your profile

Calculate a Pearson correlation coefficient between your profile ratings (see **Collecting data**) and the summary calculations you completed in Step 3. Is this a significant correlation? What does this correlation mean?

Step 8. Using the Pearson correlation coefficient to measure similarity

Calculate a Pearson correlation coefficient between your data and the numbers in the column labeled “Resiliency”. This coefficient indicates how similar your individual is to a personality with a prototypical ego-resiliency character. Do a similar calculation between your data and the numbers in the column labeled “Control”. This coefficient indicates how similar your individual is to a personality with a prototypical ego-control character. What do these coefficients tell you about the ego-control and ego-resiliency of the individual, based on the Q-sort? How does this information compare to your own assessment ratings (see **Collecting data**)?

Lab Report

Your report for this lab will include a title page, an abstract, and your answers to the questions in the Data Analysis section, with your calculated results. It will *not* include an introduction, method, results, discussion or references.

References

Block, J. & Block, J. (1980). The role of ego-control and ego-resiliency in the organization of behavior. In W.A. Collins (Ed.), *Minnesota symposium on child development, Vol. 13*. Hillsdale, NJ: Lawrence Erlbaum Associates. Pp. 89-101.

Q-Sort Task

I, _____ (name), understand that for the Q-sort task I will be coding data characterizing real individuals. These individuals were promised anonymity. Most identifying information has been removed from the data, and consequently it is unlikely that I will recognize these individuals. However, in the unlikely event that I do recognize an individual in the data, I promise to keep the individual's identity secret. I also promise to return the data at the end of the laboratory session.

Signature

Date

Instructions for Using the CCQ

Your goal in this task is to characterize the individual under consideration. In other words, we want you to describe the kind of person the individual is, as revealed in the attached interview.

To describe the individual, we are providing you with 109 cards, 100 of which have personality traits on them. Your task will be to sort these cards according to a fixed distribution to represent your image of the individual.

If you look at the attached materials, you will find 1) the set of 100 q-sort cards, 2), labeled “Category 1,” “Category 2,” “Category 3,” “Category 4,” “Category 5,” “Category 6,” “Category 7,” “Category 8,” and “Category 9.”

To begin the sorting procedure, find a large area such as a table or a clear area of floor. Take the nine cards on the top of the deck that are labeled “Category 1,” “Category 2,” “Category 3,” “Category 4,” “Category 5,” “Category 6,” “Category 7,” “Category 8,” and “Category 9,” and place these in a row in front of you. You will be placing cards above these, so you might want to arrange these cards on the edge of the table in front of you.

Next, shuffle the Q-sort cards.

Each of the cards with “Category” on it has a descriptive label (e.g. “**Extremely uncharacteristic or negatively salient**”) and the number of cards permitted in that category (e.g., for Category 1, “11 Cards”).

Your task is to take the remaining 100 cards, each of which has a personality characterization on it, and place it into one of the 9 categories so that the resulting distribution reflects your image of the individual in the interview. You must follow the distribution indicated on the cards; so, for example, you must place 11 cards in Category 1, “**Extremely uncharacteristic or negatively salient**”, 11 cards Category 2, and so on.

This procedure will take you about 20-30 minutes, because you must sort through the cards, place them in categories, and give yourself time to examine, and if necessary to re-arrange, the cards so that the resulting sort best represents your image of the person in the interview and adheres to the required number of cards per category. When you are done sorting, you will have all 100 personality traits arrayed before you in 9 columns, each column corresponding to a category with a fixed number of cards. This portrait should represent your vision of the individual in the interview.

Once you are satisfied that your sort represents as clearly as possible your vision of the individual, write down the category number of each card on the coding sheet.

Date _____

Coder's Name _____

Participant/Subject ID _____

CCQ Card #	Category Number	CCQ Card #	Category Number
1		51	
2		52	
3		54	
4		54	
5		55	
6		56	
7		57	
8		58	
9		59	
10		60	
11		61	
12		62	
13		63	
14		64	
15		65	
16		66	
17		67	
18		68	
19		69	
20		70	
21		71	
22		72	
23		73	
24		74	
25		75	
26		76	
27		77	
28		78	
29		79	
30		80	
31		81	
32		82	
33		83	
34		84	
35		85	
36		86	
37		87	
38		88	
39		89	
40		90	
41		91	
42		92	
43		93	
44		94	
45		95	
46		96	
47		97	
48		98	
49		99	
50		100	