Evaluating Jury Questionnaires Using Microsoft Excel - Part 1

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Introduction

When it comes to jury questionnaires, trial lawyers commonly adopt what I call the "brute force" evaluation method, attacking the stack of questionnaires one at a time and assigning ratings one-by-one to potential jurors. The process is often rushed as courts seldom provide sufficient time for thorough evaluation. It is not uncommon for lawyers and their staff to spend the night before courtroom jury selection combing through jury questionnaires. The rushed evaluation process risks inaccurate and inconsistent rating assignments, meaning that similar jurors may not be assigned similar ratings.

Conceptually, the assignment of juror ratings is nothing other than dividing the venire into groups of similar jurors, according to their perceived favorability. Statisticians and social scientists have known for some time that there are advantages to "inverting" the evaluation process by *first* grouping the jurors according to their similarities and only then assigning ratings to the resulting groups. This is a much faster process because the groups can be formed in a matter of seconds by computer algorithm. The lawyer then need only rate a small number of groups according to their typical or representative characteristics. It also ensures that similar jurors receive similar ratings. This method is known as *cluster analysis*.

Specialized statistical, such as IBM's SPSS program, can perform cluster analysis, but such software packages are designed for evaluating many hundreds or thousands of questionnaires, and seem like overkill for jury selection applications. On the other hand, most legal firms have familiarity with Microsoft Excel. This paper describes how to use Excel to perform a pseudo-cluster analysis of juror questionnaires and use the result to rate jurors. This method is accomplished in five steps:

1. Evaluate the questionnaire

2. Prepare your spreadsheet

3. Input response data

4. Sort the juror list

5. Rate the sorted list of jurors

1   Evaluate the Questionnaire

Start by getting hold of a blank copy of the questionnaire. Courts often post blank copies online for jurors to download. Attorneys should already have blank copies of any supplemental questionnaires. Determine which questions you feel are relevant to your case and which questions you can disregard. Of the relevant questions, determine the response type. Response types can be closed ended, where the juror selects from among a fixed set of responses, or open ended, where the jurors can enter responses in their own words. Some questions will require both closed and open-ended responses. For example, a yes/no question may add an 'If yes, explain' followup. These can be treated as two separate questions - one closed ended and one open ended. Finally, make a judgment as to which questions are the most important for determining the value of a juror.

2   Prepare Your Spreadsheet

Create a new Excel spreadsheet with two worksheets. Name the first worksheet 'Questionnaire' and the second 'Response Lists'. On the Response List worksheet, create an Excel table for each closed end question. Each table will contain a list of possible responses. You can type the responses into a column on the worksheet, select them, and enter Ctrl-T to turn the list into a table. Using tables allows for easy updating if you decide later to change any items or add items to the list. Double click in the table title and give the table a descriptive name. Finally, add two more tables, one titled 'Open Ended' with the numbers 1 through 5 and one titled 'Juror Rating' with the numbers 1 through 10. Your Response List worksheet should look something like Figure 1.

Now, on the Questionnaire worksheet, create a columns for juror ID number, name and rating. Then create one column for each question. It is useful to order the columns in the order that the questions appear on the questionnaire. If desired, you can format the sheet as a table. The Questionnaire worksheet should look like the one in Figure 2.

The final step to prepare the spreadsheet is creating the repsonse dropdown lists. Select all of the cells below Question 1. Then, from the menu ribbon, select **Data**. In **Data Tools** choose **Data Validation**. On the popup window, select **Allow: List**. Click the up arrow in the **Source** field then select the relevant answers that you created earlier on the Response List worksheet. In the example shown in Figure 2, this is a Yes/No quesion. Do this for all of the remaining questions. For open-ended questions, use the 1 through 5 response list. Finally, in the juror rating column, select the 1 through 10 response list. Your worksheet in now ready for data entry.
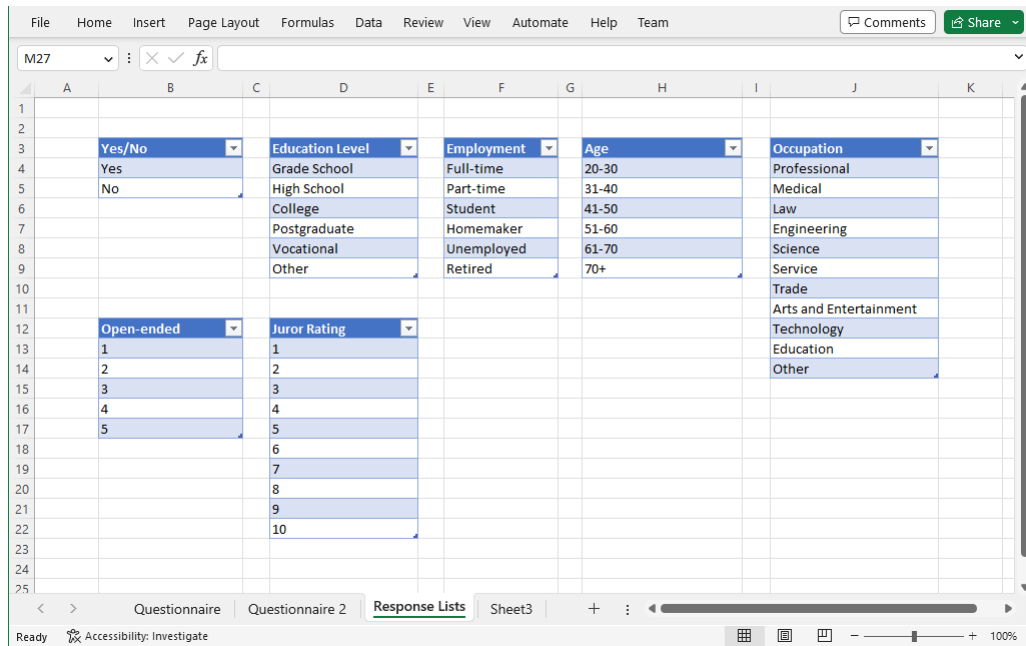
Figure 1: Worksheet with tables containing the responses to questions on the juror questionnaire

3 Input Response Data

If the court provides questionnaire data in electronic or electronically scanable paper format, it is straightforward to import the data into Excel. If only paper copies of the questionnaires are provided, then the responses will have to be entered manually. Here I will assume that data are entered manually into Excel.

Each row on the Excel Questionnaire worksheet represents the responses for a single juror. Enter the juror's name in the name field and then moving rightward across the row, enter the juror's responses using the previously defined dropdown lists. For open-ended questions, you will have to read the juror's response and give it a score from 1 to 5 with more preferable responses getting higher scores. Do this for each juror questionnaire, moving to the next row for each new questionnaire. The process should go relatively quickly given proper preparation of the worksheet. Your Questionnaire worksheet should now look like the one in Figure 3.

4 Sort the Juror List

We now wish to use the worksheet to group similar jurors. This can be done using Excel's advanced sorting algorithm. However, because we are not doing
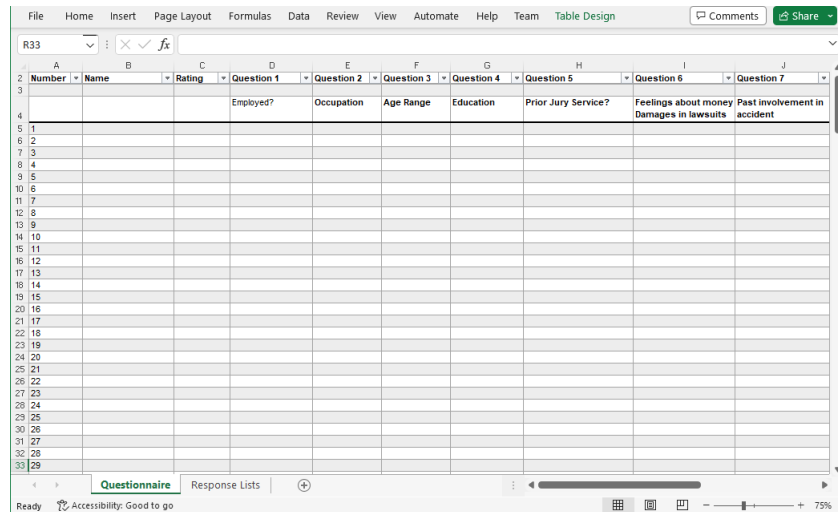
Figure 2: Worksheet prepared for questionnaire data entry

a complete cluster analysis, it is important to give some thought as to which questions are the most important for rating the favorability of the jurors. These questions will be at the top of the sort order.

Before applying any sorting in Excel, it is important to hide any descriptive header rows - we only want to sort the responses. Simply select the heading row, right click and choose **hide** from the popup menu. Now select all of the data in the table and from the **Data** menu, click the **Sort** icon. The **Sort** popup window opens. Here you can choose which columns to sort on. First select the column of the most important question in the **Sort By** field. Next click **Add Level**, and choose the next most important question. Continue adding levels as desired. For open ended questions, I usually select the sort option (e.g., Largest to Smallest) so the most preferable jurors will be near the top. When you are satisfied, click **OK** to perform the sort. Now you can unhide any header rows that were previously hidden. Your Questionnaire worksheet should look something like Figure 4 with jurors sorted according to the similarity of their answers.

5 Rate the Jurors

Assuming you selected your sorting options carefully, jurors should now be sorted by similarity with the more preferable jurors near the top and the less preferable near the bottom. It is now a straightforward exercise to go down the list and rate the jurors using the dropdown list in the Rating column. 10s should be toward the top and 1s at the bottom.

Figure 3: Worksheet with response data entered

6   Tweaks and Improvements

The sorting method described here relies heavily on the order of sorting. Different sorting orders will, in general, give different results. It is important to sort by the most important question first, the second most important question second, and so on. However, it may not be clear which questions are the most important. You may feel that two or more questions are equally important. This is why cluster analysis (to be discussed later in this series) is a superior analysis method.

If the questionnaire contains two or more questions that you feel are equally important, it may be possible to create a new response column that is a composite of the individual responses. In the example, there are two open-ended questions that may be equally important - Question 6 and Question 7. These questions can be given a weight according to their importance. Let's say, for purposes of argument, that Question 6 has a weight of 0.8 and Question 7 has a weight of 0.5 (the exact numbers are not important, only their relative values) We then create a new column in the Questionnaire worksheet titled 'Composite Q6 Q7'. In the column's cells we use an excel formula (you may have to adjust the names to match your worksheet):

$$= 0.8 * [@[Question 6]] + 0.5*[@[Question 7]]$$

Finally, we sort the data using the new composite column rather than the individual questions. Example results using this composite score are shown in Figure 5.

Figure 4: Sorted worksheet

7 Up Next

Part 2 of this series discusses the application of true Cluster Analysis to the evaluation of juror questionnaires. Cluster Analysis is arguably a better approach to grouping jurors than the sorting method described here because it does not rely on assumptions about the relative importance of questions. Part 3 addresses the use of artificial intelligence in questionnaire evaluation and its application to text analysis for scoring open-ended responses.

Figure 5: Questionnaire worksheet sorted using composite score for open-ended responses