What is Reverse Coding?

Authored by

stats writer

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Reverse coding is a data analysis technique used in research studies to interpret and analyze survey responses. It involves assigning numerical values to survey items or questions in such a way that a higher score represents a higher level of the construct being measured. This is in contrast to the traditional method of coding, where a lower score represents a higher level of the construct.

For example, if a survey item asks participants to rate their level of agreement on a scale of 1-5, with 1 being strongly disagree and 5 being strongly agree, reverse coding would assign a score of 1 to a response of 5, 2 to 4, and so on. This allows researchers to capture the nuances of a participant's response and obtain more accurate data for analysis.

Reverse coding is particularly useful in situations where survey items are worded in a way that may confuse participants or where the desired response is counterintuitive. It helps to eliminate response bias and provides a more comprehensive understanding of the data. Overall, reverse coding is a valuable tool in the research process as it allows for a more accurate and nuanced interpretation of survey responses.

What is Reverse Coding? (Definition & Example)

When creating surveys or questionnaires, researchers sometimes rephrase "positive" questions in a "negative" way to make sure that individuals are giving consistent responses.

For example, consider the following two questions:

1. When working on new projects, I prefer to work alone rather than in a small group.

Strongly Agree
Agree
Neither Agree Nor Disagree

Disagree
Strongly Disagree

2. Given the choice, I prefer to work with a small group rather than by myself on new projects.

Strongly Agree
Agree
Neither Agree Nor Disagree
Disagree
Strongly Disagree

For question 1, "Strongly Agree" corresponds to introversion. However, in question 2, "Strongly Agree" corresponds to extroversion.

We say that question 2 is reverse-coded.

Both questions seek to measure the level of introversion and extroversion of individuals, but they use opposite wording.

When assigning a composite score to individuals to determine their level of introversion or extroversion, it's important to make sure the reverse-coded questions are reverse-scored as well.

The following example shows how to reverse the scores on reverse-coded questions.

Example: How to Reverse Code Questions

Suppose researchers use the previous two questions to assign an "introversion" score to individuals. Higher scores indicate higher levels of introversion.

Suppose researchers assign a value of 5 to "Strongly Agree", 4 to "Agree", 3 to "Neither Agree Nor Disagree", "2 to "Disagree", and 1 to "Strongly Disagree."

Then consider the overall average score of someone who answered "Strongly Agree" to the first question and "Strongly Disagree" to the second question:

1. When working on new projects, I prefer to work alone rather than in a small group.

Strongly Agree (5)
Agree (4)
Neither Agree Nor Disagree (3)
Disagree (2)
Strongly Disagree (1)

Strongly Agree (5)
Agree (4)
Neither Agree Nor Disagree (3)
Disagree (2)
Strongly Disagree (1)

Their average score would be calculated as: (5 + 1) / 2 = 3. This would make them seem perfectly in the middle of being introverted and extroverted.

However, if you read the individual questions you can see that they prefer to work alone in both scenarios. They should receive a much higher score for introversion.

We must reverse score the second question since it's reverse-coded.

The easiest way to do this is to take the max possible score (5) and add one. Then subtract the original scores to get the reverse scored value.

For example:

"Strongly Agree" becomes 6 - 5 = 1.
"Agree" becomes 6 - 4 = 2.

"Neither Agree Nor Disagree" becomes 6 - 3 = 3.
"Disagree" becomes 6 - 2 = 4.
"Strongly Disagree" becomes 6 - 1 = 5.

Then consider the overall average score of someone who answered "Strongly Agree" to the first question and "Strongly Disagree" to the second question:

1. When working on new projects, I prefer to work alone rather than in a small group.

Strongly Agree (5)
Agree (4)
Neither Agree Nor Disagree (3)
Disagree (2)
Strongly Disagree (1)

2. Given the choice, I prefer to work with a small group rather than by myself on new projects.

Strongly Agree (1)
Agree (2)
Neither Agree Nor Disagree (3)
Disagree (4)
Strongly Disagree (5)

Their average score would be calculated as: (5 + 5) / 2 = 5. This means they received the maximum introversion score. This makes sense given their responses to the questions.

Note 1: In practice, most surveys will have far more than two questions but for simplicity sake we only used two questions in this example.

Note 2: In this example we manually reverse scored the questions, but most statistical software has the ability to reverse code questions for you.

Additional Resources

The following tutorials explain other commonly used terms in questionnaires and surveys: