

Statistical Analysis of a Survey's Quality

Sample Analysis: Measuring Public Attitude Towards Science and Technology

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I- Executive Summary

A psychometric analysis assessed the quality of a 4-item survey measuring attitudes toward science and technology. It tested whether each item consistently reflects the same core attitude as the rest of the survey, and whether all 4 items work together as a reliable measure overall.

This analysis uses real survey data from 392 respondents, drawn from the Euro-Barometer 38.1 survey on public attitudes toward science and technology (Karlheinz and Melich, 1992).

The analysis indicates that all four survey items align reasonably well with the overall attitude being measured, and the survey shows moderate reliability. However, it still falls short of the standard usually expected when results are to be used to guide institutional decisions.

II- Methodology

The Classical Test Theory framework was deployed to examine how well each survey item aligns with the overall attitude being measured, and how consistently the four items work together as a group.

III- Result and Interpretation

Survey Item	Alignment with Overall Measure (r-value)
Comfort	0.35 (Fits Well)
Work	0.33 (Fits Well)
Future	0.49 (Fits Very Well)
Benefit	0.36 (Fits Well)

Industry standards call for survey items to reach a minimum alignment score of 0.30 to be considered reliable contributors to the overall measure. All four items meet this threshold. The survey reached an overall reliability score of 0.60 which is an acceptable level for general or exploratory use, but below the 0.70 level typically expected when results are needed to guide formal institutional decisions, such as policy or program changes.

IV- Recommendation

This survey performs reasonably well and can support general insight. Because all four items are already contributing adequately, and none can be removed to improve results, reliability would improve most by adding a few more items to the survey, rather than by revising the current ones.