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How Block Types and Social Desirability Shape Forced-Choice Questionnaire Automatic Assembly

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The construction of forced-choice questionnaires often relies on item banks with single-stimulus or Likert-type items. In its simplest form, items must be paired to create a desired number of blocks. A key challenge in this process is pairing items while accounting for factors such as item polarity and social desirability, which can impact the quality of the measures. Recent combinatorial approaches, like genetic algorithms, leverage parametric optimization based on Likert data estimates. Alternatively, blueprint-based methods enable block assembly without such estimates, integrating expert judgments on social desirability. However, these approaches have yet to be systematically compared, which is the primary goal of this study. A Monte Carlo simulation and empirical analysis were conducted to compare block assembly using the genetic algorithm and blueprint-based methods, with and without considering social desirability. The main outcome of interest was trait score recovery. Four key factors were manipulated to assess their influence on this outcome: the number of heteropolar blocks, questionnaire length, the inclusion of social desirability ratings, and the correlation between social desirability and single-stimulus item parameters. Results indicate that parametric methods generally lead to superior trait score recovery, especially when only homopolar blocks are used or when social desirability is factored in—conditions commonly found in applied settings. These findings highlight the importance of optimizing assembly procedures. We also discuss how expert judgments can serve as proxies for item parameters, enabling efficient block assembly in the absence of empirical data on single-stimulus items.

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