Participant Debriefing Sheet

School of Psychology

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Study Title: Determinants of Task Difficulty in Human Multi-Step Problem-Solving

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Thank you for completing the study! This document is intended to provide you with a brief summary of the goals of the research project and how your data will be used.

Problem-solving skills are important in both abstract activities (like computer programming and solving mathematical equations) and every-day tasks (like navigating around obstacles, or deciding what meal to cook given a set of ingredients). The ability to solve problems in such a wide range of areas is learned through practice, yet little is known about what makes some problem-solving skills easier or harder to learn than others. This study was designed to clarify which properties of problem-solving tasks make them easier or harder to solve, and how this changes with learning.

In this study, you began to learn a new problem-solving skill: solving a series of abstract re-writing puzzles using a fixed set of rules. The puzzles were designed to vary in both difficulty and their innate properties (e.g. how many symbols appeared in the start and target states; how many possible sequences of actions could lead to the solution, etc). By analysing how easily participants solved each puzzle, and how the puzzle's properties influenced this, it is possible to identify which properties are most important in determining the puzzles' difficulty. This information will be of value in the design of more efficient training curricula for real-word problem-solving skills, including algebra and programming. By knowing which properties of problem-solving tasks determine their difficulty, and how easily participants become better at tasks with those properties, educational programmes can be designed to spend more time training the challenging and slow-to-learn components of problem-solving skills. So, if you found the task challenging – that's great! Your data will be especially useful in helping us to understand what makes problem-solving hard, and how we can help people learn problem-solving skills more easily.

Thanks again for your participation in this study!