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Assumptions as Constraints: Behavioural Traces of Invisible Limits in Ill-Structured Problem Solving

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Abstract

Assumptions are presented here as invisible limits that constrain a thinking episode. We ask how such limits emerge when people solve ill-structured questions. In a pilot study, 22 university students completed short and long versions of such tasks and were later probed about their initial thoughts. We analysed the responses using reflexive thematic analysis, treating the inability to verbalise how a thought came to mind, imagery reports, and epistemic justification as behavioural traces of limit formation. Five themes are presented: "Inside the Invisible Limit", "From My Memory to Meaning", "Projection While Solving an Ill-Structured Problem", "Meaning from the Semantic Attributes of Stimuli vs. the Socially Shared Meaning", and "My Knowledge is Valid: Epistemic Justification". These themes lead to an initial model of assumption-making, in which assumptions emerge as boundaries within a problem space. These findings offer early building blocks for a theory of assumption-making.