

Bold conjectures meet open science: Accelerating theory development in social
psychology by testing riskier predictions via pre-registration

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Abstract

Theoretical progress – that is, valid and deep understanding of natural phenomena -- is only possible via bold conjectures that involve risky predictions (Meehl, 1967, 1978). A risky prediction is a hypothesis that stands a high chance of being wrong (Feynman, 1974; Popper, 1959). However, because psychological constructs are difficult to measure (validity problems, Cronbach & Meehl, 1955; jingle-jangle fallacy, Block, 1995) and much design and analytic flexibility typically exists when testing hypotheses, “theoretically-derived” predictions psychologists test are not subjected to risky tests. Pre-registration – and open science practices more generally – increases the riskiness of testing theoretically-derived predictions because hypotheses must be transparently specified via specific construct operationalizations and specific measures. Hence, pre-registration has immense potential to accelerate theoretical progress in psychology. In the following article, we first review the fundamental logic of theory testing as applied to psychology via Popper’s observational formulation (i.e., $T \& A \& C \rightarrow O$). We then outline how public pre-registration increases the riskiness of testing hypotheses as applied to examples from the social priming and attachment literatures. We furthermore outline several strategies to help researchers make more specific (rather than vague) theoretical predictions, which we argue in combination with pre-registration can go a long way in accelerating our understanding of psychological phenomena. We end by providing a user-friendly guide to public pre-registration of studies researchers can follow to more rigorously test psychological theories.