

**Multi-level Analyses, Multiple Methods and other Considerations to Enhance Research on
Connections between Personality Traits and Outcome**

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(Abstract 81 words; 90 word max)

We agree with the target article that research needs to examine personality from multiple levels of analysis, but we question the utility of continued lengthy discussions of the degree to which traits can be considered “real.” We offer three additional suggestions for improving personality research: 1) an increased emphasis on studies employing multiple methods, 2) direct and conceptual replications of trait-outcome relationships at multiple levels, and 3) deeper exploration of mechanisms and processes that may drive associations between traits and outcomes.

After decades spent establishing traits as predictive of behavior and useful for explaining life outcomes, now is a good time to reflect how personality psychology can advance even further. The target article challenges the field to take a deeper look at “whether and when causal interpretations are justified” (p.3), and correctly describes why links between traits and outcomes are important: 1) they explain variability in outcomes 2) they establish utility for traits in that they predict something of value, and 3) links between traits and behavior have implications for designing behavioral interventions. The target article also includes a useful discussion of the different levels of analysis at which personality can be linked with outcomes.

A frequent practice in personality research is to present findings only at the level of general factors or to immediately reduce or factor analyze individual items into something more resembling the Big 5 or HEXACO. We agree with Mottus that this knee-jerk reaction is a mistake. Indeed, in our own work we have been asked countless times to reduce our large correlate tables into something “more interpretable” and less prone to noise. Looking at individual items, facets scores and factor scores for overlap and for unique predictive validity is an important and often underutilized approach to understanding a trait-outcome relationship. We believe that transparency is key in research and that, in many cases, the exclusive use of general factors can obscure what is going on underneath the psychological hood. In contrast, examinations of individual items or larger correlate tables may enable a deeper understanding of how traits and outcomes are related to one another. Encouraging researchers to design studies that allow them to examine relationships at multiple levels of analysis (and to make the data available to all through online depositories like the Open Science Framework) would aid both transparency and conceptual clarity. Advances in randomization analyses (Sherman & Funder, 2009) and in assessing the reliability of the rank ordering of correlates in a table (Sherman &

Wood, 2014) help alleviate concerns about capitalizing on chance when looking at large correlate tables, and encourage broad-based exploratory research.

We do have concern with the target article in one area: its lengthy philosophical discussion of existential and holistic reality as necessary criteria to discuss causality. One of the authors of this comment has participated in seemingly endless discussions of whether traits can be considered “real” and whether “accuracy” of trait judgments is a meaningful concept (summary: *yes*) (Kenrick & Funder, 1988; Funder 1987, 1991, 1995). At the end of his own examination of reality even Mottus concedes that “we have sufficiently good reason to believe that, in principle, personality traits as such exist and can exert forces outside the personality domain in real and holistic manners” (p. 9). We think it is wise to not let our field yet again get held back by philosophical discussions of this nature, and instead to forge ahead with empirical research and theoretical development concerning the origin, operation, and consequences of assumptively *real* personality traits.

We have three brief, additional suggestions for improving personality research.

Prioritize multi-method research

In addition to carefully choosing well-validated personality questionnaires, we believe it is important to bring in multiple methodologies whenever possible. Multi-method approaches reduce issues of shared method variance, improve rigor, and enhance conceptual clarity. Do we find the same patterning of links between traits and outcomes when the traits are assessed via self-reports as opposed to peer reports? Self vs. clinician report? Self-ratings versus directly observed behavioral ratings? Consistent patterning of trait-outcome links establish the robust predictive validity of a trait and any differences between methodologies may yield important psychological insights. To merely utilize self-reports is a failure of due diligence. For example, for a long time

research in behavioral genetics relied exclusively on self-reports of personality, leading to the widespread conclusion that the shared family environment has no effect on personality development, a conclusion that was overturned when multiple methods of assessment and behavioral observation were finally employed (Borkenau, Riemann, Angleitner, & Spinath, 2001). What other seemingly established findings will be challenged when more diverse methods are used?

Conduct systematic direct and conceptual replications at multiple levels of analysis

We strongly agree with Mottus's recommendation that personality should be assessed at all levels of analysis and that results should be compared across levels before findings of personality-outcome relationships are presented. In addition, we would encourage a greater emphasis on replication. Direct replications can be useful in that they shed light on how robust identical items and factors relate to identical outcomes in similar samples. For example, does Conscientiousness, as measured by individual items and a factor score, predict academic performance among college students at multiple colleges with similar demographics? Conceptual replications are helpful as well. What happens if different items or scales are used to measure Conscientiousness? Mottus correctly reminds us that not all scales measuring Big Five constructs cover the same depth and breadth. Can we obtain the same effect using similar college students? Can we obtain similar predictive validity if we diversify our college student sample? Questions like these are important, and are not addressed often enough.

Carefully explore mechanisms and processes

Despite the well-known dangers of confusing correlation with causation, longitudinal research and large multi-method samples can allow research to address the processes and mechanisms that underlie robust trait-outcome relationships. In a seminal paper, Hampson

(2012) argues that processes and mechanisms can be illuminated both by short-term, event-sampling studies (e.g., finding that Conscientious individuals wear seat belts, drink only in moderation, and avoid risky behaviors on a daily basis) and, in parallel, by lifespan approaches that demonstrate long-term consequences (e.g., Conscientious individuals enjoy better health and mortality in the long run, presumably because of their daily behavior in the short run). The use of multiple methods, including directly observed behavior, may shed additional light on processes, particularly in studies designed to assess short-term behavior as a mediator of long-term trait-outcome associations.

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