Clarifying What Forward Flow Is (and Isn’t): Reply to Rossiter (2020)

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Forward flow (FF) is a new measure that quantifies free thought and predicts creativity (Gray et al., 2019). In his comment, Rossiter (2020) raises some conceptual and measurement concerns about this measure. We believe these concerns are specious, resting on fundamental misunderstandings about our aim and approach. This reply clarifies the nature of forward flow and dispels these concerns.

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Forward flow (FF) is a new measure that assesses how much the semantic content of people’s thought changes over time (Gray et al., 2019). A person’s FF is obtained by calculating the average semantic distance between each thought and all previous thoughts in a chain of free associations. Our work finds that FF reliably predicts creativity across many domains.

Rossiter (2020) raises some concerns about FF; however, they are unfounded because they stem from confusion over the essence of FF, which Rossiter believes to be a “test of originality” (p. 725). FF is not a test of originality. As clearly stated in our article, FF is a metric that quantifies the semantic evolution of naturalistic thought—operationalizing James’s notion of a person’s “streams of consciousness” (James, 1890, p. 141). It is true that FF predicts creativity in both experimental and real-world settings. It is also true that originality is part of the definition of creativity. However, it is a logical fallacy—and a clear misreading of our article—to equate FF with a test of originality, simply because FF predicts creativity.

Rossiter (2020) argues that any test of originality should more strongly predict creativity. We agree: Originality is definitionally part of creativity, and constructs should obviously predict themselves. Again, however, FF is not a measure of originality but of semantic evolution. Our research does reveal that this semantic evolution predicts creativity, consistent with emerging research (e.g., Beaty & Johnson, in press; Kenett & Faust, 2019) that uses computational methods to test Mednick’s (1962) classic theory that individual differences in creativity are tied to the structure of semantic knowledge.

In addition, Rossiter (2020) points out that the average correlation between FF and creativity across domains is $\beta = .20$. We point out that the average effect size of psychological interventions is .23 and the correlation between social support
and immune functioning is .21 (Meyer et al., 2001). Although these correlations are all modest, we still think it is worthwhile to do psychological interventions, to seek social support, and to assess FF.

Finally, we agree with Rossiter (2020) that instructions to “be creative” would make any task responses more “original” (p. 725). But this is not our aim. Again, FF is intended to measure naturalistic thought—free association without instruction. That FF predicts creativity without instructions to “be creative” is precisely the point, attesting to the importance of general cognitive dynamics in predicting creativity (Stella & Kenett, 2019). We also agree that FF, by relying on chained association, creates a topography of thought that “differ[s] for each respondent” (p. 725). People indeed have unique streams of thought, and that is exactly what FF seeks to capture.

In conclusion, we reiterate that Rossiter’s (2020) concerns do not apply to FF, which is not a “test of originality.” Rather, it is a novel metric—with open-access data-analytic tools—quantifying how naturalistic thought evolves over time. We note that although developing a standardized measure of originality is not our aim, it is a worthy goal, and we encourage Rossiter to leverage his ample experience in pursuing it.

References


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