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Commentary on Duarte et al.: Diverse crowds using diverse methods improves the scientific dialectic
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Abstract:	In science, diversity is vital to the development of new knowledge. We agree with Duarte et al. that we need more political diversity in social psychology, but contend that we need more religious diversity and methodological diversity as well. If some diversity is good, more is better (especially in science).

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10. Abstract: 50 words
In science, diversity is vital to the development of new knowledge. We agree with Duarte et al. that we need more political diversity in social psychology, but contend that we need more religious diversity and methodological diversity as well. If some diversity is good, more is better (especially in science).

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Scientists move ever-closer to finding a solution to a given problem via a three-step program where a theory is proposed, challenged, and refined in accordance with accumulated evidence (Mueller, 1958). This dialectical method requires diverse theories be tested and, ideally, the most supported theories emerge from an accurate interpretation of objective data. Yet, scientists are human beings with brains that predispose us toward interpreting evidence in ways that confirming our pre-existing biases (Ditto & Lopez, 1992; Pyszczynski & Greenberg, 1987). Some scholars suggest there is wisdom in crowds, and crowds may be immune to cognitive biases in the evaluation of evidence (Galton, 1907). Groups, however, are not immune to this cognitive bias; rather, they can be *more* biased in the conclusion they reach (Lorenz, Rauhut, Schweitzer, & Helbing, 2011; Iyer & Graham, 2013). The critical ingredient that can make some groups less biased than individuals is viewpoint diversity (Larick et. al, 2011). In general, this corroborates the target article's argument. The target article, however, is too limited in its definition of diversity.

Social psychologists tend to emphasize the importance of diversity of familial background, gender, race, and sexual orientation (SPSP Diversity Statement, 2014), which likely leads to more diverse viewpoints that affect the theories that our field generates. Duarte et al. advocate striving to diversify political viewpoints, which would further diversify the field's theories. But, why stop there? For example, non-religious people are vastly overrepresented in social psychology, too. Much like the research attacking conservatives' cognitive ability, social psychological research also attacks religious people's cognitive ability. For example, Kanazawa (2010) published a paper which argues that intelligence leads people to be more liberal and less religious (and, more opposed to consensual nonmonogamy, which is another stigmatized identity underrepresented in social psychology; see Conley et al., 2012). Similarly, Zuckerman, Silberman, and Hall (2013) reported that religious people are less intelligent because they are more prone to conforming and less analytic in their cognitive styles. This minority-disparaging research suggests a hostile climate for religious people in social psychology, which would steer them toward more congenial careers (much like how the perceived hostile climate for conservatives may steer them away from liberal communities and liberal fields; Inbar & Lammers, 2012; Motyl, 2014; Motyl et al., 2014). To this end, social psychologists should work

to include religious people to further increase viewpoint diversity and as a result, improve the scientific dialectic.

Increasing diversity need not be limited to the attributes of people either. Greater methodological and process diversity is also necessary to move nearer to scientific truths. Maslow (1966) stated, "It is tempting, if the only tool you have is a hammer, to treat everything as if it were a nail" (p. 15). Research methods and statistical techniques have varied in their usage over time, but seem to do so in predictable manners, with trends occurring much as in fashion or art. As punch-card systems overtook statistical analyses by hand (or abacus), social psychologists designed methods that required more complicated computations. Today, we are moving into an era of "Big Data", where studies may have millions of data points for millions of participants and require computing power that was until recently unimaginable (Rudder, 2014). It is impossible to forecast what social psychologists will learn from this next revolution in research design and data analytics, but it will likely continue moving social psychologists ever closer to scientific truth. This trend toward the latest new thing inevitably leads psychologists to predictably value complexity for complexity's sake, even as computer scientists are increasingly finding that simple methods performed on well-conceptualized variables outperform complex methods on noisy variables (Domingos, 2012).

The broader point is that the review process in science is fraught with disagreement; yet there is a latent variable - the quality of a given paper - that is extractable from that disagreement, *if* diversity is present. It is this same statistical technique, where random error is distinguished from signal, which underlies psychometrics, meta-analysis, and more broadly, the wisdom of crowds. These techniques assume there is no systematic error in the process; however, if all measurements are biased in the same direction, then averaging across these measurements will fail to produce a wise aggregated result. This is the exact point of the target article, in that systematic bias in a liberal direction will lead to worse measurement of the latent variable representing the true quality of research. Yet, in many ways, the choice of political diversity is arbitrary, as any lack of diversity can result in systematic error. We all accept that age, gender, and racial diversity will reduce systematic error as well. Collective norms that assume some methods are superior to others also introduce systematic error, and so increasing the representation of reviewers from outside a discipline can also reduce systematic error in the review process (Rozin, 2001). One could argue the academic perspective itself leads to a particular bias and that increasing the contributions of citizen scientists can improve the overall diversity of the perspectives included in the review process.

While the target paper is compelling in terms of how increased political diversity would benefit social psychology, we feel a broader view of diversity may be even more beneficial. In particular, the target article focuses on political diversity; we believe that social psychology lacks diversity in a number of other important domains (e.g., religion, methodology) and this lack of diversity in these other domains has similarly negative effects on the quality of social psychological research. Moreover, we believe that increasing methodological and process diversity moves science ever closer to truth by removing erroneous noise associated with particular methods and publishing processes. Additionally, the homogeneity of social psychological science creates an environment where there is much agreement on a given thesis, but limited opportunities for an antithesis to gain traction, and even fewer opportunities for genuine synthesis to occur. The danger is that our homogeneous field using homogeneous methods will face exceptional difficulty in moving closer to discovering truth.

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