



LETTERS

Edited by Jennifer Sills

Beyond hierarchical one-on-one mentoring

The NextGen Voices section “Quality mentoring” (5 October, p. 22) demonstrates how traditional hierarchical mentoring relationships, when they work, can be sources of incredible psychosocial and practical support. However, when these relationships are not strong, they can hinder or even harm mentees (1, 2). The unequal power dynamic of a senior mentor (typically one who is male and white) and junior mentee can be especially problematic for individuals belonging to systematically marginalized identity groups (such as women, people of color, and individuals with disabilities) and can exacerbate a sense of isolation for the mentee (3). Furthermore, mentees, more than mentors, say that mentoring relationships should directly address cultural diversity (4). A mentoring network, including peer mentoring, can address the shortfalls of traditional one-on-one mentoring.

A mentoring network with multiple modes of mentoring (5) dismantles the guru mentor myth, which suggests that one senior mentor is a necessary and sufficient source of mentoring. Instead, a mentoring network framework centers on the mentees and what they need and desire to thrive in their career; it then meets their varied needs through a host of mentoring relationships (6, 7). Peer mentoring can serve as an important node in an individual’s broader mentoring network and reduce the reliance on hierarchical relationships (8).

Peer mentoring is a truly horizontal mentoring experience (9) that offers

participants access to resources, support, and accountability in a regular group meeting setting. Evidence suggests that peer mentoring is most effective with groups of five to eight participants who are all at a similar career stage, have complementary fields of expertise, and share social identities (such as gender, race, ethnicity, or ability status) (10). There is no senior mentor, and thus the model asserts that each peer mentoring participant has useful wisdom and perspectives to share as well as areas in which they need advice. Peer mentoring provides an opportunity to collaboratively problem solve, share ideas and perspectives, and develop community and thus serves as a mechanism for developing independence and career self-efficacy (11).

Peer mentoring becomes especially important as mentees mature and develop into independent scientists. Through peer mentoring, individuals participate in reciprocal and interactive relationships in which they have the opportunity to develop not only their own problem-solving skills and career self-efficacy but also their confidence and skills as mentors. Peer mentoring can be a component of a professional development program (12) or a stand-alone activity (10). Those looking for the mentoring so valued by contributors to the NextGen Voices survey might consider giving peer mentoring a try.

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Engaging community with humility

In his Policy Forum “Building an evidence base for stakeholder engagement” (10 August, p. 554), J. V. Lavery rightly proposes additional reporting and evidence collection to understand best practices for community and stakeholder engagement. However, we are concerned that he framed stakeholder engagement too narrowly.

Lavery’s proposed consumer model for engagement replicates the individual

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focus of human subject research in an arena where stakeholders' interests and power are often collective. His reference to the human-centered design that informed Apple tech products for purchase by individual consumers fails to capture the complexity and challenges that communities and stakeholders face when confronted with large-scale technical interventions that affect the shared environment. Lavery's avoidance of the term "public" in favor of this consumer model contrasts with important research and practice in the pursuit of more democratic visions for the governance of science and technology (1, 2).

Although Lavery cites the potential for community and stakeholder engagement to increase the success of science programs, he does not explore stakeholders' role in defining what would count as success. For community and stakeholder engagement to matter and serve as more than just window dressing, scientists and funders need to relinquish some of their power and authority by allowing stakeholders—including historically marginalized groups that are traditionally excluded from governance spaces—to influence problem framings, program goals, and other key decisions (3, 4). Communities and stakeholders should help identify the desired goals of a science program instead of serving as a means to achieve the program sponsor's predetermined ends (5, 6). For community and stakeholder engagement to take a more central role in science programs, scientists and funders will have to embrace a new kind of humility.

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Evolution of teeth in South America

In his Perspective "Marsupial responses to global aridification" (5 October, p. 25) on the Report "Rapid Pliocene adaptive

radiation of modern kangaroos" (A. M. C. Couzens and G. J. Prideaux, 5 October, p. 72), P. D. Polly discusses the evolution of high molar teeth in Australian kangaroos and wallabies. He cites evidence that, in South America, mammals developed these high-crowned teeth in the context of humid forests. However, this has not been determined with certainty.

Opinions have oscillated in recent years regarding the context and causes of the high-crowned molars [so-called "precocious hypsodonty" (1)] exhibited by late Eocene and early Oligocene South American mammals. Several lines of evidence, including fossilized plant tissue, mammals, and stable isotopes, suggest that high-crowned teeth developed in the context of relatively arid and open habitats (2–5). Curiously, these habitats seem to have been dominated by palms rather than grasses (4) and thus were neither true grasslands nor analogous to most modern South American open habitats. The discrepancy is reminiscent of the ancient South American mammal communities themselves, which were not analogous to those found there today (6).

As Polly explains, geographically isolated Cenozoic mammal species, such as those of Australia and South America, are well suited for independently documenting how mammalian herbivores have responded to changing climates and other factors over millions of years. In South America, unlike in Australia, the relationship between aridity and the evolution of high molars broadly parallels that seen in the Northern Hemisphere (4, 7); it just happened to take place some 15 to 20 million years earlier (2).

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ERRATA

Erratum for the Research Article "Saturn's magnetic field revealed by the Cassini Grand Finale" by M. K. Dougherty *et al.*, *Science* **362**, eaav6732 (2018). Published online 12 October 2018; 10.1126/science.aav6732

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