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EDITORIAL

Optimal Conflict in Team-Based Laboratory Culture

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Abstract

One critical determinant of success that is not part of standardized scientific training programs is the development of the right mindset for competitive team science. Mindset has been categorized as fixed and growth. People with fixed mindset who believe that virtues such as goodness and intelligence are naturally endowed and thus fixed are reportedly less likely to succeed than people with growth mindset who believe that such abilities are malleable and scalable. People with growth mindset handle conflicts more effectively. As it stands in academic culture, mostly dominated by the education mission, conflict is a taboo. Administrators generally view conflict as something that must be avoided or resolved. Yet the American Psychological Association, among many others, recognize that good science requires good conflict. Team science efforts must recognize the perils of artificial harmony. Artificial harmony is a state wherein members of the team act as if they are getting along in a setting where serious issues remain unattended. Artificial harmony stifles open communication. Open communication within the team is essential to uphold rigor in science. The threat of conflict triggers the flight or fight response in us. Flight, motivated by conflict avoidance, favors artificial harmony. Fight, in its optimal form, empowers teammates to express their opinion leading to healthy disagreement and debate. Teams must find their own optimal conflict point. Mastering that art of identifying and achieving the optimal conflict point for any given team will return lucrative dividends in the form of competitive edge. *Antioxid. Redox Signal.* 34, 713–715.

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SCIENTISTS ARE PROBLEM SOLVERS. Scientific culture relies on teamwork to solve complex problems of extraordinary significance. As part of a community of intellectually curious and highly competitive people worldwide, success of each scientific team is measured by their ability to provide timely solutions to problems of importance that remain unsolved. The global scientific talent pool is abundant and the ability to successfully compete determines the viability of scientific careers. For results of any scientific work to be duly rewarded, the peer-accepted solution must be reported while it is novel. Standardized training programs churn out well-trained talent every year such that the most competitive laboratories in the most renowned institutions are relatively well supplied. Worldwide, many top training programs have perfected the art of producing top scientific talent with several characteristics in common. As a result, experts in the same scientific discipline from different parts of the world can start a technical conversation that is promptly understood by the other. Despite cultural differences, collaborative efforts can start. However, one critical determinant of scientific success that is not an integral part of the scientific training process is the development of the right mindset for competitive team science.

Works of Carol S. Dweck, PhD, a Stanford-based psychologist, highlight the power of mindset in determining success (5). Mindset, in the context of talents and abilities, is categorized as fixed and growth. People with fixed mindset who believe that abilities such as goodness and intelligence are naturally endowed (internal entity theory) and fixed are reportedly less likely to succeed than people with growth mindset who believe that abilities are malleable and scalable (incremental theory) based on effort. In later works, she introduced the notion of a false growth mindset providing guidance toward the achievement of adopting a deeper and

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truer growth mindset (4). People with fixed mindset may not be best suited for team function, a major component of today's scientific pursuit (6). People with growth mindset are more likely to handle conflicts more effectively (6).

Academic culture, primarily shaped by the education mission in most cases, considers conflict as taboo. When the topic of conflict is addressed, conflict avoidance is the most frequently discussed topic. If conflict avoidant strategies were not effective, the next most frequent option is conflict resolution. Yet, the American Psychological Association recognizes that good science requires good conflict (1). Commonly, a scientific problem remains unsolved because we fail to challenge ourselves to view the problem in different light or from a perspective other than what is supported by prevalent notion. This element of challenge must be nourished by a healthy dose of conflict and confrontation in a team setting. Bursts of energy needed to break into apparently unsolvable problems often come from behaviors that are not only not developed as part of our training process, but in academia are likely to be quickly ruled as inappropriate by managers and administrators. Mark de Rond writes in *Harvard Business Review* that ''Managers often worry about conflict in their teams, afraid that any sign of trouble will undermine performance. A typical response to conflict is to ignore it—to avoid getting to the root of the problem and hope that it will somehow go away.'' de Rond recognizes that this is not particularly effective. He argues that ''instead, managers need to know how to create teams that feel psychologically safe enough for conflicting opinions to be aired and the benefits of diversity exploited.'' In a mixed team of fixed and growth mindset people, such limited conflict may end up being perceived as offensive by some. In managing such scenario one must recognize the perils of artificial harmony in competitive science. Artificial harmony, also known as ''making nice,'' is a state wherein all members of the team act like they are getting along yet there are resentments, frustration, and grudges being held against teammates (9). Artificial harmony can be a gravitational force in prevalent academic culture. It is capable of holding back a talented team from breaking into disruptive solutions. It makes room for lack of trust and silent fear within the team. Such environment is not conducive to open communication—a key foundation necessary to uphold scientific rigor among other desired objectives. In a laboratory setting we must recognize that achieving the optimal conflict point, which is well separated from artificial harmony on one and detrimental conflict on the other gravitational end (Fig. 1), is an art that we must master both at personal and team levels (10). Any sense of conflict inherently triggers the flight or fight response in us. Flight, motivated by conflict avoidance, leads us to shy away from conflicts and favors artificial harmony. Fight, actively minimized in the current academic culture, opens the door to achieving optimal conflict. If managed artfully, it is likely to empower teammates to express their opinion leading to healthy disagreement and debate. Such open and sometimes blunt discussions are necessary to frame disruptive hypotheses and to uphold scientific rigor. Every team must find their own optimal conflict point to neutralize the gravitational pull of artificial harmony or detrimental conflict at diametrically opposite ends.

Amy Gallo discusses that ''you might dream of working in a peaceful utopia, but it wouldn't be good for your company, your work, or you. In fact, disagreements—when managed well—have lots of positive outcomes.'' (7). Patrick Lencioni's book, The Five Dysfunctions of a Team (8), discusses that a team must be able to engage in productive conflict to maximize its effectiveness. He introduces the notion of a ''Conflict Continuum'' as a tool to describe the nature of existing conflict within a team and to depict the optimal level. Kimberly Douglas framed team conflict not in negative light but as ''creative abrasion.'' (3). For abrasion to be creative there must be conscious effort ensuring that it remains within certain limits. Communications within the group must be open and not guarded; leaders must accept responsibility for such enculturation. Artificial harmony can be fateful. Cunningham *et al.* (2) report in *Science* that conflict is not necessarily a bad thing in the development of a laboratory; it often inspires a new and better way of working. At the same time, it recognizes that detrimental conflict must be managed in a timely manner (2). Mastering the art of identifying and achieving the optimal conflict point for any given team will return lucrative dividends in the form of competitive edge.

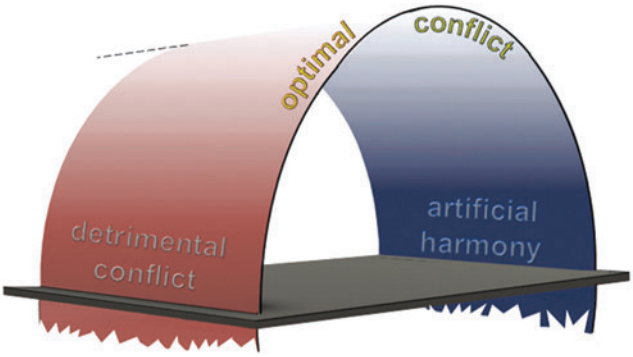

FIG. 1. Optimal Conflict. In the laboratory culture of team science, the identification of optimal conflict point helps manage the perils of the gravitational pull of artificial harmony and detrimental conflict at two diametrically opposite ends.

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