



We Asked the Experts: Virtual Interdisciplinary Research Teams—An Opportunity for Diversity and Inclusivity in the Pursuit of Excellence

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Until now, most impactful research and discoveries in medicine have come from the traditional laboratories located within universities and/or hospitals. Opportunities to become involved in these important research programs were underpinned by the absolute need for any talented individual to leave their physical location, lifestyle, culture, and often, their families, resulting in their contribution coming at a significant personal cost. Such an endeavour may have led to some opting out of this path, thereby depriving science of potentially valuable contributions. Thus, financial, geographical, cultural and possibly gender barriers may affect who is able to conduct standard research [1, 2]. However, with the broadening use of videoconferencing, this conundrum begs the simple question, “Why should research teams be restricted to, or by, a common physical location?”

The burgeoning field of medical research with the exponential growth of multi-omics platforms and machine learning, amongst other innovations, have permitted us the opportunity to view a problem from different angles. The complex problems we seek to research, e.g. health, well-being and cancer are no longer suitable for single discipline research. Discoveries and advances in research and development are more likely to happen at borders between multiple scientific fields with interactions between researchers from different disciplines benefitting not only the individual, by broadening their horizons, but equally, if

not more importantly, the advancement of science [3]. This leads to the next question, “Should more medical research be conducted by interdisciplinary research teams?” In the same vein, why should the lack of availability of key expertise in a specific discipline within a team, university, town, or nation curtail the scope of answering important, yet complex, questions in science and medicine?.

The way forward to addressing the issues raised above lie in the development of virtual interdisciplinary research teams. The term ‘virtual’ has become ubiquitous, especially after the COVID-19 pandemic. It denotes a paradigm shift in mindset that physical location is the primary determinant of an individual’s commitment and the only opportunity to contribute to research. The principles that underpin the establishment of an interdisciplinary research team have been beautifully elucidated by Brown, Deletic and Wong [4]. My interpretation of their principles in the modern world, as I have personally practiced, is to establish an interdisciplinary research team by providing an opportunity to people from varied disciplines who are unified by a cause (e.g. pancreatic cancer) basing their participation entirely on their expertise and desire to do meaningful research, regardless of their financial, geographical, institutional, cultural, and demographic factors. Being a ‘T-shaped’ researcher [5] (those who possess the expertise not only to cultivate their own discipline, but to also look beyond it) is certainly an essential trait to possess when setting up such teams whose culture must be open, egalitarian and mutually respectful. Another important aspect is to make time to meet regularly [6]. The virtual platform remains the established mode for meeting with such teams that are geographically dispersed with the intention not to miss out on opportunities to meet physically, if and when possible. The language used during team meetings needs to be simple (avoiding culturally-specific

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lingo), inclusive, and respectful based on appreciation that the individual members are experts in their own discipline [4, 6].

The best way to set up such a team is to start with individuals who have worked with the researcher in the past. In the modern era of social media, sending out an invitation to connect (using platforms such as Twitter[®]) is another strategy. This helps to traverse the silos that often preclude interaction with members of other disciplines. In the author's experience, team members, seeing the potential for a supportive and meaningful environment to engage with themselves tend to bring in newer members from other disciplines. The academic output from these teams ultimately attracts others who would then communicate their interest to join the team via email or through social media.

Individuals interested in setting up such teams must be aware of what is required of them. First of all is the need for patience. The success of an interdisciplinary research team is seldom exponential in the first years after the group comes together. There is good evidence to demonstrate that interdisciplinary researchers achieve lower impact with their publications in the short run. However, they eventually outperform their specialized counterparts in funding performance, both in terms of volume and value [7, 8]. Being humble is essential when leading, as well as being part of, any interdisciplinary research team considering that the team encompasses experts in their own disciplines. The latter should not result in the desire to endeavour to become an expert in another's discipline, especially if the focus of the research shifts in the direction of another's area of expertise. Sensitivity to the needs of the team including their career (and personal) ambitions is essential. Finally, these teams cannot be sustained without wisdom and transparency—not just in terms of roles, responsibilities and authorships on manuscripts but also the allocation of grant funding. Being able to wisely allocate funds to the members of the team that need them for the performance of the specific vital tasks, as well as supporting them to secure funding to sustain their roles, is vital. This may often result in the person leading the team in driving the research and the idea not receiving a major share of the funding. This can create difficulties within institutions where the expectations are that the grant funding should be leveraged on the weight of the person developing the ideas. However, this is where true leadership becomes evident, when the advancement of science becomes the main focus.

Allocating funds judiciously will never go unnoticed by the members of the team. The latter also reflects a true desire to be inclusive and provide opportunities to people who have a lot to contribute but are being held back by circumstance. Finally, a rotating leadership dependent on the focus of a particular project helps to further build on team engagement and meaningful contribution.

In conclusion, leaders in the field of science and medicine have a unique opportunity to establish and develop virtual interdisciplinary research teams that bring together individuals not only from diverse disciplines but diverse backgrounds and circumstances separated by the physical constraints of geography. This is one of the most inspiring and enriching experiences to which we can contribute. All it takes is the desire to be truly inclusive and not be afraid to embrace patience, humility, wisdom, and transparency.

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References

1. Ayentimi DT, Abadi HA (2023) Why are women opting out of academic careers in higher education in Ghana? Implication for policy and practice. *High Educ Res Dev* 42:18–32
2. Prieto-Rodríguez E, Sincock K, Berretta R et al (2022) A study of factors affecting women's lived experiences in STEM. *Hum Soc Sci Commun* 9:121
3. Duerr F, Herkommer A (2019) Why does interdisciplinary research matter? *Adv Opt Technol* 8:103–104
4. Brown RR, Deletic A, Wong TH (2015) Interdisciplinarity: How to catalyse collaboration. *Nature* 525:315–317
5. Hansen MT, Von Oetinger B (2001) Introducing T-shaped managers: knowledge management's next generation. *Harv Bus Rev* 79:106–116
6. Domino SE, Smith YR, Johnson TR (2007) Opportunities and challenges of interdisciplinary research career development: implementation of a women's health research training program. *J Womens Health (Larchmt)* 16:256–261
7. Sun Y, Livan G, Ma A et al (2021) Interdisciplinary researchers attain better long-term funding performance. *Commun Phys* 4:263
8. Wang J, Thijs B, Glanzel W (2015) Interdisciplinarity and impact: distinct effects of variety, balance, and disparity. *PLoS ONE* 10:e0127298

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