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Human Kinetics
EDITORIAL

Lessons Learned

In this issue, JAB continues a series of editorials from highly impactful faculty and researchers on "lessons learned" throughout their careers or lives. The hope is that the rest of us can benefit from their experiences. I would like to thank these individuals for sharing their thoughts with us.

—Michael Madigan, Editor-in-Chief

I have been in the business of education at the university level for over 44 years, working at 4 major universities, and in that time, I have observed marked improvements in our ability to conduct significant, hypothesis-driven science integrating our world of biomechanics with knowledge bases in physiology, motor learning, neural control, and psychology, equally integrating our world with professional colleagues in engineering, medicine, physical therapy, occupational therapy, and athletics and coaching, to name just a few. We have disturbed the concept of "silos" and enriched the interdisciplinary approach to studying the performance of an integrated physiological system, that is, the human body, whether applying our skills to injury prevention and improving performance during the extreme demands of sport or studying falls prevention interventions in the frail older adults. Successful members of our profession have exhibited the ability to view human movement from a more "holistic" perspective, developing teams of colleagues, each with their own expertise, and working together to solve a given challenge in movement science. And, while working with so many trusted colleagues in my career, I have learned some important lessons along the way.

First lesson learned: Bring your own ideas/hypotheses to the table to maintain your own independence. And, at the same time, actively engage and integrate your ideas with colleagues who collectively have the knowledge base required to address any given problem.

My first experience in an interdisciplinary environment was at the Biomechanics Lab (Water Tower) at Penn State (1971–1975). Bringing research experience at the MS level in exercise physiology to my PhD work, I was pleasantly surprised to see students in biomechanics, physiology, sports injury mechanics, and equipment design housed together on the third floor of the Biomechanics Lab. In that program, students were also exposed to scientists from around the world who shared their interdisciplinary perspective with students in the lab. Paavo Komi, a graduate of Penn State and a world-recognized scientist in sport biomechanics and neural control, is such an example. His successful career was defined by addressing questions regarding muscle function, in vivo, at a very basic science level and building collaborative interdisciplinary teams of researchers with the unique ability to translate their findings to coaches and athletes.

My second experience in an interdisciplinary environment was at Georgia Tech, where I was the founding chair of the School of Applied Physiology. Collectively, our faculty developed labs in cell physiology and biomechanics, motor control and behavior, and neural control and movement mechanics. We shared funding with faculty in the Medical School at Emory University and the College of Engineering at Georgia Tech to study questions in movement control related to rehabilitation science. Truly an interdisciplinary integrated community.

Second lesson learned: Make sure the collaborations you undertake work for you. Focus on your central interests, that is, your central goals, balancing the development of your "thread" of research with your unique contributions to the work of others in your interdisciplinary team. Your success culminates with the appropriate communication of your findings to a given target population.

We are all charged with the responsibility of translating our findings to the appropriate populations, and this requires an interdisciplinary collaborative effort. For example, questions driven from a clinical or athletic performance perspective to basic scientists or from basic scientists to coaches and clinicians requires each side to listen to the other, learn from each other to understand the problem, and hopefully solve it. We often employ similar technologies, data gathering, analytical procedures, and so forth to address questions in different fields of study, but it is a well-defined question that requires our most serious and profound attention. It is the questions that drive the selection of the tools. As our perspective on improving human health and performance sharpens, the importance of the intellectual interface between all members of the collaborative team becomes more profound.

Third lesson learned: Recognize the significance of the impact of your work on you, on those working alongside you, be it student or colleague, and on the field of study in which you participate.

Development of an interdisciplinary work environment supports an integrated approach to the study of human performance. It encourages the development of new knowledges and serves as a platform for the scientific training of those looking for our guidance that is requisite to the successful development of their individual careers. Those we train serve as *our message* to the future of our profession. They are our collective legacy. Keep track of them, learn from them, and treat them as colleagues throughout their careers.

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