Intra- or Interdisciplinary Research, Teaching, and Service in Kinesiology

By Penny McCullagh, KT Editor

As the new editor of *Kinesiology Today*, I am interested in expanding the uses of *KT*. Since AKA membership is department dependent, I would also like to include unique or interesting activities that individuals in kinesiology departments are doing. In days gone by, some would argue that the best way to build a department was to hire extremely talented researchers who could independently make a name for themselves. Typically these individuals operated as silos (thanks to Scott Kretchmar for the analogy) and did their own research primarily independent of other faculty members. The more prestigious the individual research, the higher the silo. However, today, many department heads, deans, provosts, and even funding agencies would argue that some level of cooperation and interdependence is a more meaningful and effective way to approach research.

An article by Schary and Cardinal (2015) on inter- (IRD) and intradisciplinary (ITR) research and teaching is not a new conversation for kinesiology (see many previous works, including Freedson, Kretchmar, Newell, Weiss, and Rikli). However, the concept of collaborative research is being pushed to the forefront of many discussions for several reasons, including funding priorities from external sources and the ability to cooperate with other researchers to answer real-life questions in a multidisciplinary field and to enhance teaching effectiveness. Schary and Cardinal argue that there is little information in kinesiology about the amount of IRD being conducted and also the challenges of doing such research. Many universities are advocating such approaches demonstrated by a recent host of cooperative hires (called affinity hires and cluster hires) that require up to three departments to hire faculty that can approach common research themes from different perspectives.

Schary and Cardinal offer the following two definitions and suggest that while disciplinary research should not be abandoned, taking on a broader approach "will produce better research and better prepare practitioners for the complicated challenging jog of working with people."

According to Schary and Cardinal (2015), IDR research "is any study or group of studies from two or more distinct academic disciplines. The research is a synthesis (or derivative) or concepts, models, and/or theoretical frameworks form those disciplines, uses study design and methodology that is not limited to any one discipline, and requires the use of perspectives and skills of the involved disciplines, throughout multiple phases of the research process (i.e., research, analysis, and interpretation of results." In contrast, ITR research "is any study or group of studies from two or more distinct subdisciplines within the same parent discipline. The research is a synthesis (or derivative) of concepts, models and/or theoretical frameworks from those subdisciplines, uses study design that is not limited to any one subdiscipline, and requires the uses of perspectives and skills of the involved disciplines throughout the multiple phases of the research process (i.e., research, analysis, and interpretation of results)" (p. 177).

As a former department chair, I was well aware of the ITR efforts of three junior faculty members from my own institution, CSU East Bay, Jenny O (JO), Jennifer Sherwood (JS), and Vanessa Yingling (VY), to push the boundaries of collaborative research

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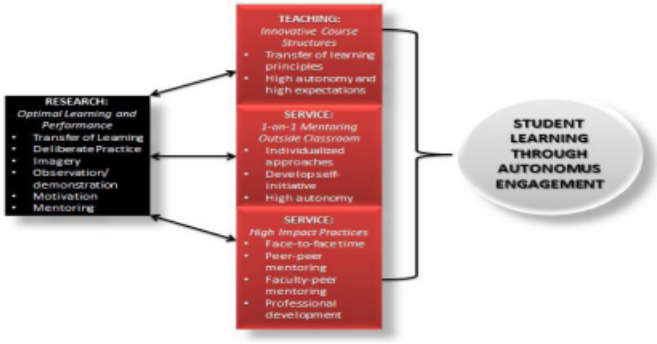
and attempt to cross-pollinate their teaching and research efforts as well as their service. Two years ago these three individuals formed a kinesiology research group (KRG) in an attempt to bring undergraduate and graduate students at a comprehensive teaching-intensive university under their wings. I asked the following questions and have noted their responses. I would like to receive other examples from other campuses that are showing how cooperative projects can be beneficial not only for faculty but also for students.

If you want to share such an example in a future issue, please contact me at kintodayaka@gmail.com.

Tell us in general about the teaching, research, and service requirements at your university.

Three assistant professors responded to this question and all agreed that at a comprehensive teaching intensive university such as CSUEB teaching loads are high and research requirements in last few years have escalated. The culture has definitely changed. The typical load is three courses in each of three quarters, or nine courses a year. New faculty with active research agendas and desires to engage with students are coming to the campus, and although there are programs to purchase equipment and some options for course buy-out, it is still difficult to maintain an active research program. Also, the quarter system (10 weeks) makes it difficult to initiate and complete projects with students because of the shortened time line. One faculty member (JS) said, "I believe that the best option is to integrate all three expectations, thereby maximizing the use of time and resources and avoiding the tendency to compartmentalize these expectations."



Given the expectations at your university, do you make any attempt to cross-fertilize projects across the three domains of teaching, research, and service?

JO: Yes. To achieve balance and success in pursuing my professional responsibilities, I make deliberate attempts to integrate my teaching, research, and service work. This allows me to work more efficiently and effectively because progress in one area

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(e.g., completing a literature review for a manuscript) typically informs progress in another (e.g., identifying potential modifications to course structure, content, or delivery). In the following figure, I present a conceptual model of the framework that drives the majority of my work at CSUEB. I find it useful in helping me make professional decisions, especially when faced with situations wherein multiple behavioral options exist. Following this framework also allows me to be focused with my teaching and professional development pursuits as well as consistent with the belief and values I express to my students.

JS: In our department, we have tried to integrate teaching and research in the kinesiology research group (KRG). The KRG is a group of faculty and undergraduate and graduate students who meet on Fridays to work on research projects and department projects and attend professional seminars. Last year, several of the students in this group were involved in collecting preliminary cardiovascular, muscular, skeletal, and psychological data of nearly 100 student-athletes. The students were involved in every stage of the project: conceptualizing and designing the projects, collecting and analyzing the data, and presenting the results at a national meeting. In theory, this was a brilliant way to integrate teaching and research. In practice, it was a significant challenge for a few faculty to manage over 15 student researchers, collecting data on more than 100 participants using equipment and space that are shared for teaching, athletics, and research.

Are you aware of scholarly writings regarding intra- and interdisciplinary work, and have any of these influenced your approach?

JO: Yes, some, but I haven't had time to read many of them. I do find Newell's work surrounding the issue to be consistent with my approach, but more so, my approach is informed by my own experiences as an undergraduate student. In terms of how I use research, theory, and evidence to conceptualize my approach, my approach has largely been informed by the transfer of learning literature from the educational psychology domain and my specific areas of expertise in kinesiology: optimal performance (via manipulation and control of cognitions, perceptions, and behaviors) and group dynamics. I tend to try to understand things as models. I visualize (or literally draw out) DVs, IVs, and latent and observable variables—and the relationships between them—and use that model to drive my designs.

JS: I am aware of the targeted use of funding opportunities to promote interdisciplinary research but am not extremely familiar with scholarly writings in kinesiology. In kinesiology, an integrated, translational approach to studying physical activity interventions seems logical. Humans are complex. The research on human movement should integrate this complexity. As a researcher, it is difficult to identify appropriate study sections to evaluate inter- or intradisciplinary funding proposals.

Please provide a specific example, and can you provide any guidance to other individuals who want to expand their horizons?

JO: Kinesiology is a complex discipline because of its breadth (a broad perspective is necessary, given that we study human beings). Not only is it important to understand the science of movement, but it is equally important to understand the historical, philosophical, and societal underpinnings and current influence on how and why people choose (or choose

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not to) move. To really understand movement, you need to consider all variables involved. Moreover, from an applied perspective, kinesiology practitioners not only need to understand kinesiology from a multidisciplinary perspective, they must then be able to apply it in professional practice (e.g., pedagogy, androgogy). No singular person or subdiscipline can feasibly accomplish comprehensive kinesiology expertise or knowledge; there must be interdisciplinary research in kinesiology if we are ever to go beyond simply identifying and understanding variables affecting movement in a silo-like manner. Movement doesn't happen in a vacuum; thus, how we examine movement also needs to happen outside of a vacuum (down with silos in kinesiology!). If you are passionate about inter- or intradisciplinary research in kinesiology, do it! It is sorely needed. Just plan well, plan often, evaluate and modify your designs (as needed) often, and start small and build from there.

VY: Interdisciplinary research should be done, but when road blocks and difficulties occur I think we tend to run back to our familiar areas. At times it feels as if one is pushing a brick wall forward, juggling all job responsibilities whether research and teaching or research and grant writing are not easy.

JS: Once you find a project that interests you, find a way to piece it into well-defined, manageable projects for yourself and your students.

After examining the Schary and Cardinal article, please provide some comments on ideas you might glean for future endeavors.

JO: It seems like we are operating largely from a synthetic IDR paradigm. We link our subdisciplines together but currently do not make attempts to really synthesize them. However, I do not believe that synthesis is necessary. Particularly, in light of the advanced statistical modeling procedures available today, there is no reason why we could not collect data representing various subdisciplines of kinesiology and model them together to identify salient factors influencing aspects of physical activity, health, and wellness. Of course, sample size would be a significant challenge for such an endeavor, perhaps requiring harmonized efforts from multiple researchers and research groups from kinesiology programs across the nation and beyond.

VY: The concept of interdisciplinary and intradisciplinary is interesting and imperative if we are to increase physical activity in populations. But the reward system of the universities and the places to publish such study is limited. And many of us have not been trained in approaching problems in this way. Most of my studies with the main focus on bone health are interdisciplinary, so I have worked with cell biologists (bone focused). To work with disciplines from behavioral or humanities is interesting but harder, I think, although the example of the work in strength and conditioning was excellent. My opinion is if you have departmental seminars and everyone buys into coming weekly, good things will happen. Sometimes you learn the most from a talk that you would never consider attending but it is your weekly meeting so you go. Serendipity….

JS: Much of our training to date has been within our parent disciplines so we are working to link our perspectives within the framework of kinesiology, to develop a common language for ourselves as well as for our students. Although this work can be challenging, we know that it is important. As professionals in kinesiology, our students will be expected to seamlessly link concepts across the breadth of kinesiol-

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ogy (e.g., sociological, psychological, physiological, and biomechanical concepts) to develop solutions to understand and promote human movement. Our efforts to develop this framework and model this process, thereby preparing our students for the real-world challenges, require us to use inter- and intradisciplinary approaches to research and teaching. Student research and community projects in the KRG include studying physical activity habits in college undergraduates, developing bone health educational materials for community programs, developing individualized exercise prescriptions, and motivating adherence to physical fitness programs. These projects are authentic, are not limited to a single class or a single quarter, and require us to integrate multiple subdisciplines within kinesiology. When students graduate and reflect on their experiences in our department, they report that these integrated, authentic experiences were the most transformative for them, were critical to increasing their confidence and inspiring them, and prepared them for opportunities in the field of kinesiology.

After completing this article, I decided to approach Schary and Cardinal and ask them for a response. They kindly agreed and provided the following comments.

As described by the faculty members in this article, the many calls for interdisciplinary research over the years have gone largely unanswered because of practical limitations that constrain faculty who, in order to succeed in the present tenure and promotion system of most institutions, must appropriately balance the classic triumvirate of faculty responsibilities (teaching and learning, research and inquiry, and service and engagement) and navigate a system that has traditionally rewarded independence over collaboration. Ironically, these limitations often stem from the same system that is now trumpeting the importance of interdisciplinary research. We especially commend faculty who have found ways to *do* intra- and interdisciplinary research within the tradition-based system of academic science and professional practice. Their efforts to challenge tradition and create frameworks for others to follow are notable. The informal and serendipitous kinesiology research group established at CSU-East Bay is but one example of the sort of innovation that is inspired by scarce resources (i.e., time, money) and a genuine commitment to, in the words of Roberta J. Park, PhD, professor emeritus at the University of California at Berkeley, "The recurring need to put words into action." As a field, we must embrace, reward, *and* advocate for interdisciplinary research on the same level as disciplinary research. Until this happens, truly collaborative research will never achieve its potential.

Park, R.J. (2011). Historical reflections on diet, exercise, and obesity: The recurring need to "put words into action." *Canadian Bulletin of Medical History, 28,* 383-4

Schary, D.P., & Cardinal, B.J. (In press). Starting to uncover the mystery of interdisciplinary research in kinesiology. *The Physical Educator*.

Schary, D.P., & Cardinal, B.J. (In press). Interdisciplinary publication patterns in select kinesiology journals. *Journal of Contemporary Athletics*.