

Reflections on Research in Kinesiology

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This paper provides reflections on the progress to date and current status of research in kinesiology. The accompanying overview articles in this special issue of *Kinesiology Review* show that the contemporary disciplinary/professional foci of kinesiology remain, by and large, the same as the initial research and teaching structures of 50 years ago, as outlined in the inaugural overviews. Nevertheless, within this prevailing disciplinary/professional structure, there have been many new developments in movement-related research, including the juxtaposition of novel alignments and integrations of certain specializations of kinesiology. There is general consensus that the quality and quantity of research in kinesiology have advanced substantially, albeit unevenly, on multiple fronts, both within and between the areas of specialization. The research agenda in kinesiology has benefitted from the growing realization of the centrality of human movement and physical activity in contributing to a healthy lifestyle for individuals and societies.

Keywords: life span, movement, physical activity, physical education, sport

It was just over a half century ago that a paradigm shift occurred that put into motion the evolution and formation of departments of kinesiology from the academic foundations of physical education.¹ There were two related promissory notes from this transition in the *raison d'être* of the field of study, both of which, it was anticipated, would have a significant impact on the multiple avenues of specialization. The general “anticipation” was that there was “more” to the study of human movement to be drawn and developed from the disciplinary areas of the arts, humanities, and sciences than was being emphasized at that time in the school system’s teacher training programs and the doctoral programs of physical education. The other was the specific “promise” that there was significant academic potential and societal relevance for a multifaceted emphasis in the sciences of human movement and physical activity.

Indeed, the 1960s and the emerging emphases of kinesiology were focused on building the sciences of human movement and physical activity. In these early years, the scholarship of the humanities and the arts in human movement was essentially marginalized and even discounted from having a place in the new and unfolding agenda for kinesiology (see Brooks, 1981; Kretchmar & Torres, 2021),² though it did not pass unnoticed at the time that the proclamations on this domain issue typically came from faculty with a science orientation to scholarship. The science agenda, moreover, had a reductionistic flavor to it so that, in spite of the inclusion of the behavioral and social sciences in the Brooks’ (1981) perspectives, faculty in these more macro disciplinary levels of science invariably felt uneasy, if not unwelcome, in what they perceived as their own academic home. And, at the same time as the calls for a stronger emphasis on the sciences of movement and physical activity in higher education, there were indications of efforts to undermine and even dismantle the place of physical education in both school systems and higher education.²

Nevertheless, the confluence of these and other influences came together to provide a stronger place for research in kinesiology than was the case in the traditions of physical education during the first half of the 20th century (see Massengale & Swanson, 1997). Indeed,

examination of the status of research in kinesiology over the last 50 years leads to the conclusion that there has been considerable growth in both the quality and quantity of research—a view that is endorsed and reiterated in the chapters here, including the introductory overview (Anderson & van Emmerik, 2021). The enhanced interdisciplinary and multidisciplinary potential for research in human movement has contributed both to shaping the research agenda in kinesiology and fostering across campuses enhanced collaborations with the established cognate disciplinary departments, as well as what were new evolving units, such as biomedical engineering, computer science, and neuroscience. Nevertheless, the uneven development of this approach across the broad array of subdomains of kinesiology has helped resurface the traditional concern of fragmentation (Hoffman, 1985; Thomas, 1987), but now in relation to research, rather than the scholarly content of degree programs.

My comments and reflections here are necessarily selective, given the breadth of the potential issues at hand and the overarching scope of the individual papers, although each emphasizes the respective cognate discipline activity approach (consonant with the early overview chapters of Brooks, 1981) within the field of study. I draw on these papers as background to inform discussion of the current status and future prospects for continued enhancement of the impact of kinesiology research, both within the narrow confines of academe and the broader perspective of society. Thus, this commentary is, in effect, an interim report card on the progress to date and future prospects in kinesiology research from the now approximately 50-year-old academic experiment.

Quality Assessment of Research in Kinesiology

Given the breadth of kinesiology as a field of study, it follows that the associated scope of research is also broad with respect to theory, methods, and applications. The evolving research agenda of the field of study is basic *and* applied, with the balance of these influences varying by individual faculty, subdomain theme, and university. The current scholarly foci of each department of kinesiology have evolved over the years from internal and external

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forces of influence. Indeed, the *local* university structure and standing provides opportunities and expectations that vary to different degrees across campuses, even within the restricted purview of R1 universities. This variability in the implementation of kinesiology is a strength because it leads to greater diversity nationwide in the interpretation of teaching, research, and service programs and the opportunities for students, faculty, and society in the study of human movement and physical activity. Of course, extreme variability in the scholarly content of a field of study across universities tends to weaken the centrality of impact.

University department academic profiles of teaching, research, and service are typically evaluated in terms of demand, quality, and centrality, making it less than straightforward to separate out the state of the research enterprise in isolation, in part because it is linked to teaching and service responsibilities. And we are not helped, either, that record keeping of research achievement is often not what it might be at all levels (within and without) of the academy. This gap in assessment is particularly prevalent in the smaller and minor research units within the hierarchy of academe.

Perhaps the closest to record keeping we have is in the supporting research material provided by departments of kinesiology for the now 5-year cycle of the National Academy of Kinesiology (NAK) assessment of U.S. doctoral programs. The single assessment of kinesiology by the National Research Council (NRC) in 2009 provided additional research and graduate program information. Although it is clear that research in kinesiology has improved in quality and quantity over the last 50 years, it is difficult without data to determine the impact and time course of this progress, including the continuation of research developments in the last decade. It is unlikely that departments of kinesiology have a continuous linear improvement in research indicators of quality, quantity, and impact in society. My expectation is that the rate of progress in kinesiology research has slowed in the last decade, but it would be more instructive to draw on the relevant numbers.

The NAK Doctoral Program Evaluation

A welcome initiative of the last 20 years or so has been the engagement of kinesiology as a field of study in assessment of its own research programs. Quality assessment at a variety of levels is essential for the building of quality programs. The most local and critical is self-assessment, whereby a department is continuously evaluating itself against other kinesiology programs nationwide and worldwide, other disciplines (departments) on the same campus, and general research trends worldwide. Within these broad structures, the individual faculty assessment, including self-assessment, is a critical component of a healthy, progressive department.

The NAK first conducted a review of the doctoral programs in kinesiology in 2005, after careful development of an evaluation tool and pilot testing. This last year of 2020 saw the fourth national assessment of the field of study (see [Challis, 2021](#) for the detailed report). Doctoral education is so strongly tied to research and scholarship that an assessment of the quantity and quality of research in the respective departments also becomes available through the information submitted. The 2020 assessment identified 74 doctoral programs with a kinesiology focus, although not all of these programs were titled Department of Kinesiology. Moreover, only 43 of 74 (<60%) of the doctoral programs actually took part in the 2020 NAK assessment exercise. It seems we have yet to have an

analysis of the collective research indicators of the field of study as a function of time.

The NRC Evaluation

The field of kinesiology gained entry to the 2009 NRC 10-year cycle of doctoral degree program evaluation. This initiative was led by a committee of NAK in one of its rare, politically motivated moves in support of the field of study (Thomas et al., 2007). Entry for consideration in the NRC evaluation rested on several criteria, including the number of doctoral degrees awarded and the amount of external grant money being above the threshold values for a field of study.

The acceptance of kinesiology into the NRC evaluation was important for several reasons, including the evaluation and promotion of our research identity based on the *same* criteria as those used with the established disciplines of science. The implications of being on the same evaluative playing field as the sciences in general were particularly helpful in situating our status with those same departments of science on our home campuses. This is in part due to the fact that the centralized NRC assessment carried more status/gravitas outside of kinesiology than the more recently instituted 5-year cycle NAK in-house assessment. Moreover, a consequence was that the NRC review process made it difficult for a central campus administration to be dismissive of highly ranked kinesiology programs, given that the same NRC assessment outcomes were used to tout, as they traditionally had been, the high rankings in other disciplines on their campus. Unfortunately, the NRC doctoral assessment was discontinued after the round of our inaugural involvement in 2009 due to the increasingly difficult logistics of running the large-scale nationwide assessment, including the high cost of the review process.

The loss of the NRC review places more importance than ever on the validity, robustness, and timeliness of the 5-year cycle of the NAK assessment. A continuing relook and refreshing of the NAK evaluation criteria needs to be a constant, with a concern for insuring the representation of quality and impact indicators, as well as the more straightforward, to obtain quantity indicators. At the end of the day, it will be the quality and relevance of the research programs that will determine the impact and centrality of kinesiology in academe and society.

Valid and reliable numbers on the assessment criteria for research are not readily available for kinesiology and nontraditional disciplines. For example, the National Science Foundation keeps yearly records of grants obtained in U.S. universities, but kinesiology is not a domain category on this list—grants obtained by kinesiology faculty are recorded without kinesiology recognition under the relevant cognate disciplines, such as physiology, psychology, sociology, and so on. The observations and comments that follow are based on the experiences of my collective near half-century presence as a faculty member in kinesiology departments in the United States (Illinois at Urbana-Champaign, Penn State, Georgia).

Grants and Dollars

The conduct of an individual faculty or departmental research agenda in academe requires, in virtually all fields, external grant funds to support the work. This is a fact of life that is now relevant in contemporary R1 university kinesiology programs, whereas traditionally, this was not an issue (though it could have been) in the professionally oriented physical education departments of 50 years ago. There is an institutional expectation that

research-oriented faculty will seek external funds to support and sustain their own research agenda, beyond the start-up and small ongoing institutional funds that may be available at the department, college, and central campus levels. In short, pursuing research money is a necessary consequence of the field of study aiming to develop a research agenda, and kinesiology is now evaluated within this environment. The upside in the breadth of possible lines of research in kinesiology means that there is a wide range of possible funding opportunities for a given department across the faculty specialties. These opportunities for funding are, of course, highly competitive and predominantly in the health arena.

Clearly, the domain specialties within kinesiology have different needs for the amount of funding required to support an individual or group research program. Different kinds of research are more or less expensive, depending on the nature and scope of the research. And while, in general, the total grant dollars obtained by a faculty member does not necessarily correlate highly with the quality of the research, funding agencies do not bestow awards without careful review, and the more so with large grant budgets. It is no secret that central campus administrators and department heads emphasize large federal grants, given the significant indirect costs accompanying awards. Nevertheless, kinesiology faculty are scouring multiple sources (public, private, and industry) for funding sources, and this, in its own way, tends to contribute to broadening the collective research agenda of the field.

New technologies for research advancement have emerged in many areas and become an integral part of the research agenda, affording new opportunities (see, e.g., [Kent & Hayes, 2021](#) on exercise physiology). The large-dollar equipment items, such as Magnetic Resonance Imaging, understandably lead to centralized shared usage on campuses that can itself also foster new interdisciplinary collaborations. The relatively recent advances in the technology of wearable sensing devices, which include measures of physical activity and certain physiological markers, have been important for advancements in the study of inactivity. The development of technologies to monitor and almost instantaneously analyze an athlete's performance during an actual game (e.g., of soccer, rugby, basketball) has also opened up the new domain of performance analysis of team sports through so-called big data, a program emphasis that now has degree programs, although predominantly in Europe and Asia. Much of this latter activity is sponsored by professional teams, that is, it is moving toward becoming an in-house necessary expense, rather than an out-of-house contractual opportunity for researchers.

Journals and Publications

There has been a steady growth, if not proliferation, of new journals over the last 50 years in the movement domain. We have gone from "I cannot find a journal to submit to" to the more contemporary view that "there is not a shortage of journals" and, even, that "there are too many journals." The latter view correlates to the assessment that any paper can and will be published, depending on the persistence of the author(s). It is just a matter of time (how many rejections) and which journal the paper ends up getting published in. The advertising of new open-access journals in and around movement and physical activity suggests that the proliferation of journals has not yet slowed, although clearly, the recent rate of growth cannot be sustained.

A dilemma for some faculty is the choice between submitting to movement-related journals and disciplinary/interdisciplinary journals. In my view, if faculty are at the cutting edge of their

research niche, they should want to publish in both kinds of journals, among others. Given the interdisciplinarity of kinesiology they should have something to say (as it were) to more than a single research domain. There is a common assumption that the traditional single disciplinary journals are of greater status, with higher impact factors, than those from the kinesiology domain. This is, however, not uniformly the case. Also, a publication in a high-impact journal that is less relevant to the theme of the paper typically does not enhance the impact of the paper.

Ultimately, it is the perceived quality and impact of the individual paper that is critical in assessment. The impact factor is related to the journal assessment rather than the individual or paper assessment (current preference and prevalence of the H index). There is an assumption that assessment on these levels is highly correlated, but this also is not necessarily the case and, I would conjecture, often not the case. Nevertheless, I anticipate that if we focus on the quality of our individual papers and movement-related journals the contentious but important concerns on assessment issues will take care of themselves.

Hiring Faculty

The standing of departments and fields of study rests to a large degree on the quality of faculty in the respective scholarly domain. Indeed, the most important task of a department head in academe is the hiring of new faculty. In the pursuit of quality faculty, a number of kinesiology departments have sought and hired faculty with training and formal degrees from the cognate disciplines rather than kinesiology. In departments that have professional certification tracks, the specter of faculty without formal training in kinesiology teaching, kinesiology has been seen as abhorrent by some faculty. This concern is typically more prevalent in the professional tracks to the extent that in, for example, athletic training, there are certification degree requirements for the faculty to be able to teach in the specialty that has now moved to the level of a master's degree.

The number of faculty in the cognate disciplines conducting quality research on human movement and physical activity continues to grow. The number is not large and still a minority, but there are quality faculty who contribute to movement and physical activity; some of whom prefer to have their faculty appointment in kinesiology rather than their home discipline. The concern of this influence on the breadth and fragmentation of research in kinesiology remains a factor, but that is also the case for the hiring of any new faculty. Moreover, the promotion and tenure process provides an avenue to correct most of the poor decisions in hiring.

The field of kinesiology has afforded faculty the opportunity for their research agenda to continue to grow and prosper. There has been a steady growth in state-of-the-art laboratories within departments. Nationwide, there are senior faculty in departments of kinesiology who are considered to be world leaders in their specialization and a cadre of junior faculty capable of realizing these same goals. A notable individual achievement was the 2010 McArthur Award (dubbed the genius award) to Kevin Guskiewicz of the University of North Carolina at Chapel Hill for his research on the diagnosis, treatment, and prevention of sports-related concussions.

Kinesiology Research: Disciplinary, Interdisciplinary, and Multidisciplinary

The early structure of kinesiology and even the immediately preceding years under the physical education label was, in essence,

an amalgamation of cognate discipline specializations for the study of human movement and physical activity. And, in an effort to enhance status, some faculty downplayed the movement metaphor of relevance by removing the tangible links to kinesiology (by whatever local label). This trend has, I think, evaporated to being insignificant while, relatedly and by contrast, as already noted, PhDs from outside of kinesiology have sought faculty positions in the field of study.

In this framework, the discipline being related to by faculty and graduate students in our field was not kinesiology, but rather, the respective cognate discipline of physiology, psychology, sociology, and so on. Kinesiology is not a discipline as classically defined by academic traditions, but it is an interdisciplinary field of study that may or may not become a discipline. The leading kinesiology programs have, for some time, been engaged in collaborative research of one kind or another within and without the movement domain.

The early 1960s research in human movement was predominantly related to a single cognate discipline that provided theory and experimental methods for a faculty member to conduct research. This framework helped organize a viable research pathway, but in most instances, the structure was more about the cognate discipline than kinesiology, for example, more about physiology or psychology than kinesiology. The single discipline link to the movement research of faculty is still prevalent as a strategy today, but there are significantly fewer faculty pursuing this strategy, as research seeks more disciplinary integration of one kind or another. The continuing enrichment of the analysis of movement in all of its expressions itself contributes to establishing a unique kinesiology component to even the research within a single cognate discipline. Furthermore, individual grants today are increasingly team-investigator activities rather than single-investigator activities in the effort to bring the relevant knowledge and/or skill set to the project at hand. In sum, I would conjecture that integration of various kinds and extents is the norm rather than the exception in today's increasingly fast-moving competitive world of research.

Defining the Scope of Human Movement Research in Kinesiology

Movement is indigenous to living systems, and segments of society (including universities) are coming to realize this, together with its ramifications for lifestyle and health. The seemingly boundless scope of human movement in context is daunting, but it reflects the broad and diverse roles that it plays every day in the life of individuals within societies and cultures. It is not outrageous to suggest that almost any research phenomenon or aspect of scholarly inquiry can be linked in some way to the field of kinesiology.

Nevertheless, two broad orientations to research in kinesiology have long been identified. One encompasses the factors that influence the engagement and performance of individuals in movement and physical activities. The other examines the impact of the engagement of movement in physical activity on the personal development and health of individuals in context. Departments of kinesiology tend to have different degrees of emphasis on these two foci, so much so that the balance of emphasis here could be anywhere between 0% and 100%, although typically, it is more equally emphasized.

In addition to this general bimodal nature of the emphases of kinesiology research, I find it useful to consider the kinesiology

research agenda from the perspective of four interdependent dimensions (Newell, 2007). These are (a) the activity dimension, (b) the disciplinary dimension, (c) the individual (life span) dimension, and (d) the professional (agent of change) dimension of human movement and physical activity. These dimensions of the research field coalesce with different weightings of influence for the areas of specialization in kinesiology over both basic and applied research agendas. The choices made by departments on program emphases and directions of individual scholarship determine the distribution of department activity in the four-dimensional matrix, which I submit, predicts the coherence or lack thereof in the research of a department (Newell, 2007).

The Activity Dimension

In a number of respects, kinesiology is more like the tripartite academic structures of art, dance, and music programs (performance, theory, and teaching) than the cognate disciplines of, for example, psychology and physiology. On the other hand, kinesiology also holds structural parallels to interdisciplinary fields of study, like nutrition (nutritional sciences), in the form of an interdisciplinary focus to many specialties of biology and behavior, including a behavioral “activity/performance” focus on the intake regulation of eating and drinking. Of course, the important input/output link of kinesiology and nutrition to the energy balance problem also unites the domains in another important research theme.

The traditional “big tent” broad interpretation of the scholarly playing field has been challenged as to the role of engagement and performance of movement and physical activity in degree programs. In many programs, “the baby (the practice of movement and physical activity) has been thrown out with the bath water” in deference, it seems, to the priority of individual faculty and departments achieving a scholarly profile in structure, quantity, and quality on a par with the academic status of the cognate disciplines. Throwing out the “baby,” in this case, is the removal of the actual doing of movement, exercise, and activity from degree programs, which has increasingly been seen as nonacademic. Moreover, the movement and activity dimension has been viewed as the relatively unique glue to the integration of the major disciplinary and professional emphases of kinesiology (Hoffman & Knudson, 2018; Newell, 1990). And yet, there are a number of examples in the academic programs across many campuses of the practice of physical activity in the form of dance, exercise, movement/physical activity classes, and the 790-pound gorilla of them all—intercollegiate athletics.

The initial research characterization of the activity dimension was that of exercise and sport as reflected in the activity–cognate disciplinary labels, such as biomechanics of sport and exercise physiology. These two activity categories reflected the predominant interests of whole-body physical activity in most of the subdomains in the formative years (note, though—not motor learning and motor development), but they have become increasingly a limited characterization of the full scope of the activity dimension for kinesiology (see Table 1 from Newell, 2020 for a taxonomy of movement action domains). Human movement research can be conducted in all of the action categories of Table 1, and the field of kinesiology is engaged in research on many of them. Within this context, the aging of the American population in the last 50 years has driven the creation of a progressively stronger research emphasis in the activities of daily living and their role in fostering a healthy lifestyle (Spirduso, Francis, & MacRae, 2004).

This trend has enhanced research interest in the fundamental motor skills of posture, locomotion, and object interactions, particularly in the contrasting life-span age groups of children and older adults (Newell, 2020).

Unlike a number of countries around the world, the United States does not provide a substantial or unified grant platform for research in sport, in spite of the strong national enthusiasm for competition in sports at all age levels and the fact that sport is a social institution. The prevalence of education through the physical in school-system education has also declined in the last 50 years. In part as a consequence of these trends, the physical activity emphasis in kinesiology research has shifted to an overarching health agenda, along with the concomitant and supporting change in the other dimensions of research. Another outcome is that the focus of research on high performance in sport and physical activity is no longer the major emphasis in kinesiology, although some individual faculty contributions remain, for example, in strength and conditioning, and the biomechanics of sport.

Domain fragmentation is usually addressed with respect to disciplinary issues, but specialization of the activity type, usually in the form of sport versus exercise or physical activity, has also created barriers to department integration. For example, the macro-level analysis of the sociology of sport continues to feel isolated (disenfranchised) within kinesiology (see Coakley, 2021). There is no programmatic emphasis in the sociology of physical activity and exercise and, with it, strong disciplinary ties to anthropology, evolution, psychology, and cultural studies of physical activity. And yet, at the more microlevels of analysis, the respective principles through theory are taken to be general to all movement skills and physical activities, although the task itself can and does influence the particulars of the behavior and outcome observed (Newell, 1986, 1989).

The Disciplinary Dimension

The primary dimension on which to categorize and assess the research field of kinesiology has been through what was labeled the activity cognate discipline profile (Newell, 1989). Hence, the labels: exercise physiology, biomechanics of sport, psychology of sport, sociology of sport, philosophy of sport, and so on. The general strategy was to select the predominant activity category (exercise or sport) and link it to a disciplinary area that either had or could have significant academic linkages, and “voila,” we have the basis of a field of study. In the early 1970s, this disciplinary approach dominated department organization and reorganization, including graduate study emphases, the research agenda, and the formation of academic societies and journals. This led to the creation of a large (excessively large) number of research specialties that were also bolstered by the preservation of scholarship in

Table 1 A Categorization of Human Movement Skills Embedded in Development and Context

Dance, Exercise, Music, Play, Sport, and Work
 Novel Body Configurations and Movement Forms
 (Exercise/Movement Regimens)
 Activities of Daily Living and Self-Help Motor Skills
 Posture, Locomotion, Manipulation, and Communication

Note. Adapted from “What Are Fundamental Motor Skills and What is Fundamental About Them?” by K.M. Newell, 2020, *Journal of Motor Learning and Development*, 8(2), pp. 280–314. © 2020 Human Kinetics. <https://doi.org/10.1123/jmld.2020-0013>

the practitioner/change agent emphases of teaching, coaching, and training.

As an example, in the late 1960s at the University of Illinois in Urbana-Champaign, with Earle Zeigler as head of the then physical education department, there were 14 (or so) doctoral degree specialties organized under the influence of what was labeled the Big 10 Body of Knowledge. This profile of research organizations was essentially the framework for the Brooks (1981) perspectives book. The activity cognate discipline approach has persisted through to this current publication as the primary characterization of the research agenda in kinesiology. Nevertheless, there are growing signs of its influence fraying at the edges as the field continues to shift ground from duplicating the narrow influence of the individual cognate disciplines to more integrative interdisciplinary and multidisciplinary research agendas around dominant thematic research clusters, both within and across departments. Table 2 shows an exemplar key concept framework for organizing interdisciplinary teaching and research in kinesiology³ that is not constrained directly by the theories, methods, and findings of individual disciplines.

Departments form research and teaching emphases given the local and global opportunities and resources, so the balance of the research profile within individual kinesiology departments is not the same, even in the approximately 74 departments offering doctoral degrees within the field of study (Challis, 2021). Indeed, the organization of research in the field of study continues to evolve within a certain sense of stability and familiarity, as reflected in the content of this special issue. The disciplinary emphases are still primarily organized around the same themes, as with Brooks (1981), including key social/cultural issues of engagement in activity (particularly sport), psychological themes of movement behavior and participation (information and motivation), motor behavior (control, development, and learning), biomechanics, and biology (systems physiology).

At the same time, however, there is a greater level of integration of both interdisciplinary and multidisciplinary kinds across these emphases, with perhaps the strongest example within kinesiology being that of the continued drawing together of biomechanics, motor control, motor development, and motor learning toward a unified framework for research (see accompanying papers by Clark & Whittall, 2021; Hamill et al., 2021; Latash, 2021; and Lee & Carnahan, 2021). In a distinctive agenda, Latash (2021) outlined the coherence of a unified natural science framework for research in motor control.

The general outcome has been that the four dimensions of movement research outlined above are increasingly being melded together in both established and original ways, but with the promise of a more unified interdisciplinary framework of movement research. These trends are interdisciplinary because the resulting

Table 2 Core Concept Framework for Kinesiology From the University of Illinois at Urbana-Champaign Department of Kinesiology Mid-1980s

Meaning, Values, and Aesthetics
 Involvement, Enculturation, and Achievement
 Growth, Development, and Form
 Coordination, Control, and Skill
 Energy, Work, and Efficiency

Note. Adapted from “Kinesiology: Activity Focus, Knowledge Types and Degree Programs,” by K.M. Newell, 1990, *Quest*, 42(3), pp. 243–268. © 1990 National Association for Kinesiology in Higher Education.

integration has contributed to adapting the theory, methods, and applications of the domains from when they were considered as single entity disciplines. The psychology of performance in sport across Europe and Australasia could also be viewed as a part of this integration, but as Gill et al. (2021) showed, the motivation/personality emphasis in the psychology of sport in the United States makes this integration less tangible at this time.

Individuals and Population Groups

A third dimension that organizes research in kinesiology is that of the individual, considered predominantly from selective age bandwidths and special population groups, within a life span view (Haywood & Getchell, 2020). Motor development has maintained its focus on infant movement skills (~birth to 2 years), where the most significant changes in movement capacity occur as a prelude to the childhood (3–18 years) development of core movement patterns and activities in the broad context (Newell, 2020). A significant component of the basic and applied disciplinary research is conducted on the young adult (university student population) without reference to the broader developmental issues (in many instances, the students are viewed almost as just “subjects” and not even people!). And then, there has been a 30-year vacuum to age-related movement research in the 20–50 years of age bandwidth and the beginning of the ever-expanding research agenda on aging (50 years plus).

An important segment of the individual dimension has been the growing health and medical emphasis in kinesiology research on movement disabilities, movement disorders, and injuries, leading to a concomitant need for the inclusion of the “individual” and population (age, disease, and injury) group in the analysis. This focus has contributed to the growth of a public health emphasis in kinesiology, including the formal transfer of kinesiology departments (e.g., Maryland, Massachusetts) to the academic umbrella of their respective school of public health. An exemplar of what the content of this emphasis could look like is outlined in Keadle et al. (2021). The movement health emphasis has also enhanced the degree of overlap of kinesiology movement research with that of physical therapy and occupational therapy (Rehabilitation Sciences; Newell, 2017).

The public health agenda in universities has a strong policy basis to its research and teaching programs. The outcome is that particular health problems or phenomenological issues related to movement and health are taken up in a multifocused (disciplinary, interdisciplinary, and multidisciplinary) way in pursuit of the designated health problem and the enhanced availability of public and private research funds. At present, kinesiology research benefits from and contributes to the broad interest in the societal problems of concussion, falls, obesity, and inactivity, driving enhanced funding opportunities. This kind of research can be viewed as problem-oriented, reflecting perhaps a human engineering basic/applied approach to the movement research agenda.

The school system’s pedagogy regarding kinesiology has also found that traditional problems in physical education can be reframed and funded in a health framework. Whether the emphasis of a health, as opposed to a traditional, educational agenda is more supportive for school systems’ physical education in the long run remains to be seen (see Solmon, 2021). School systems’ physical education is both an educational and health issue (Newell, 2017), needing the melding of both constructs to provide headway on the traditional school system and life span issues. Nevertheless, the breadth of kinesiology research is a major factor to inevitably making any college home in academe less than optimal. (A school

of kinesiology framework can finesse a number of the problems—see the structure of the University of Michigan Kinesiology Program.) The challenge is that, under *any* department, school, and college configuration, a particular specialization(s) of kinesiology is more or less central and/or peripheral.

The Professional Dimension

The fourth and final dimension of research is that of the professions directly informed by the field of study: teaching, coaching, instructing, training, and movement therapy. These professions are significant and large enough to have their own associations and societies for professional credentialing what is still largely an undergraduate emphasis. This dimension provides a platform of research on the effectiveness of the respective agent of change with the individual and/or group movement activity. It follows that there has been an enhanced emphasis for evidence-based intervention in all of the major professional outlets of kinesiology, but particularly in those with a health agenda, such as athletic training (see the paper by Diakogeorgiou et al., 2021).

Sport management is a professionally oriented specialization that is housed in both departments of kinesiology and business schools. The scholarly agenda tends to isolate it from the health-related specializations in kinesiology, but the clear focus on sport and business at the macro individual/societal level opens some common disciplinary ground with the sociology of sport (see Coakley, 2021). Moreover, the social/cultural analysis of the body in exercise and physical activity and, with it, the link to the other health-oriented specializations in kinesiology remain to be developed (see Lieberman, 2020).

Although the professional training in universities of teachers, coaches, and athletic trainers has received increasingly uneven support in recent years, there is still strong interest in a degree in kinesiology, however labeled and defined, often as a precursor to forming an individual self-employed business career in some aspect of teaching, training, and therapy of physical activity and sport. The more successful individuals become, the more likely they are to draw on movement and physical activity research and even seek research solutions to their own questions. This is a timely reminder that not all research in human movement and physical activity is conducted in universities and departments of kinesiology.

Closing Comments

The four dimensions of the research agenda in kinesiology come together in individual departments in unique ways that constrain the activity agenda and its potential interaction (relevance) with the individual agenda together with the kinds of research questions that are most pertinent on the disciplinary and professional dimensions. Thus, for example, the physical activities studied are more or less relevant according to the individual and age group considerations and the disciplinary research question. The breadth of the interactions in these dimensions reveals the potential full scope of the research agenda in kinesiology and the place of each specialization in this matrix of research opportunities and contributions. Yet, in spite of the many dimensions and organizational frameworks, the research and teaching of kinesiology can be well captured under two overlapping constructs, namely, fitness and skill (Newell, 2011).

The respective college and university academic structure provides the opportunities and boundary conditions for research by its faculty, departments, and centers. Resource limitations (dollars, space, and buildings) create the need for compatible

scholarly and research emphases of its departments, including those by kinesiology. Nevertheless, continued emphasis on the quality and impact of research in kinesiology should continue to place the field of study in a position to adapt to the inevitable challenges that will arise in the next 50 years.

Notes

1. Of course, there were beginnings and developments to the science, humanities, and arts of human movement in the early characteristic social cultural frameworks that emerged in the periods of antiquity, the Middle Ages, Italian Renaissance, and so on, up to today and the 21st century. These early and relatively isolated individual contributions to understanding human movement were consequences of the general development of science, the humanities, and the arts, rather than an organized effort to promote and instantiate human movement as a field of scholarship in higher education, which is a relatively contemporary 50- to 100-year-old endeavor. Documentation of earlier significant movement and physical activity-related research by individuals is outlined in Massengale and Swanson (1997) and Nigg and Herzog (2006). The formation of the first department of kinesiology was at the University of Waterloo, Canada, in 1967 (see Elliott, 2007).
2. This marginalization of teacher training physical education in academe was as much due to the souring climate in society for physical education and state-run bureaus of education that oversee school systems' education as it was due to the disciplinary, as opposed to professional, aspirations of faculty in higher education. It is given that a particular professional training or disciplinary degree program in the academy will not prosper or even survive if there is not a sufficient need for the respective knowledge, perspectives, and skills in society.
3. This framework was developed by the Department of Kinesiology at the University of Illinois at Urbana-Champaign in the late 1980s.

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