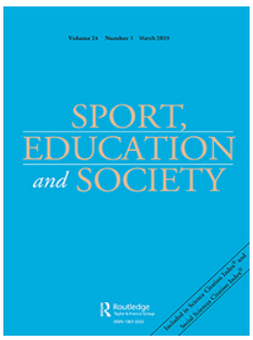

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Paradigms, exemplars and social change

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Researchers' social-cultural organization influences the scope, quality, quantity, coherence, dissemination, utilization and impact of research-based, theoretically sound knowledge. Five concepts—paradigm, exemplar, segment, network and gatekeeper—are salient to research on researchers' organization.

Autobiographical reflections signal these concepts' salience to knowledge generation, school program designs and researchers' career patterns. These reflections also indicate the selectivity and potential limitations of conventional paradigms.

Rapid, dramatic social change compels strategic searches, which are prerequisite to 're-search.' After all, today's physical education programs, like the schools that harbor them, are industrial age institutions. These institutions are out-of-step with contemporary realities. A new century search, research and development agenda directed toward physical education's reformation and transformation may begin with selected design criteria. These criteria and this larger agenda necessitate new paradigms, exemplars, segments and networks.

Keywords: *Physical education research; Physical education programs; Physical education policy*

Are researchers organized to respond to, and anticipate, rapid and dramatic social change? Will their research influence public policy? Do researchers recognize the selectivity, limitations and 'blind spots' in their work? Have they established structures and operational processes for research-focused improvements?

These questions signal three important relationships. Researchers' social-cultural organization influences the scope, quality, quantity, coherence, dissemination and utilization of research-based, theoretically sound knowledge. In turn, researchers' organization influences the extent to which the knowledge they produce will influence school programs and public policy. Third, researchers' social-cultural organization influences the recruitment, selection, preparation, orientations and career patterns of succeeding generations of researchers.

Once researchers' social-cultural organization becomes transparent, the equivalent of a scientific Rosetta stone is available. For example, understanding of researchers' social and cultural organization helps to decode their value referents, ideologies and vested interests, especially their commitments to particular kinds of school programs,

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teaching practices and policies. In the same vein, this decoding helps to explain the kinds of questions researchers ask, the methodologies (including the theories) they employ, the discourses they use and the rules they apply for judging quality in research and theory development. In brief, what counts as acceptable, high quality theory and research, and in turn, useful, valid knowledge is determined in part by researchers' social-cultural organization.

For these reasons alone, the field needs research on its' researchers. The ensuing analysis is structured with this need in mind. It introduces, albeit in a limited way, an emergent conceptual framework for studying the relationship among researchers' social-cultural organization, the dynamics of physical education's research-based knowledge system(s) and particular school program preferences and prototypes.

Paradigm, exemplar, segment, network and gatekeeper are prominent concepts in this framework. Together these concepts illuminate past–present trajectories and achievements. They also call attention to researchers' preferences and selectivity, limitations, and 'silences' or 'blind spots.' More fundamentally, these concepts also bear directly on what constitutes 'research,' including who among researchers has the power and authority to make such determinations.

Autobiographical analysis and the reflections it produces are central to this analysis because these reflections illustrate some of this analysis' main claims. I employ a first person narrative as I describe instances in which the dominant social-cultural organization of physical education researchers, past and present, influenced my recruitment; preparation; research questions and methodologies; career orientations, achievements, pathways; and retention. For example, my reflections include historical influences on my research orientations, beginning with my outright rejection of traditional models and ideologies. These reflections also include the challenges associated establishing new research directions—in short, the challenges of advancing 'a search' instead of doing 're-search.'

In the concluding section, I focus on the challenges of reforming and transforming industrial age schools and physical education programs. I offer examples of design criteria for new program prototypes and research agendas structured to articulate them. I also identify the need for a new paradigms structured to facilitate innovative research and development initiatives focused on new century program prototypes.

Two qualifications are in order at the outset. First, analyses of researchers' social and cultural organization may proceed with different frames—national, regional (e.g. Europe) and international. Importantly, the American frame employed in the ensuing analysis is not automatically generalizable. Notwithstanding this limitation, a US framework may provide a useful point of departure for companion analyses because many scholars in other nations have been trained in US universities. Moreover, US journals and books enjoy an international reach.

Second, my clarion call for new paradigms does not discredit or devalue existing ones and their members' research agendas. To the contrary, I reinforce the value and importance of existing paradigms, exemplars, segments and networks. In other words, I emphasize that this new paradigm does not entail 'out with the old, in with the new' at the same time that I issue a call for more incentives, supports, resources

and intellectual space for path-departing and path-breaking researchers. Here, I provide Thomas Kuhn's (1970) reminder about the importance of cross-paradigm bridge-building and paradigmatic hybrids. These bridges and hybrids, it should be remembered, are vital sources of innovation and even scientific revolutions. Together they provide effective ways to respond to, and help direct, rapid, dramatic social change. The question is whether researchers' paradigms are structured to yield benefits like these.

Paradigms

As in other fields, science in physical education (PE) and physical education teacher education (PETE) is a collective enterprise. Scientific peers are instrumental in the development of definitions as to what counts as research and both the standards and processes for determining research quality. Researchers self-organize accordingly. Thanks to Thomas Kuhn (1970) and subsequent scholars who have extended his framework and ideas (e.g. Abbott, 2001; Becher & Trowler, 2001), the import of researchers' social and cultural organization is well-established. For example, analyses of researchers' organization helps to illuminate research priorities, selectivity and 'silences' or 'blind spots.'

As everyone knows, this paradigm construct has traveled quickly and widely across disciplinary and professional boundaries, and it has proven to be elastic and adaptable. A remarkable development in one respect, such widespread popularity also has robbed the paradigm construct of its meaning and significance. 'Paradigm' simply cannot be taken for granted. Definitions with clear distinctions are needed for research on researchers and companion scholarly analyses.

Paradigms as social-cultural, epistemic communities

In his postscript, Kuhn (1970) provided a much-needed differentiation between paradigms and exemplars. Specifically, he differentiated between the conceptual-theoretical, technical-procedural, and methodological apparatus for research (exemplars) and the social and cultural organizations of researchers (paradigms). This same distinction is employed next, albeit with selected enhancements.

Kuhn (1970) provided preliminary understanding of how and why researchers with identical and similar values, research commitments and ideologies self-organize and form special social-cultural communities of knowledge, also known as 'epistemic communities.' To reiterate, he called these special, epistemic communities 'paradigms.' Today these special forms of social organization also can be viewed and analyzed as communities of practice (e.g. Wenger, 1999).

Viewed as communities of practice or as paradigms (i.e. paradigmatic-epistemic communities), the upshot is the same. Analyses of these special communities-as-paradigms emphasize the social side of science. More specifically, they emphasize

that a fields' research enterprise is socially constructed and constituted by groups of researchers.

In brief, when researchers have established paradigms, they have organized themselves for collective action. Like-minded researchers with identical, similar, and comparable aims join forces in pursuit of a knowledge-focused agenda. In fields such as PE, this agenda often is connected to preferred school programs and accompanying instructional and performance leadership.

This social construction and constitution of paradigms is in part generic because of the influence of the larger institution of organized science, including its environments and constituencies. At the same time, paradigm construction is somewhat unique, as the ensuing analysis indicates.

In the US context, two visible paradigms have been constructed since 1970. The first consists of researchers identified with research on teaching PE. The second consists of researchers identified with research on PETE. Of course, some researchers enjoy membership in both communities.

However tempting it may be to view these two paradigms in the here-and-now, both have historical antecedents. Two such antecedents are especially important because they are responsible for some of the uniqueness evident in US paradigms.

Research replaces scholarship

The first antecedent is a broadly conceived and often loosely formulated standard for *scholarship*. Prior to the formation of the two paradigms in the early 1970s, scholarship was a catch-all category for multiple kinds of publications. These publications included advocacy-oriented policy briefs, ideological platforms for PE and its import in good, just societies, textbooks on how to organize and conduct PE, and books devoted to the history, philosophy and principles of PE. Although authors and promoters of this kind of scholarship sometimes called their work 'research,' when today's standards for empiricism are used as the main criteria for classification as research, this kind of broadly conceived scholarship fails to qualify as research.

Today it is possible to claim that research has replaced scholarship in paradigm formation. A noteworthy achievement by any standard, nevertheless it is possible to wonder what has been lost in the accompanying translation-transition period. Even if historical leaders were not genuine researchers, their scholarship was instrumental in multiple achievements. Many of these achievements remain today, and they continue to influence today's paradigms and research priorities. For example:

- These leaders successfully founded teacher education (PETE) programs, first in normal schools and later in colleges and universities.
- They founded the field's first scholarly journals and persuaded textbook publishers that there was a market for PE books.
- They were responsible for a pivotal defining moment—namely, the separation of PE from health education and recreation.

- They developed normative theories and expressed them in their textbooks, policy briefs and articles. Underpinned by strong ideologies and utopian visions, but usually lacking empirical support, these theories were important because they persuaded insiders and outsiders alike that PE contributed to health, well being and a good, socially just, democratic society. Owing to their theorizing, PE gained a strong foothold as a public good. In short, they successfully promoted and justified supportive public policy (Lawson, 2007b).
- These pioneering leaders developed alternative program prototypes for PE and elaborate justifications for them. These prototypes included exercise and physical fitness, movement education, sport education (the early versions), the generalist 'cafeteria curriculum' or 'multi-activity curriculum,' and the 'games curriculum.'
- In their search for academic legitimacy and in their quest for time and resources in the school curriculum, these leaders provided a common curriculum structure and rationale for these program prototypes. This curricular structure patterned PE after other school subjects. Importantly, this common structure included standardized learning outcomes, tests and measurements, grades and implicit rules for judging and sorting students based on various combinations of their aptitude, ability, effort, achievement, attitude and attendance.

To reiterate, it is noteworthy that these achievements did not derive from research as defined today. Their achievements derived from scholarship and advocacy, both of which were underpinned and driven by strong ideologies and values.

Today's researchers thus have a useful historical precedent-as-antecedent to draw on when they define themselves, structure their research agendas and organize their paradigms. Today's researchers are able to claim that they do genuine research—in striking contrast to their predecessors who published books and articles that do not qualify as research. In other words, this new generation of 'genuine researchers' is instrumental in the social construction and constitution of what counts as research and, in turn, what matters as research-based, theoretically sound knowledge. Their paradigms for PE and PETE follow suit.

Granting the multiple benefits of such recent paradigm development, an historical perspective provides signs of selectivity, limitations, and even 'blind spots.' For starters, a broad conception of scholarship is the main casualty, and so are the doctoral programs that once prepared scholars, the journals that published their work and the paradigms that organized and supported them. Furthermore, scholars who continue historic traditions of PE and PETE scholarship may be marginalized or, at least, restricted.

For example, these traditional scholars appear to be viewed and labeled by scientific-empiricist colleagues, as 'philosophers' and 'critical pedagogues.'

These categories and labels signal important internal dynamics regarding what knowledge and whose knowledge counts. They also signal information about social networking, inclusion and exclusion dynamics vis-à-vis paradigm formation and membership.

A second antecedent

The second antecedent is perhaps unique to the US context. The development of an academic discipline called Kinesiology (and bearing other names) was instrumental in the formation of today's two paradigms. It also accounts for some variability among PE and PETE researchers.

The two dominant paradigms owe some of their special character to the contests and conflicts surrounding the development of the academic discipline of Kinesiology. For many researchers, the development of this discipline marked the end of PE as 'the field.' Henceforth, Kinesiology (or Exercise and Sport Sciences, etc.) was 'the field,' and both PE and PETE were reframed as sub-divisions or components of this newly established discipline.

As with all field-related transformations, this one was contested by PE and PETE leaders. Three such contests and conflicts have been especially pivotal (Lawson, 2007a).

The first has involved performance courses and, indeed, performance skills and abilities as the subject matter of the field at large, and more specifically, the essence of PETE and PE programs. Kinesiology's professors steady substitutions of academic courses for performance courses have been contested and continue to be associated with conflicts. Sport, dance and movement performance, in short, have been pivotal factors in paradigm formation.

The second contest-conflict has involved the exemplars PE and PETE researchers have adopted and employed. Thanks to the influence of powerful, influential leaders (called gatekeepers later in this analysis), many PE and PETE researchers turned to educational research instead of Kinesiology for their exemplars. Reflecting this orientation, many of these researchers aligned themselves with the American Educational Research Association in lieu of Kinesiology-affiliated organizations.

The third contest-conflict has stemmed from differences regarding the extent to which Kinesiology's subject matter has a direct bearing on PETE and PE programs. This contest-conflict has had two facets.

The first has concerned the extent to which the program models, interventions and behavioral change strategies developed by Kinesiology scholars have import for PE teachers and their work in schools. For example, should PE teachers learn and employ the growing number of behavioral interventions aimed at exercise behavior, health behavior and their relationships? Should they learn and employ the several interventions and technologies, developed by sport psychologists, to enhance student performance?

The second concerned the extent to which Kinesiology's academic knowledge comprised the new subject matter for PE. In other words, was Kinesiology's subject matter also to be learned by school age students? For example, should students be expected to learn some of the academic content provided in Kinesiology courses for prospective teachers?

PE and PETE researchers' answers to the aforementioned questions are less important than the historical antecedent these questions signal. The important point

is that today's two paradigms (Research on Teaching PE and Research on PETE) owe some of their special character to the development of Kinesiology and, more specifically, to the three contests and conflicts it engendered. In other words, both paradigms gained some of their special character in opposition and contrast to Kinesiology. This special character becomes even clearer when companion concepts are introduced and analyzed.

Exemplars, segments, networks, and gatekeepers

Companion concepts for 'paradigm' are needed in analyses of the researchers' social organization and the impact of this organization on knowledge dynamics. Exemplar is one such concept. Segment, network and gatekeeper are the others.

Exemplar

For Kuhn (1970), 'exemplar' referred to accepted examples of how research can and should proceed. Exemplars encompass law, theory, application and instrumentation. They also encompass the rules for conducting research, determining rigor and deciding what counts as valid, useful knowledge. For example, exemplars encompass the methodologies for qualitative research, quantitative research and mixed method research.

Following Kuhn (1970), exemplar is a companion concept for paradigm. Each leads to the other in analyses of researchers' social and cultural organization. In other words, researchers enjoy membership in a paradigm (epistemic, disciplinary community or a community of practice) and, at the same time, they may be further classified and studied by the exemplar(s) they employ. So, for example, some PETE researchers may rely exclusively, or nearly so, on qualitative methodologies, and so they are affiliated with the particular exemplar they employ. In the same vein, PE teaching researchers who rely on quantitative methodologies are practitioners of a particular exemplar.

Segments

Researchers may be further sub-divided, categorized and analyzed by means of Becher's (1989) two concepts. The first is the concept of a paradigmatic segment. Segments refer to cognitive specializations within a subject. For example, PE games curriculum specialists comprise a segment. Sport education specialists comprise another segment. Movement education specialists comprise another. Specialists in teaching games for understanding constitute another.

As with paradigms, historical antecedents and traditions are visible in segment formation. For example, the games curriculum, forms of sport education curricula, health and fitness curricula and the multi-activity curriculum all have strong historical legacies in the US, and all have demonstrated remarkable staying power.

In fact, they remain salient in internal contests for control over the PE curriculum, contests that continue to characterize the field's internal structures and operations (e.g. Lawson, 1988). These contests are waged over *which* PE program prototype should become *the* program prototype.

For example, a significant amount of the field's literature continues to simultaneously promote and justify one or more of the aforementioned program prototypes and hybrids formed by combining them. Dressed up in modern language, enhanced with new justifications, called research on teaching PE, and all in all, adapted to fit contemporary circumstances, today's segments mirror their historical counterparts in one important respect. *They are often organized for normative research, i.e. they are value-committed, indeed ideological research agendas.* These segments reflect and promote the visions, missions and vested interests of their author-promoters, and their research is an instrument for winning PE and external audience converts to their preferred version of PE. Significantly, in these research agenda, preferred program prototypes are taken for granted. The question is not whether they should be implemented and supported. The research question is how best to organize and conduct them, emphasizing a shared technical culture and evidence-based practices for teaching PE (Lawson, 1983a).

Paradoxically, some of this research is offered today as at least value-neutral, if not value-free. Studies of researchers' social organization provide a different perspective and view. Segment-driven research may be unbiased, but it is hardly value-neutral or free. In fact, value-neutrality or freedom is a logical impossibility because value-freedom is itself a research-related value!

Networks

Networks are Becher's (1989) other conceptual contribution. *Networks* refer to the social groups that form around a segment. Networks thus represent sub-divisions of segments, enabling more finely grained classifications of like-minded and oriented researchers.

These network groups may be formal and informal. Oftentimes, networks are invisible to everyone but their members. In fact, outsiders usually perceive segment-wide consensus and uniformity, even type-casting and stereotyping segment members. For example, outsiders may assume that all sport education researchers are alike; and also that these sport education researchers orient themselves and their work in the same way. Or, outsiders assume that all segment members who focus on teaching games for understanding proceed without differences and even conflicts.

In contrast to this superficial analysis, network members are able to articulate fine-grained differences among themselves in ideology, research priorities and exemplars. Additionally, network members are able to identify their *de facto* network members, including the import of their network members for generating research questions, providing research supports (e.g. coaching, mentoring, technical assistance), and

assisting in publication and dissemination. In short, network features are instrumental in the design, organization, conduct and dissemination of their research.

Networks are important for another reason. Over time, internal differences among networks comprising a segment may become more visible and gain importance. More specifically, once-amicable competitions may turn into fierce, research-oriented battlegrounds (Abbott, 2001). For example, games curriculum researchers, once united on the surface, may splinter because of irreconcilable conflicts and internal contests for power and authority. Absent mutually acceptable accommodations, new segments arise, perhaps ultimately producing new paradigms, exemplars and segments.

In brief, internal differences, conflicts and contests are endemic in networks. Importantly, diversity, conflicts and contests amid segment, exemplar, and paradigmatic commonalities are potential sources of innovation and change. On the other hand, powerful paradigmatic gatekeepers often constrain and prevent innovation and change.

Gatekeepers' power, authority and impacts

Paradigms, exemplars, segments and networks enable analyses of the vibrant social ecologies characterizing research on PE and PETE. Importantly, these analyses reveal leadership hierarchies and dynamics. More specifically, they indicate how paradigmatic leaders gain status, prestige, power and authority; and how leadership is tied to these leaders' preferred program and research prototypes.

How do leaders gain paradigmatic leadership? This question merits research. Self-advocacy, visible research productivity, recognition-nomination by peers and the preparation of future researchers in self-designed and influenced doctoral programs appear to interact in powerful ways in determining paradigmatic leaders. Like popular politics, education and constituency building of this sort may be facilitated, constrained, or impeded by timing and contextual factors.

When paradigmatic leaders rise to the top of a leadership hierarchy, they become powerful gatekeepers (Becher & Trowler, 2001). These leader-gatekeepers are, in essence, power-brokers and opinion-shapers. For example, they are visible advocates for popular segments, and they are instrumental in the formation of national, regional and international networks. These leaders-as-gatekeepers are able to wield this power and influence because they become journal editors, consultants for book publishers, officers in scholarly and professional associations, invited keynote speakers for conferences, and leaders of popular doctoral programs structured to prepare succeeding generations in their own images.

Clearly, then, paradigmatic gatekeepers in PE and in other fields enjoy considerable power and authority. More concretely, they are able to exert considerable influence and control over significant parts of a field's research structures and operations. They also are able to maintain their privileged position as they discipline, reward, punish and label competitors. This disciplining may include 'branding'

competitors and their platforms as 'the wrong path to follow' and, even more poignantly, as potentially counter-productive, risky and even dangerous.

Furthermore, gatekeepers for paradigms, exemplars, segments and networks are instrumental in determining paradigmatic membership and structuring professional identities. Their disciplining power enables them to keep 'insiders in' and 'outsiders out.' Significantly, gatekeepers' disciplining activities and social sorting impacts PE's knowledge production, dissemination and utilization. After all, when researchers are excluded from paradigms, exemplars, segments and networks, so are their research frameworks, questions, and resultant knowledge.

Potentially dangerous impacts

Paradigmatic gatekeeping thus offers benefits at the same time that it limits research and knowledge generation. For example, gatekeeping is beneficial because keeps groups of like researchers focused on the same agenda, helping to ensure replication-and-extension studies which are invaluable for theory articulation (Kuhn, 1970). Paradigmatic gatekeeping also helps to prevent diffuse research agendas caused by unorganized researchers (Becher, 1989). In other words, gatekeeping is instrumental in keeping a critical mass of researchers focused on identical or similar questions, thereby helping to maintain an acceptable ratio of the researchers to given paradigmatic problems. This 'researcher-to-problem ratio' is a key quality control mechanism in every paradigm.

Gatekeeping of this kind also exacts costs. For example, when 'win-lose,' competitive, and punitive gate-keeping dynamics prevail, three problems follow.

First, innovation is constrained, if not stifled. Such limited capacities for research-driven innovation and development are dangerous when external environments are characterized by rapid, dramatic social and policy change. Such is the case for both PE and PETE today.

Second, the kinds of cross-paradigm bridging mechanisms Kuhn (1970) envisioned are difficult to develop, maintain and advance. While gatekeepers are not the only bridge builders, they are instrumental in all such work. At the least, they are able to facilitate bridge building and the formation of hybrid, alternative paradigms by giving this work legitimacy. So, when gatekeepers stifle these developments, the field and society write large often are the losers because cross-paradigm bridges may stimulate important research advances, opportunities to integrate knowledge and even scientific revolutions.

A third problem follows. When young newcomers with fresh, bold visions and offering new paradigms, exemplars, segments and networks experience intolerance and punishment, they may be repelled and give up. The consequences of this third problem are most apparent when these young researchers bow under the paradigmatic disciplining and give up their innovative orientations and competencies. More significantly, some may decide to leave the field. Their departure is a significant loss

because they represent important catalysts for innovation in response to social change.

Illustrating paradigmatic dynamics: an autobiographical analysis

My career experiences illustrate the salience and potential contributions of research on the social organization of researchers. I provide an interesting case because I started outside the mainstream—by choice and design. In other words, I did not belong to an identifiable paradigm, and I failed to develop a new one. I also experienced the career pitfalls and challenges associated with being on the outside. Importantly, I experienced the disciplining power of gatekeepers as I strived to make an 'outsiders' agenda' into a mainstream paradigm. Selected details follow, and they are edited to illustrate the power of paradigms and the import of exemplars, segments, and networks.

Origins: failed socialization

Starting with my experiences as an undergraduate student, continuing with my graduate education and lasting throughout my professorial career, I have rejected conventional PE and PETE. I also have tried to develop innovative, transformative visions for, and programmatic versions of, PE, PETE, schools and Kinesiology.

Where PE and PETE are concerned, I exemplify 'failed socialization' in several respects. For example, I have refused to accept, endorse and internalize most of the dominant knowledge and the accompanying dominant discourses of PE and PETE. I also have failed to convince a critical mass of PE and PETE researchers of inherent risks and dangers riveting all of their attention on today's programs and practices. Additionally, I have failed to rally a critical mass of researchers committed to the development of innovative, bold alternatives responsive to dramatic social change. These failures account in part for my inclination, on multiple occasions over the course of my career, to sever all ties with PE and PETE. In brief, powerful gatekeepers and their paradigmatic communities nearly were successful in driving me out. Details follow.

Pre-paradigmatic labors: the costs and challenges of 'The Search'

At the tail end of my doctoral program in 1969, I was treated to an introductory analysis of community schools and the broader field of school–community partnerships. Unfortunately, I encountered these exciting insights and possibilities approximately two weeks before I was slated to receive my PhD. It was too late to reconfigure my entire program of study and research agenda around this compelling priority.

Even so, I immediately envisioned opportunities for PE, including its relationships with health education, recreation, and community-based, youth development (e.g.

Lawson, 1979). I began to envision a field that served society's members across the lifespan. In this vision, PE would serve school-aged children and youth and, in community school configurations. Additionally, PE could serve their families, an important benefit because of families' socializing power over children and youth (Lawson, 1993). Structured in this fashion, PE would correspond to broader school–community configurations, including the interprofessional collaboration they fostered (Lawson, 1999a).

PE in this community school configuration was not limited to the regular school day. Community school programs enabled offerings during out-of-school time, and some linked the regular day classes with play opportunities unconstrained by class time. Most importantly, the conditions needed for genuine play—true choices, opportunities to experience flow, engaging in activities for their intrinsic benefits, learning without reference to grades and tests—could be achieved in extra-school contexts in ways that regular school programs rarely approximated. All of these features-as-possibilities were important to me because I had rejected the long standing assumption that PE should be designed and conducted in conformity with other school subjects. This traditional assumption, in my view, was flawed. It denied PE's uniqueness and actually robbed it of its most important contributions to young people and school improvement.

The remainder of my guiding vision unfolded as I was assigned leadership for the development of Kinesiology programs. In my vision, Kinesiology would prepare professionals for the range of alternative careers needed to reach people of all ages across the lifespan. PE teachers and programs would be central components in such a broad-based, comprehensive delivery system for sport, dance, exercise and generic physical activity. PE's unique contributions, it followed, included getting young people ready for lifespan activity patterns and especially preparing them to make good choices.

Good choices, in my view, included ones involving activity preferences developed from direct performance experiences and instruction. But more than performance experience, these choices required scientific knowledge and understanding (e.g. Lawson & Placek, 1981). My reasoning was as follows. No other programs, no other professionals, were better positioned than PE teachers to prepare and empower young people against the perils of predatory capitalism. Better yet, in community school configurations, teachers also could help parents and entire families learn the difference between fact and fancy, between genuine benefit and risk-danger. By blending enjoyable, meaningful performance experience with scientific knowledge, entire neighborhood communities could be headed toward more active, health-enhancing lifestyles.

With this guiding vision in mind, I advocated for Kinesiology's centrality, albeit in an action-oriented, cross-disciplinary curriculum (Lawson, 2007a), in the preparation of teachers and in the design and conduct of school programs. For example, I immediately perceived the import of behavioral change interventions and strategies from the then fledgling sub-discipline of sport and exercise psychology (e.g. Kimiecik & Lawson, 1996). I could see the immediate applicability of applied exercise

physiology to definitions of what constituted 'the physically educated student.' In my view, students needed to acquire and use this knowledge to differentiate between fact and fancy, and their genuine empowerment in the face of predatory capitalism depended on it.

Since social-cultural constraints and barriers often are responsible for sedentary lifestyles and unhealthy behavior, I also began to see the relevance of sociological perspectives on socialization into sport and physical activity. After all, what were PE programs designed to accomplish if not to socialize young people and their families into sport and physical activity? And how could teachers and students alike address barriers to active lifestyles if they lacked sociological knowledge about the social construction of these barriers and how best to address and prevent them?

In retrospect and also in prospect, my work can be characterized as pre-paradigmatic. It was driven by implicit, normative theory, i.e. ideals about the good just society and how young people could advance these ideals and gain well being through PE. Because I was unable to articulate explicitly, comprehensively, coherently and persuasively every aspect of the new visions, missions and prototypes I envisioned and promoted, I was unable to recruit others.

Paradigmatic recruitment and formation were constrained by another important factor. My professorial work did not provide access to a doctoral program. Because I lacked access to doctoral programs (and students), I was unable to exert direct influence over the preparation of future researchers, especially those who might join me in forming one or more new paradigms. The best I could do was prepare master's students and refer them to doctoral programs where they might continue the work they had started with me. Not surprisingly, most did not continue. Their doctoral preparation was instrumental in their decision to join a mainstream paradigm; and subsequently, their research was facilitated by mainstream exemplar(s), segment(s) and network(s). Their decisions were strategic insofar as mainstream affiliations facilitated successful career pathways supported and rewarded by the field's gatekeepers.

The search versus re-search

Because the new programs and services I envisioned were not in evidence anywhere that I knew of, I could not engage in *re-search*. Instead, I was involved in a pioneering, at times solo, *search*. Notwithstanding the benefits, the consequences were costly and severe. These lessons accompanying my experience have import for the current generation and future generations of researchers.

Early in my professorial career, this lonely search earned me reprimands from my senior colleagues, especially those in Kinesiology who served on tenure and promotion committees. My senior colleagues expected empirical investigations comprising a coherent line of empirical research and resulting in refereed journal publications. Their evaluative reviews, formal and informal, were structured to

discipline me. At the same time, they threatened the ultimate punishment—the denial of tenure and the loss of my position.

Thanks to my senior colleagues, my choice as an untenured, young faculty member was clear and straight-forward. I could employ conventional exemplars and do re-search on PE and PETE programs and practices I did not endorse. Alternatively, I could continue with the new directions I envisioned and accept the consequences.

I stubbornly persisted with my search. I published normative scholarship, critical analyses, frameworks for PE in comprehensive school–community delivery systems and epistemological platforms designed to gain credence and acceptance for my own work and others' like me who departed from the mainstream (e.g. Lawson, 1979; Lawson, 1990; Lawson, 1993). At the same time, I invested in the piloting of new PE, PETE and Kinesiology programs. More specifically, I explored ways to integrate PE and Kinesiology in schools. A huge undertaking beyond my abilities (even now), this work depended fundamentally on collaboration with gifted, talented and innovative teacher-colleagues (Lawson & Placek, 1981).

Predictably, my Kinesiology-related work in the PE and PETE communities was not uniformly or enthusiastically welcomed (Rink, 2007). Moreover, powerful gatekeepers disciplined and punished me for my unconventional views, my unpopular perspectives and the future directions I recommended. My publication record was limited as gatekeepers expressed their disapproval in reviews. In a few cases, some of these gatekeepers, in lieu of concentrating on the merits of the scholarly directions I was striving to articulate and considering compromise-like common ground, decided to attack me (e.g. Broekhoff, 1979; Locke & Siedentop, 1980).

A focus on professional socialization and institutionalization

As I experienced the hurt and assessed the harm to my reputation and career, I also benefited. I discovered what turned out to be a cluster of important research questions. For example, why does the field manifest such intolerance and continue to frame scholarly differences as win-lose competitions? How does the field reproduce and maintain itself? More specifically, how do PE and PETE Programs become institutionalized and sustained? How and why do some professor-researchers develop power and authority and gain their positions as gatekeepers? Why and how do prospective PE and PETE teachers develop custodial, reform-oriented and transformative career and work orientations? And, closer to home: How do answers to questions like these explain what has happened to me? What do they signal about my future prospects for success? And, how do my own prospects provide insights into the current status and future trajectories of the field writ large?

Questions like these were among the benefits of pre-paradigmatic, early career trials and tribulations. In subsequent years, these questions have compelled and propelled a sometimes passionate search for new knowledge and understanding. For

example, these questions were responsible for an initial analysis of paradigms and exemplars (Lawson, 1983a), an analysis designed to obtain legitimacy as well as social-intellectual space for path-departing researchers like me.

The machine trick

Many years later, I found in Howard Becker's (1998) work a powerful sensitizing idea. Becker called this idea 'the machine trick.' The essence of this scholarly trick, as I have adapted it, is as follows.

Instead of focusing immediately on innovations and interventions aimed at doing good, gain a more complete understanding of what you consider to be problematic. Gain this understanding by employing a mind trick. In short, construct a conceptual 'machine,' one that will effectively mass produce all that you deem problematic and in need of change. For example, instead of rushing to solve poverty and social exclusion, design a societal machine that effectively mass produces them.

In other words, gain an understanding of the historical influences and contemporary forces and factors responsible for the dominant PE and PETE prototypes. Learn how researchers' paradigms, exemplars, segments, networks and gatekeeping activities act and interact. Figure out the mutually constitutive and reinforcing relationships among them. In other words, identify, describe and explain the forces and factors that produce and maintain problematic structures and processes before you endeavor to change them.

Thanks to Becker, my sometimes implicit frame for my work on professional socialization became more explicit and transparent. Thanks to the machine trick, I was better positioned to understand and map the field's operations and structures. I was especially prepared to understand the dynamics and mechanisms associated with those colleagues, especially the powerful gatekeepers, who were uncongenial and even hostile to my work.

An ironic turn

As this new appreciation developed, I intensified and accelerated my work on professional socialization. I was especially interested in the recruitment–selection–preparation–induction of PE teachers, the design and conduct of PETE programs and the socialization of PETE professors (e.g. Lawson, 1983b; Lawson, 1983c; Mitchell & Lawson, 1986; Lawson, 1988; Lawson, 1992; Lawson & Stroot, 1993). As my work on professional socialization and related topics proceeded, my career and status in the PE and PETE improved. Other researchers began to be interested in research on teachers and teacher education from a socialization perspective.

As their work commenced and as my interactions with them expanded in emergent segments and networks, I began to see prospects for a brighter career trajectory. No longer did I perceive that I was destined a career on the PE's margins without a

paradigmatic affiliation. In fact, I began to experience some of the power and authority of a gatekeeper, especially as my work was cited with increasing frequency. For example, I was added to editorial review boards for journals, and I was asked to keynote conferences. Beyond personal satisfaction, I gained hope for innovation in PE, PETE and the field at large.

Reality soon replaced aspiration. In the process, I gained new appreciation for Becker's (1998) machine trick. I also witnessed first hand what, in shorthand, can be called 'the power of paradigms.'

In a nutshell, the professional socialization framework I helped to pioneer, promote and disseminate in order to change the status quo was co-opted. More specifically, my friends and colleagues who adopted, expanded and promoted the socialization framework were employing it in service of the very same programs, practices and policies I had intended to reform and transform. Put differently, they employed the socialization framework to rationalize, improve and extend enduring PE and PETE programs. The net result, of course, was that existing PETE and PE paradigms were strengthened and fortified anew while I and others with transformative agendas remained on the margins. Of course, Kuhn (1970) described and predicted such co-optation, indicating how paradigms expand to accommodate (i.e. 'swallow up') competitors.

The social organization of researchers for new century PE programs and policies

Paradigmatic accommodation is a keynote characteristic of normal science and Kuhn's (1970) analysis helps to identify its potential benefits. Notwithstanding the benefits, the losses and potential dangers are enormous.

The questions offered at the beginning of this analysis provide a framework for appreciating the benefits, losses and dangers. To reiterate: Are researchers organized to respond to, and anticipate, rapid and dramatic social change? Will their research influence public policy? Do researchers recognize the selectivity, limitations and 'blind spots' in their work? Have they established structures and operational processes for research-focused improvements?

The preceding analysis, in concert with a companion work (Lawson, 2007b), yields a two-part answer.

- Past–present research paradigms, exemplars, segments and networks provide a necessary (vital) response to social change.
- However they do not promise to yield the kind of research-based, theoretically sound knowledge needed for new century PE programs and successful public policy advocacy.

These twin claims and, more importantly, the aforementioned questions that structured them, invite alternative analyses and conclusions. I offer these questions and claims to stimulate future research and development, not to diminish the

importance of past–present achievements. My concluding observations are offered in the same spirit.

Needs for reforms and transformations

Conventional PE prototypes merit examination for their commonalties and important similarities with special interest in the development of innovative hybrids. The same observation holds for researchers' paradigms, exemplars, segments and networks. The question is, how might bridge-building and creative re-combinations stimulate innovative research and program development? More specifically, how will researchers organize and mobilize themselves for new century PE and PETE?

The need for significant reforms and, indeed, transformations begin with due recognition that today's schools are industrial age institutions. PE has been developed, organized and conducted to conform to this industrial age logic. Both PE and schools are out-of-step with today's global societal realities, needs and opportunities. Both need to be reformed and even transformed. Standardized, 'one size fits all' PE and PETE programs will to twenty-first-century policy environments characterized by novelty, complexity, diversity, ambiguity, uncertainty and turbulence (e.g. Friedson, 2001; Lawson, 2007b). In other words, both modern and post-modern views of education, schooling and PE are evident in these environments, and these somewhat opposing perspectives give rise to endemic tensions, conflicts and contests for control (e.g. Macdonald, 2003). There is escaping these environments with their endemic tensions, conflicts and contests for control.

Because of these turbulent environments and accompanying global realities, I continue to hold the view that standardized, homogenized PE, cast in twentieth century, industrial age molds, will not continue to garner public support and resources. In short, PE programs need to be re-visioned and, by extension, so do PETE programs. This joint re-visioning of PETE and PE involves innovative prototypes called 'policy pilots' because their aim is to secure supportive public policy. Since both PE and PETE are involved, this agenda requires partnerships for simultaneous renewal (Goodlad, 1994; Lawson, 2007a). In other words, PE and PETE must change, improve, and renew together because they are interdependent.

Additionally, this re-visioning compels, and also depends on, public policy research and advocacy tailored for new century realities. In fact, this new research requires at least one new paradigm (Lawson, 2007b). This new paradigm, whatever it is called, will be directed toward innovative program prototypes and policies specially developed for the social-cultural, economic, political, and demographic realities-as-challenges of the twenty-first Century.

Importantly, this new paradigm will require scholars prepared for 'the search' as well as researchers prepared for subsequent 're-search.' This need for strategic searches, characteristically prerequisite to research, begs for an important reminder. Most research exemplars enable empirical investigations of past-present reality. Metaphorically, research proceeds with a rear-view mirror look at social reality. It

addresses 'is' questions—questions of current status, questions amenable to empirical investigations. Notwithstanding notable exceptions (e.g. design research, action research), conventional empirical research is always tied to past–present reality. At best, the needs, problems, and discrepancies it identifies, describes, and explains provide a springboard for new century designs.

New design criteria and research

'Design' combines normative judgments alongside empirical findings. Herbert Simon (1996) coined the construct, the normative leap, with this combination in mind. The design-oriented, normative leap starts with 'is' statements (derived from past–present research) and simultaneously advances with 'ought questions'—ques-questions about how to create the future, which involve values and ideologies concerning PE's role in creating the good, just society in a sustainable world. Without the normative leap and the ought questions that drive it, researchers and scholars are left with the position that the status quo is, in essence, either ideal or 'as good as it gets.' Ought questions and the normative leap that frames them are thus mechanisms for creating more desirable future scenarios.

Design is central to research and practice involving these normative leaps. It also provides a bridge that connects them. Importantly, this kind of design entails, indeed requires, strategic *searches* via conventional *scholarship*. In brief, scholarship-driven searches are prerequisite to design-oriented research.

What design criteria for might be salient to new century PE and, by extension, PETE? Figure 1 identifies some of the design criteria for these new century prototypes. They are presented alongside their twentieth-century forerunners as an ideal-type. The attendant contrasts implicate enduring tensions, contests and conflicts, which are endemic in the twenty-first-century policy and practice environments.

Some of the import for these design criteria lies in their generativity, i.e. their ability to facilitate product innovations (new structures and programs) and process innovations (new operating procedures and methods). Such innovation incubation requires broad-based thinking, the consideration of alternative perspectives, and the prevention of 'either-or' thinking and 'win-lose' debates.

Five foundational premises for the new criteria

These design criteria are founded on five important premises. The value and import of these criteria hinge on the extent to which these premises are warranted. In other words, the rejection or modification of one or more of these five premises necessitates modified or new design criteria.

First (and to reiterate): Today's PE is an industrial age invention developed specifically for industrial age schools. As industrial age schools are reinvented, a process already underway, so must PE. Otherwise, today's PE will be at least

Twentieth-century criteria	**Twenty-first-century criteria**
Social control-oriented, teaching-as-training systems	Empowerment-oriented, learning and development systems
Reproduce stratification systems: sort, classify and grade students by ability	Promote social integration and positive identities by embracing diversity
Culturally blind, assimilation orientation	Culturally responsive, accommodation
A focus on whole-class instruction and 'herding'	Personalized, technology-assisted learning with communities of practice
Pedagogical content knowledge organized as teaching technologies and monopolized by the teacher	Positive youth development knowledge implemented as caring-oriented, service strategies and jointly employed by young people who serve as co-leaders
Elitism in sport, exercise and fitness	Preparation to pursue excellence, achieve personal goals and access resources
PE during the school day	PE in after-school and community contexts
PE is separate from health education/promotion and recreation	Integrated health, PE and recreation linked to life course developmental needs
Performance skills comprise the content knowledge	Performance analysis is wedded to skillful performance and framed to address the risks and dangers of predatory capitalism
Multiple, competing and difficult-to-substantiate claims about PE outcomes	Research-supported, evidence-based outcomes, structures and operations
Limited, contributions to overall school improvement	Newly conceptualized and documented school improvement outcomes (sense of connection, engagement, attendance)
Limited curricular connections with other school subjects	Firm connections involving embedded learning, extended learning, project learning and service learning
Sport, exercise, dance and fitness activities in the community do not count as PE	New curricular frameworks are dovetailed with other programs and services

Figure 1. Examples of new design criteria and their tensions with existing criteria

out-of-step and at worst irrelevant and even harmful. In this perspective, the design criteria presented in Figure 1 are directed toward innovative program and policy designs with the expectation that these new designs, in turn, will influence instructional and performance leadership. In contrast, today's PE design research has taken program designs as a given (e.g. sport education, teaching games for understanding), enabling researchers to focus on 'how best' questions pertaining to teachers' orientations and behavior, student cognitions and other aspects of pedagogical content knowledge.

Second, and against the grain of tradition, PE is not like the other school subjects, and efforts to make it conform to them have been counter-productive and ill-advised. The future of PE resides in its uniqueness and especially in its contributions to the

life quality, health, and well being of young people and their families as well as the vitality of neighborhood communities. New configurations for PE will bridge school, family and community relations, include new inter-generational and family-centered learning and performance structures, and enhance community development partnerships for youth (e.g. Lawson, 2005).

Third, PE programs, teachers, teacher educators, parents and other advocates for positive youth development face unprecedented, enormous, and powerful competition for the hearts, minds, identities, bodies, behavioral choices and 'lifestyles' of young people. Competition starts with governmental curriculum writers (e.g. Macdonald, Hunter, & Tinning, 2007), governmental public health experts with their recommended rules and regulations and guidelines (e.g. Tinning & Glasby, 2002). This competition also includes elite and professional (pro-olympic) sport system developers (Lawson, 2005), and the unethical and unhealthy practices of high performance, professional athletes who send counter-productive messages about the meaning and value of sport when they use drugs and other unethical performance enhancers. Perhaps above all, this competition includes global youth sub-cultures developed and promoted via internet technologies and fueled by predatory capitalism with its health, exercise, nutrition and body-related fads. It takes only a cursory inspection of PE's time, resources and supports in the school curriculum, including an examination of teachers' workloads, class sizes, working conditions and primary commitments to gain support for an important conclusion. PE in its current form is disadvantaged in this 'silent competition.' New design criteria are needed.

Fourth, PE programs need to be designed and configured against a lifespan or life course developmental framework. For example, such a framework must accommodate local ecologies (e.g. Lawson, 1992; Lawson, 2005; Sallis *et al.*, 2006) and incorporate the growing array of sport, exercise, dance and fitness programs, many of which are conducted by Kinesiology graduates representing the same field. In brief, the key is to map all of the factors and forces contributing to the realization of active healthy lifestyles across the lifespan. Once PE is situated against this framework, backward mapping processes can be employed to prioritize the important results (outcomes) that PE teachers and their programs can systematically and somewhat uniquely achieve when they are provided with the resources and conditions conducive to best practices (Lawson, 2007b).

Fifth and finally, PE and other exercise, sport, dance, and fitness programs hold immense promise as both stand-alone and combined social interventions. Working with professionals from other fields, PE teachers and leaders are obliged to help solve the most important problems of the day, most of which reside outside the province of any one profession, program, or organization. To address these problems, PE and PETE leaders must learn to collaborate with other professions and lay leaders and form school–agency–university partnerships (Lawson, 2004; Lawson, 2005).

For example, these problems include young people's lack of school-related connection and engagement and the risks they pose for school drop-outs. They also include the lack of meaning and significance in young people's lives as they struggle to develop positive identities and accompanying healthy lifestyles. They encompass the

need to address inter-ethnic and inter-class conflicts, manifested in social exclusion and requiring new approaches to social integration. And they require persuasive, high impact educational experiences that enable young people to protect themselves from the lures of predatory capitalism and its powerful ally—the mass media. The PE community offers rich, albeit untapped, resources for problems like these and the social interventions they require.

Concluding thoughts

When these five premises and the design criteria presented in Figure 1 are brought to bear on the field's current priorities, structures and operations—and especially on researchers' social and cultural organization—a significant gap becomes evident. In the preceding analysis, I have endeavored to illuminate this gap and all it implicates. I have framed it as a pressing need, a future priority and a timely opportunity. Against this three component frame, I have invited a research and development-driven, transformative agenda. This agenda requires new designs for PE and a new genus of design-oriented research.

This agenda needs to be unmasked. It involves a strategic re-visioning of PE and PETE. And it promises to interrupt selected aspects of PE's normal science (Kuhn, 1970), especially the research activities that promise little more than a reinforcement of sub-optimal, status quo programs, practices and policies.

PE and PETE researchers and scholars have the opportunity to assume leadership for this new design work and re-visioning agenda. To seize this opportunity, they will need to organize and mobilize themselves accordingly. They will need new paradigms, exemplars, segments and networks. During an era when the number of tenure track faculty researchers is not increasing, the immediate issue is whether PE and PETE have the 'person power' for these new structures. After all, every new paradigm, exemplar, segment and network needs a critical mass of scholars and researchers. Otherwise, the researcher-to-problem ratio is too low to have any impact.

To meet needs for a critical mass of innovative researchers, at least four alternatives merit consideration. The first is for existing PE and PETE researchers to abandon past–present research trajectories and structures and form new ones. The second is to develop new doctoral programs. The third is to recruit Kinesiology researchers interested in PE and PETE programs. The fourth is to recruit researchers from other fields such as nursing, nutrition, social work, juvenile justice and public health. These alternatives are not mutually exclusive; all may be needed. In fact, interdisciplinary paradigms may be especially needed and valuable.

For PE and PETE researchers, the more fundamental questions remain. Will a critical mass of researchers accept the attendant challenges to begin organizing and mobilizing? Will they form one or more new paradigms and exemplars? In turn, will new segments and networks gain traction in the years ahead? Will gatekeepers permit and support paradigmatic bridge-building and the development of new paradigms?

Will doctoral programs privilege this new century agenda? Will veteran researchers provide the intellectual and social space for a new generation of researchers? Indeed, will existing researchers shift their agendas? Are gatekeepers and veterans ready to end win-lose, winner-takes-all paradigm wars? Is the modern profession ready for the multiplicities of the postmodern world?

Questions like these may be among the most important contributions of the preceding analysis. Together they serve as reminders about Francis Bacon's ideas about science in service of the human condition, especially the social responsibilities of the PE's researchers (Lawson, 1999b). Research on researchers' social organization is one way to find out.

Together these questions signal needs for the strategic re-visioning of PE and PETE. PE and PETE scholars and researchers may be center stage in this work, but only if they organize and mobilize themselves accordingly. If the preceding analysis has contributed to the development of an expanded, research and development agenda in service of PE and PETE as well as the people who must be helped by both, it has achieved its primary aim. If this analysis also helps researchers and scholars organize and mobilize themselves, so much the better.

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