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The Academic Discipline of Physical Education

FRANKLIN M. HENRY

Fourteen years ago I gave an address at the annual meeting of the National College Physical Education Association for Men on the topic "Physical Education — An Academic Discipline." A 2400 word summary of the address was printed in the Proceedings of that meeting (Henry, 1964). It was therein stated that an academic discipline is an organized body of knowledge collectively embraced in a formal course of learning; the acquisition of such knowledge is assumed to be an adequate and worthy objective as such, without any demonstration or requirement of practical application; the content is theoretical and scholarly as distinguished from technical and professional. This was held to be the generally prevailing definition accepted by most college faculties; arguments were presented to justify the position that if physical education is structured as a cross-disciplinary body of knowledge, it can meet the requirements of that definition.

The present treatise will elaborate somewhat on the printed summary referred to above (assuming that the interested reader will also examine that reference); it will touch on some of the more controversial points, will ask whether the concept has had some degree of acceptance, and will attempt to discover signs of emerging and contemporary hazards. The importance of the distinction between the descriptive terms *inter-disciplinary* and *crossdisciplinary* will receive specific attention.

Some in physical education would prefer a different definition of academic discipline. Nevertheless, the definition that will prevail and the one that we must meet in order to secure general academic recognition and acceptance, is imposed upon us from outside our ranks. On the other hand, there are some among us who, as members of a total university faculty, accept this state of affairs as desirable in the long run. Keep in mind that we are talking about a discipline that is erudite and based on confirmed theories (i.e., on established knowledge) — there is no intent to belittle the importance of the professional discipline, which centers on pedagogy and the technology of motor skills, and is conceptually different in purpose. This does not preclude the possi-

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bility that some colleges or universities may find it more useful to combine the two in some manner that suits their purpose — in fact, such a combination was in effect in my own institution at the time I entered the profession more than 40 years ago, and is a rather common practice at colleges and universities today. (Note that I have here used the term the profession broadly, to include teachers, professors and administrators of physical education in all its aspects. However, in the context of professional vs. academic, it should be obvious that the narrow meaning, i.e., pedagogy, technology and administration, is intended.)

What is this scholarly field of knowledge that constitutes the academic discipline of physical education? It was stated (Henry, 1964) to be constituted of certain portions of such diverse fields as anatomy, physics and physiology, cultural anthropology, history and sociology, as well as psychology. The focus of attention is on the study of the human as an individual, engaging in the motor performances required in daily life and in other motor performances yielding aesthetic values or serving as expressions of a person's physical and competitive nature, accepting challenges of one's capability to cope with a hostile environment, and participating in the leisure time activities that have become of increasing importance in our culture. (I have attempted to improve this statement, without success. Note that it implicitly includes health, both physical and mental, in relation to physical activity; it implicitly includes motor learning, sport sociology, and other areas of current emphasis.)

A person could be well educated in the traditional disciplines listed above, yet be ignorant with respect to comprehensive and integrated knowledge of human motor behavior and capability. This is because the areas within these disciplines that are vital to physical education as described above, receive only haphazard and peripheral treatment in the traditional disciplines (since a particular one of these areas is only a small and perhaps non-crucial part of its parent discipline, in most instances).

It is for this reason that the academic discipline of physical education cannot be interdisciplinary; an undergraduate or graduate major cannot be made up from a group of courses selected from offerings within the traditional disciplines. (This does not exclude the possibility of locating an occasional traditional course that may be appropriate.) Instead, it must be *cross-disciplinary*; it must be developed as a series of courses organized horizontally as well as in depth vertically. For example, I would hold that the academic major in physical education should include a two-semester upper division course in exercise physiology — adequate scientific knowledge is available to justify such a course. Parts of it are to be found in courses in cellular physiology, mammalian physiology, endocrinology and perhaps environmental physiology, but there can be no assurance that a student who took all these courses would have adequate training in the exercise physiology of limb movements and whole body performance and endurance; moreover, sacrifices in other directions would be necessary because of the cost in course units. Another example might be an anthropology course labeled "The Universality of Ball Games in Primitive Cultures." There is ample material for such a course; it would probably be of little interest to anthropologists generally, since its depth is in the horizontal rather than the within-culture vertical direction, but it would be of specific value in the physical education discipline. Psychology would necessarily be involved in grappling with the question of the *why* of this universal interest in ball games.

Other examples cut across two or more of the traditional disciplines. For instance, a motor learning course must incorporate neurophysiology and related anatomy as well as specific aspects of experimental psychology. Should such a course be taught in a psychology department, it would be expected to devote more attention to learning small movement tasks than to gross motor or large muscle phenomena and kinesthetic perception, and thus be inadequate for physical education. Similarly, child development courses as taught in psychology departments necessarily direct major attention to non-motor aspects of behavior, leaving insufficient time for adequate treatment of gross motor behavior and its physiological concommitants after the first few years of childhood. A motor development course must by its nature be cross-disciplinary; so must a course in kinesiology, since it presumably includes the physics of body mechanics.

The above discussion has been concerned with upper division

(i.e., advanced) courses, requiring the completion of prerequisite lower division courses before they are undertaken. Presumably the prerequisites will be taught interdisciplinary, i.e., in the departments of the traditional disciplines in the physical, biological and social sciences, as otherwise the student will have deficits in both breadth and depth of basic knowledge required to handle the upper division courses adequately.

The field of knowledge covered by the advanced courses includes kinesiology and body mechanics; the physiology of exercise and training, and influence of the environment; neuromotor coordination, the kinesthetic senses and their perception, motor learning and transfer of training; emotional and personality factors in physical performance; the relation of all of these to human development, the functional status of the individual, and ability in motor performance. Also included is the role of athletics, dance and other physical activities in the culture (both historic and contemporary) and in primitive as well as advanced societies.

point that needs to be A emphasized is that this academic discipline does *not* consist of the *application* of the disciplines of anthropology, physiology, psychology and the others to the learning and performing of physical activities. If that were so, physical education would simply not be an academic discipline; it would instead be a technical and professional discipline. But if the field of knowledge is indeed the study in depth, as a discipline, of certain aspects of anatomy, anthropology, physiology, psychology, sociology and other fields, with this study centering on and relating to basic knowledge concerning the human individual engaged in the motor activity that is an expression of being alive and functional, then it *is* an academic discipline.

As stated in the summary mentioned earlier (Henry, 1964), the student who majors in this crossdisciplinary field of knowledge will not be a physiologist or psychologist or anthropologist or sociologist, because there has necessarily been a restriction in breadth of study as to each of the traditional disciplines. Moreover, emphasis needs to be placed on special areas within each of these fields, areas that receive little attention in the existing courses. There is far more available material in any specific one of these disciplines than can be included in the usual courses that constitute a major in that discipline. But this inescapable relative deficiency in the specific traditional disciplines is accompanied by high level compe*tence* in the cross-discipline of physical education — a level that could not have been achieved by an inter-disciplinary approach. As comparable example, а biochemist is necessarily deficient in training as a chemist and as a biologist, but is a more competent *biochemist* than either a chemist or biologist in consequence of crossdisciplinary courses.

Another important aspect of the cross-disciplinary concept concerns who is to generate the major part of the knowledge basic to the advanced courses, and who is to teach them. Granted that the issue is complex in some of the specific aspects, we can explore some of them in a straightforward fashion. Consider, for example, the history of physical education (which includes dance, sports, and the broad area called gymnastics in countries outside USA). Should the research and textbook writing be done by a Professor of History who is interested in these areas, or by a Professor of Physical Education who has acquired a substantial background in the scholarly methods of historians? During the six years since my official retirement I have refreshed my knowledge of the history of experimental psychology, and undertaken studies of the history of physics and of physiology. I am confident that anyone else who undertakes a similar series of studies will conclude, as I have, that the major part of this body of historical knowledge has been developed by scholars in the disciplines themselves, rather than by historians who had an interest in the disciplines. Or consider sports sociology — here, I am not as knowledgable personally, but such reading as I have done strongly suggests that the significant contributions to knowledge in this field are coming from physical education scholars who have a cross-disciplinary background in sociology, rather than from sociologists. As to who should do the teaching, it would seem to follow directly that it should be done by those who developed, or are developing, the body of knowledge.

Before turning to some of the controversial aspects of the academic discipline concept, it may be of interest to trace briefly how it developed at my own institution (University of California, Berkeley). When I joined the department faculty in a junior capacity in 1936, the AB degree was offered as the Group Major in Physical Education — Hygiene, for the obvious purpose of preparing students to teach the subject in the state secondary school system. A graduate year under the control of the School of Education, and completion of an academic minor, were required to obtain the general secondary teaching credential. The group major and degree were under the control of the College of Letters and Science (the liberal arts college of the university).

In the early 1940s this group major came under severe attack by the College because it did not have sufficient academic content; special breadth requirements were placed on students graduating with this major, and the department was notified in a meeting with the College Executive Committee (which I attended) that any degree granted in physical education by the university would have to be under the jurisdiction of the College of L & S, or there would be no degree. We did have a few academic courses (history, kinesiology, with exercise physiology as part of a course designated Physiological Hygiene). In 1942 I introduced the course in motor learning (under the designation Psychological Bases of Physical Activity), and several years thereafter Anna Espenschade offered an academic course in tests and measurements.

Our faculty in 1945 proposed to the College of L & S that they authorize a new Group Major in Physical Education, including our courses to the extent of 15 semester units, with 9 units from a list of academic courses in related de-

partments. The proposal was accepted and the special requirement was removed. It should be mentioned that a few members of our department faculty had desired to expand the academic discipline offerings of the department (and thus the content of the AB major) even before the College of L & S exerted pressure in that direction.

In 1959, a standing committee of the college reviewed all group majors under its jurisdiction, for the purpose of determining whether each such major should be continued or discontinued, or perhaps restructured. It was decided that the group major in physical education constituted a body of knowledge appropriate and adequate for the AB degree, and that it was desirable that the university continue to offer such a degree. In fact, the committee went one step further; it recommended to the college executive committee that the Department of Physical Education be invited to submit a proposal and justification for a full fledged department major in physical education. (By that time we had added Motor Development and Sports in American Society to our offerings.) The executive committee did issue the invitation, and the tenured professors of the department faculty proceeded to develop the plan and justification.

Reflecting my own deep and broad interest in this field of knowledge, and anticipating the eventual authorization of a regular department major (rather than just a part, as in the group major), I had over a period of several years developed the cross-disciplinary concept and justification of the

academic discipline as leading to a degree in physical education, and in fact had in outline the essentials of the content of what later became my 1964 address. This was presented at a meeting of the department faculty; it met with mixed reactions. During the course of a series of meetings, it gained increasing support; I was asked to write a preliminary draft of the plan and justification that was to be presented to the College. We finally achieved unanimity and forwarded the document to the college; they approved it and authorized a department major in 1959.

At a meeting with the college executive committee prior to approval, several members of the committee stated that a change in name to something other than physical education would be desirable. We responded by pointing out that the profession had grappled with that issue for many years without success. Moreover, to secure a teaching credential in California (which was the objective of most of our students at that time), a candidate must have majored in a subject field taught in the schools — physical education was on the state list, but kinesiological sciences (our tentative but not unanimous choice) was not listed. Consequently we did not change the name. Such a change could now be made, since the state education officials subsequently ruled that the degree designation kinesiology is equivalent to physical education for credential purposes.

The University of California has nine essentially autonomous degree-offering campuses; among these, four offer the AB degree in Physical Education (all currently under the jurisdiction of their liberal arts colleges). While the department at Berkeley did not, and indeed could not, exert any pressure as to the content and structure of the degree curriculum on other campuses, all currently have the academic discipline type of program. The degree at Davis, initiated over ten years ago, was of this type from the beginning. Both Santa Barbara and Los Angeles were state teachers colleges before they and their faculties became part of the University of California, so it is understandable that their respective degree programs initially were of the professional rather than academic discipline type. At Los Angeles (the older of the two), the department was under the jurisdiction of the College of Applied Arts for a number of years; subsequently that college was discontinued and the department was assigned to the liberal arts college. A few years ago the name of the department was changed to Kinesiology — at Santa Barbara the name of the major is still Physical Education (one of three majors in the Department of Ergonomics and Physical Education). I am unable to give an informed discussion of the factors involved in the shift of emphasis from a professional major to the academic discipline at these institutions — no doubt extradepartmental pressures had an important role.

The reader should not gain the impression that these shifts are representative of what has happened in the bulk of colleges and universities in California. In addition to a number of private institutions, the state government operates 19 four- or five-year colleges and universities in a system that is entirely independent of the University of California. Most of these offer a professional major in physical education leading to the bachelor degree; only a few have an academic discipline major. (Some among these can be classified as excellent.) Many of the professional curricula have during the past ten years become mixed rather than narrowly professional; inclusion of exercise physiology in addition to motor development, body mechanics and kinesiology is almost universal. But as taught in these institutions, the emphasis is usually on the practical application of knowledge — there is little depth in the courses, since adequate prerequisites are seldom required. Nevertheless, there has been some progress in that the elementary textbooks used in these courses tend to give more attention to knowledge derived from scientific experiments than used to be the case.

At the national level, I have made no quantitative survey, but am aware that a number of universities have during the past ten years altered their curricula in the direction of a strong academic discipline content. The departmental designation kinesiology is increasingly common; *movement* or *exercise* science as well as human performance are also used as replacements for physical education. I have examined the curricula of a number of departments of kinesiology and found them to be definitely of the cross-discipline academic type. In some instances, such a department is under the jurisdiction of a School of Health, Physical Education and Recreation.

Internationally, it is remarkable that Canada has created a number of new universities with academically oriented departments of kinesiology; some of the older universities now have such a department as one of the units under a Faculty of Physical Education. Similar developments are taking place in New Zealand and Australia. I am uninformed as to what changes have occurred in Europe, Britain and other parts of the world.

Before turning to what I see as current problems and controversial issues, I must emphasize that I have obviously presented my personal concepts as to a justifiable academic discipline in physical education, and my personal role in implementing the adoption of that concept in my own department and institution. Other than that, I have not taken a position of active advocacy, and do not do so now. Moreover, I am surely not the first or only person in the profession to have an interest in its academic discipline aspects. Neither am I the only person to describe such a discipline (Eyler, 1967; Kroll, 1971). However, I am avoiding a comparison of the proposals or descriptions made by various individuals; I am also avoiding the issue of who had the idea first, which I consider to be a stultifying question — one that is often impossible to answer correctly. History is far more than that.

While there may be some disagreement as to what should constitute the specific content of the discipline or the undergraduate majors leading to degrees, the past decade has seen a number of U.S. and Canadian universities introducing new academic offerings — courses in motor learning, sport sociology, sport anthropology or psychology and the like. The existing courses, such as exercise physiology, have been expanded in recognition of the great increase in basic scientific knowledge and new research techniques (as in kinesiology). Knowledge in the area of motor development has also expanded.

Naturally, this development has been associated with an increase in faculty positions; significantly, filling many of the positions has required the recruitment of individuals with *inter*-disciplinary backgrounds in such unitary disciplines as anthropology or physiology, psychology or sociology, as well as a degree in physical education. This is because candidates with the required crossdisciplinary training have seldom been available as yet. It seems to me that in some instances this has led to over-emphasis on the unitary discipline at the expense of what I insist is an essential orientation toward the central focus of the academic discipline of physical education (Henry, 1964).

Most universities of the type under consideration require that their faculty members be productive scholars; they must be creators of new knowledge as well as competent university instructors. This requirement immediately leads to the question of how funds are to be provided for adequate faculty research. Modern apparatus is generally complicated and expensive, and technical assistance is often required to operate it. A tew universities are able to supply the necessary research funds from their own resources, but typically the faculty member must secure a grant from some agency of the federal government. Even when such funds come to a university in the form of a block grant, availability to the individual faculty member is very much a function of the type of project for which support is sought, thus biasing scientifically free search for knowledge. This state of affairs is compounded if the faculty member attempts to secure funding directly from the granting agency, regardless of whether it be governmental or a private foundation.

In my opinion, this has created a very serious situation. I know of cases where faculty appointments have hinged on the demonstrated ability of a candidate to secure grant money, rather than scholarly excellence per se and needed specific subject field background. Indeed, I fear that the reality of this situation will surely influence the direction of future development of some university departments. It is leading in a subtle manner to the channeling of faculty effort into the related disciplines themselves, rather than into a crossdisciplinary area of physical education. Moreover, I also see evidence that physical education departments are sometimes being "used" by individual faculty members who would prefer an appointment in one of the related traditional disciplines. Having tailed to secure it, such individuals accept an appointment in physical education, but channel their principal time and effort toward getting established in that preferred discipline.

Also, our younger faculty are often motivated to seek prestige by choosing research problems that

are directly oriented to a related traditional discipline (publishing in the journals of that discipline), rather than maintaining a strong orientation toward the crossdiscipline. Pragmatically, this is easy to understand — in many universities, advancement in academic rank is chiefly determined by the recommendation of a faculty review committee, with some or even a majority of members coming from the related disciplines rather than physical education. While this orientation has some positive values, it also constitutes a trade-off that can weaken physical education. Particularly so, when it is realized that research in such areas as motor learning, movement control and exercise physiology within the traditional disciplines by faculty members of departments of physiology and psychology has exhibited a resurgence during the past decade.

If these trends continue (and it is quite possible that they may even strengthen), the impact may be serious. Many of the important U.S. universities are rapidly approaching, or have already reached (as in my own institution), a zero growth status. New programs can only be introduced by reducing or eliminating existing programs. Competition for the budget dollar and authorized faculty positions is keen; it can be expected to increase. From this viewpoint, we may well ask as to the possible consequences of a shift in the courses taught within the physical education department from cross-disciplinary to interdisciplinary; the consequences of a similar shift in graduate student research and faculty research is an integral part of the situation. When a physical education department demonstrates that many of its courses and the research of its students and faculty are in fact possible within the various traditional disciplines, it is also signaling the university administration that it can be phased out; that the students will not suffer since an inter-disciplinary group major set up from courses in the traditional disciplines will presumably take care of their needs, and faculty research will continue since it is within those disciplines anyway. It is my belief that if this happens, both the university and the students will suffer; I hold that the unique cross-disciplinary body of scholarly knowledge that I have called physical education is important and should not be lost by default.

I hope that my position on this matter is not misunderstood. Definitely, I do not advocate the adoption of the cross-disciplinary concept because of expediency. If the academic discipline of physical education is in truth interdisciplinary, it must stand or fall on its own merits; this same statement must apply if it is cross-disciplinary. However, I do believe that there is an urgency for all physical education faculties who offer degrees in physical education to do their thinking now, rather than under the stress of a challenge. This should be followed by written statements that justify their curricula, not solely to themselves, but to the total university faculty and administration. An appendix to the document should include both an adequately detailed set of course descriptions and defense against possible charges of overlap between courses or over-fragmentation within a particular area.

The discussion contained in the preceding paragraphs leads immediately to the question of what specifically is the distinction between a cross-disciplinary course or organized major and one that is inter-disciplinary. This question must be answered by examples rather than formal definitions. Can there be an *inter*-disciplinary unit in history of physical science? In practical terms, the answer is no. What existing courses in history would be included? What courses in physics, in chemistry, in geology? However, a cross-disciplinary upper division (i.e., advanced) course or unit is logical, and exists in some universities.

In contrast, an inter-disciplinary major in world literature is feasible and logical; it would consist of the existing upper division courses in the literature (in translation) offered by the various language departments — Scandinavian, Slavic, Near East, Oriental, French, German, Italian and Spanish Language. Here, the central core of purpose is clearly evident; it is *literature*. In a smaller university, or one with different rules for course content, there might be no such courses available a major in world literature have to be crosswould disciplinary, the content of its courses consisting of appropriate material that might or might not be found as parts of existing courses in the traditional disciplines. Returning to the first example, the central core of purpose, namely history of physical science, is fragmentary or missing in the existing courses in the traditional

unitary disciplines (history, physics, etc.). Thus a comprehensive AB major in the history of science would have to be crossdisciplinary.

Neither of these examples is literally perfect for establishing the exact difference between the crossand *inter*-disciplinary concepts. The question is simple enough, but the answer is complex and in some instances tends to be diffuse rather than nicely circumscribed. If one will read (and perhaps reread) all of my previous publication (Henry, 1964), the distinction will be clear, but I find that I can neither quote nor write a short paragraph that offers an adequate definition. In the present context, cross-disciplinary always refers to the *appropriate part* of a body of knowledge from another discipline that is related to the academic and scholarly aspects of physical education, with a concomitant development or tie-in with that relationship. Physical education, in this context, refers to human beings engaged in motor behavior of the so-called large muscle type (some would use the term gross motor behavior). The definition must be broader for a research problem than for a course of instruction. Difficulties do emerge in applying the definition to a specific course or problem; applying it to an upper division major curriculum, or to a total research program, is less troublesome. Again I make the plea to read my previous publication.

Another question that is important concerns the distinction between the academic discipline and what I have for convenience referred to as the professional discipline. While I hold to a clear distinction, there is no intent to make a comparative value judgement. There is a possibility of misunderstandings because of semantic problems. For example, a course in administration is in our profession rather generally classified as academic to distinguish it from courses in practice teaching, or courses intended to develop or improve personal performance skill, or courses concerned with the rules and strategies of athletic games. In the present context I would, for want of a better term, label the administrative course (or pedagogy courses) as professional rather than academic, and clearly not a part of the academic discipline as I have conceived and described it.

Most of the physical education curricula, degrees, and departmental structures are strongly oriented toward the preparation of competent instructors and administrators of the activities taught in the primary and secondary school systems; health education and recreation may or may not be included. Development of dance specialists and athletic coaches is often included among the objectives. As mentioned earlier, the curricula may include some courses from the academic discipline. I have classified such curricula, degrees and departments as professionally oriented. Most members of the physical education profession obtained their degrees within this framework; it is understandable that they are negatively oriented to the academic discipline concept.

On the other hand, there certainly are some universities whose general faculty and deans insist that at their institution, the only

physical education degree that is appropriate to their objectives is one that is strongly or even exclusively oriented to the academic discipline. Such universities may offer teacher education programs under the jurisdiction of their School of Education — physical education being treated the same as any other subject field (e.g., mathematics or chemistry or English). The prospective teacher is required to complete two overlapping majors — the academic (required for the degree) and the teaching major (necessary for the teaching credential, which requires an additional year for completion and naturally includes practice teaching). As an undergraduate, the credential candidate will have taken a wide variety of lower division courses in the technology of the activities, and some professional courses, as part of the teaching major. It is factually true (at least in California) that during periods when there has been a large surplus of men physical education teachers, the program outlined above has led to a high placement ratio compared with candidates from programs with less academic discipline emphasis in the major. (The surplus of women teachers is too recent to justify comparison.)

It should be emphasized that an important purpose of the doctoral degree programs in institutions of the above type is clearly to educate scholars who will be productive in basic research in the academic cross-discipline; individuals who will be competent instructors (in their specialties) in this discipline at all levels, as well as respected and functional members of the total university faculty. The other

important purpose is achieved to the extent that a substantial portion of these individuals (whose specialization is appropriate) secure faculty appointments in professionally oriented physical education departments. What more effective way is there for such departments to really keep abreast of, and take advantage of, the continued development of human knowledge? It seems obvious to me that the profession cannot live in its past (or even its present); it must move forward if it is to have a future. We are so tradition-bound, for example, that we have even successfully resisted such ideas as incorporating some exercise physiology with the skill techniques in the school program — this is unfair to the students we claim to be educating, young people who are often eager to know what is going on in their bodies during physical activity. Or has this default occurred because the teachers are really not knowledgable except for skill techniques and teaching methods?

At this point, it becomes necessary to make some sort of statement (even though it be controversial) as to what constitutes knowledge, and to arrive at a value judgement concerning the importance of basic research to our profession. In the lexicon, one of the definitions of knowledge is information; another is the state of knowing; a plethora of other definitions are given, suggesting that the word is not very useful for communicating ideas. Perhaps comprehend is better; it means understand, which is the definition I will use. In science, understanding seems to be equated with confirmed theory; it is the explanation

of why facts fall into predictable patterns; given certain facts, a consequent outcome can be predicted with confidence. (That is the objective.)

In 1946, with the intent to have a dependable statement for my students, I interviewed 24 colleagues who were productive scientists in disciplines ranging from anthropology, through chemistry, genetics, history and psychology on to zoology. Having made a written synthesis of their views, I circulated it among some of them for any needed revision (which was found to be unnecessary). My statement was printed on pages 46-47 of the 1949 Research Methods book (Scott, 1949), under the title "Basic Purpose and Method of Science" (as an inclusion in a section written by T. K. Cureton and some of the other members of the Steering Committee of the book). I continued to use this statement throughout my years of active teaching, since it seemed to me to be valid.

In this statement, knowledge is defined as *confirmed theory*; facts are held to be the raw material that can lead to knowledge. "When a field of knowledge is adequately established, practical problems can be solved in a straightforward, economical, accurate and profitable manner." Basic research is held to be fundamental, its direction uninhibited by the requirement that it serve any need of practical ap*plication*. The history of science is replete with examples of basic research that had no predicable practical value, and no relevance, at the time it was done. The work of Ohm eventually led to electrical technology; Maxwell's equations led to modern electrical transmission and radio; the research on the inheritance of abnormal eye color and wing shape in fruit flies led to the understanding of agricultural genetics and a tremendous increase in the world's food supply. A complete list of such examples would be overwhelmingly long. The fundamental knowledge derived from uninhibited basic research is the very life blood of any respectable profession.

Applied research is classified as a secondary level organization of fundamental knowledge, directed toward specific and immediate practical needs. Thus it affords a rational basis for a profession or technology. There is another type of applied research, one that attempts to secure immediate answers for practical problems by conducting practical experiments, bypassing the need to secure scientific understanding. Unfortunately this tertiary type frequently produces answers that are highly specific to the particular conditions of the experiment; the answer obtained may be incorrect in a situation that may seem similar to the original one. Moreover, such experiments do not serve to create a body of knowledge — they only create a kind of technology, one that is limited to the currently available facts, and is consequently less dependable than one based on fundamental knowledge. In the practical world, a blend of the two is often necessary.

It seems to me that an increasingly large proportion of the members of our profession are becoming disillusioned with the impractical basic research that is produced by the scientists among us who are academically oriented. The teachers who attend the anconferences of nual our professional associations are even sometimes vehement in their demands that the scientists give them answers to their practical questions — after all, is that not the purpose of having scientists? In my opinion, this reflects inadequacies in the education of these teachers and a gross misunderstanding of the true purpose of science. This difficulty is not restricted to physical education. In an article titled "The Influence of Research on Education Practice," Kerlinger (1977) forcefully makes the point that the purpose of science is to develop theory, i.e., understanding and explanation. He states that educators have little patience with "impractical" or "ivory tower" research; this has led to a pervading antiintellectualism that has had a devastating effect on research in education. Government officials, educational administrators and teachers demand relevance and what he terms pay-off (immediate practical utility in application). The net effect of this is to cut off financial and moral support for basic research in education; in the long run, education will suffer seriously. Kerlinger has addressed a number of important issues in depth. Since one could readily change education to physical education without destroying the validity of his arguments, I am of the opinion that this article should be categorized as required reading for all members of our profession. That category might well include an article by Park (1976) that discusses the current crisis in higher education, the current and historical position of physical education in relation to that situation, and the probable importance of the academic discipline in determining our future.

While I strongly resist, as uninformed and short sighted, the common tendency to view the academic discipline as the handmaiden of the professional and technological disciplines (and thus to be evaluated in terms of its useful service to them), it is selfevident that they will profit, and indeed do demonstrably profit, by increases in fundamental knowledge in the academic discipline. But by no means all of such knowledge should (insofar as we can see at present) be expected to be practically useful to a teacher of activities or a performer of physical skills; this is so because the mission of the academic discipline is univocally intellectual as contrasted with practical. This holds true for all academic disciplines; if it did not, increase in human knowledge would eventually and necessarily cease. The validity of this statement is believed in generally, in other disciplines at the university level — I doubt, however, if it has much real acceptance in our profession, because most of us are involved so completely in the technological aspects of teaching and coaching. One of the implicit bases for the rejection is the feeling that we have already almost mastered the technology of the activities — either they are stereotyped with no possibility for improvement, or some clever tertiary research will lead to perfection. Another is that the anticipated space-age type breakthrough in the area of motor learning has not materialized; the methodology of learning our ac-

tivities has not progressed very much. My blunt answer will surely initiate some anger, because it has to be that ignorance can be remedied. However, I do concede that exercise physiology and body mechanics researches have produced more in the way of useful information than is the case with motor learning (where there has been relatively little crossdisciplinary research — i.e., concern with complicated large muscle and whole body performance); hopefully, that situation will change. Further, I believe that attempts to transmit more or less isolated bits of research-derived information from the discipline to the practitioner will prove to be im*potent*; there must be an integrative step and a larger frame of reference.

Since there currently exists a substantial amount of fundamental knowledge that is potentially useful to the technology, we are faced with the problem of communicating and interpreting that knowledge. One transmission channel involves the requirement that prospective teachers major in the academic discipline; the second transmission channel places the burden on the professional physical educators. Naturally, teachers and professional educators will protest that both of these mechanisms are unfair. The objection to the first is that the undergraduate student must master both the technique and teaching methods for the activities and the academic courses. My answer is simple — the normal school required even less time.

The problems with the second transmission system are more complicated. The responsibility of

developing the science and art of teaching (i.e., pedagogy) by research is the province of the Department or School of Education (Kerlinger, 1977), as is teacher training, which is conducted by its specialists in the teaching methods appropriate to the subject fields (who may hold joint appointments). The Department of Physical Education offers instruction in the physical activity skills and athletics; logically (as in other departments) its instructors should be expert in understanding and teaching these technical courses, and should keep informed of, and translate to practical use, fundamental scientific knowledge developed by research in the academic discipline. Clearly, this function (teaching technical courses) is different from the function of instructing prospective teachers in the art and science of teaching. The teacher training specialist in physical education (as is the case in the biological or physical sciences) should have a major in the discipline, and is responsible for the use and transmission of new teaching techniques. At many institutions, the specialist is attached to physical education rather than the education department.

It seems obvious to me that our profession has been confused — it has failed to answer the question "Who am I"? Is it not still true that "... the typical physical education department is unique in being under the jurisdiction of or closely related to the school or department of education" (Henry, 1964)? This leads me to reiterate my opinion that a variation in emphasis among university departments of physical education is desirable, at least for the present. Some should have a mixed professional and academic orientation, and require at least exercise physiology, kinesiology, in some cases motor development, and perhaps motor learning. However, our profession has an urgent need for some institutions that are strongly oriented toward the academic discipline — such universities may offer excellent teacher training programs concurrently, but an increasing proportion of graduates in the academic discipline will not wish to become teachers. Other careers are beckoning to one who majors in the discipline; also, the objective of many students is a general or liberal education rather than preparation for a specific profession. It may well be that this is the most important objective of all (see Park, 1976, and references cited therein).

As I bring this treatise to a close, I again feel an urge to emphasize the obvious — it is a statement of my personal concepts as to the academic discipline of physical education. As mentioned earlier, I have re-thought the concept several times since 1964, always ending up with essentially the original. That does not mean that I would insist that the courses originally used to implement it should remain unchanged — to the contrary, changes and improvements have taken place during the years since then.

The reader who wishes to visualize the concept in a broader framework will be interested in the December 1967 issue of *Quest* (Eyler, 1967), which contained eight articles under the general heading "The Nature of a Discipline." Many thoughtful papers

have appeared subsequently. The book by Kroll (1971), titled "Perspectives in Physical Education," contains several well-documented chapters that integrate the historical aspects of the scientific and academic content of physical education with contemporary issues such as profession vs. discipline, quality in graduate programs, and the nature and nurture of researchers. One cannot overemphasize the importance of this definitive volume in achieving an understanding of the role of the academic discipline in the total physical education framework.

To summarize briefly, there is indeed a scholarly body of knowledge that is unique to physical education, provided that it is organized as a cross-disciplinary structure drawing from appropriate sub-fields that are (or could be) parts of the traditional academic disciplines. This body of knowledge, so organized, can be justified as an academic discipline, and has been accepted as such by some universities as a basis for granting degrees and contributing to fundamental knowledge via scholarly research by faculty and graduate students. This is accomplished within the liberal arts concept, which holds that the pursuit of knowledge is a worthy objective in and of itself, with no requirement to demonstrate practical value or current relevance. While this body of knowledge constitutes (at least potentially) a rational basis for an informed profession and an effective technology, that is incidental the mission of the academic discipline is intellectual as contrasted with practical.

Physical education has several

facets — the academic degree program and basic research are but two of them. A third, preparation of teachers for the school program in physical education, is also important. It is held, however, that pedagogy and both basic and applied research in the art and science of teaching (whatever the subject field), are logically the province of the profession of education. Members of that profession who specialize in physical education may be, for practical reasons, attached to the latter department (this being the traditional structure based on the concept that physical education — in contrast with other subject fields — is functionally a subdivision of the school or college of education). Other facets include college level instruction in the skills, applied research in the skills and in athletics, and the largest of all — namely, the conduct of the school program in physical education.

FOOTNOTE

Since completing this article, I have had the opportunity to read the proceedings of the 1977 joint conference of NCPEAM/ NAPECW. While three important addresses at the meeting (by Locke, Norrie and Siedentop) were concerned with the role of the academic discipline in physical education, they have generated no need for me to make any revision in what I have said except for the following comments: I believe that a careful (rather than casual) consideration of the positions of Locke vs. Henry will reveal more accord than dissent. Certainly I would not deny that "Pedagogy was a distinguished subject when Dr. Henry was in knee britches"; I would add that when I was first allowed to wear long trousers, the normal schools were providing teacher training. While I had been shaving for several years by the time California began requiring a bachelor's degree in a subject field (rather than, and excluding, Education) in addition to professional education courses, as a qualification for the secondary teaching

credential, that too happened a long time ago. I must confess that upper division mathematics courses caused me difficulties as a student because they dealt exclusively with theory; the concern was not with the substance of arithmetic or secondary school mathematics, but rather with the understanding of the why of the mathematical structures. While my choice of an example was not intended to offer an exact parallel, it is interesting that our mathematics department here offers an upper division course in the history of mathematics — it is optional for their AB major, but required for the teaching credential. (I would not exclude the possibility of a course in the sociology of mathematics.) But this is not the point at issue. The Locke attempt at reductio ad absurdum also fails (and even supports my position) because he compared a traditional unitary discipline with a crossdiscipline. I also direct the attention of various writers to my explicit statement that a person who plans to teach physical education in the schools "... supplements the academic major with the necessary courses in methods and other professional topics. Academic vs. professional ... are not mutually exclusive" (Henry, 1964, p. 6).

REFERENCES

- Eyler, Marvin H. (Ed.). The nature of a discipline. *Quest*, 9, December 1967.
- Henry, Franklin M. Physical education: an academic discipline. *Proceedings of the* 67th annual conference of NCPEAM, January 8-11, 1964, pp. 6-9. (Reprinted in Journal of Health, Physical Education and Recreation, 1964, 35, 32-33; 69).
- Recreation, 1964, 35, 32-33; 69). Kerlinger, Fred N. The influence of research on education practice. Educational researcher, 1977, 6, 5-12.
- Kroll, Walter P. Perspectives in physical education. New York: Academic Press, 1971.
- Park, Roberta J. The perennial necessity: the future of theory and practice (or hats are nice but they won't keep you warm in winter). *Proceedings of the 52nd annual conference of WSPECW*, November 11-14, 1976, pp. 30-39.
- Scott, M. Gladys. (Ed.) Research methods applied to health, physical education and recreation. Washington: AAHPER, 1949.