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DOCTORAL DISSERTATIONS IN PHYSICAL EDUCATION: A TWENTY-YEAR PORTRAIT

The University of North Carolina at Greensboro ED.D. 1986

DOCTORAL DISSERTATIONS IN PHYSICAL EDUCATION: A TWENTY-YEAR PORTRAIT

by

Jacqueline Hanna Gillis

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Approved by

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This research project was designed to describe selected characteristics of doctoral dissertations written by students in departments of physical education in the United States from 1964 through 1983. It was conceptualized and carried out in light of both the existing body of knowledge about doctoral dissertations in physical education and the available social scientific research methodology.

Through a process of sequential matching of listings in Dissertation Abstracts International, Completed Research in Health, Physical Education, and Recreation, and American Doctoral Dissertations, a population of 5344 dissertations in physical education completed between 1964 and 1983 was identified. For each dissertation, five objective elements were recorded: (a) the degree that was earned, (b) the year in which the degree was earned, (c) the college or university where the degree was earned, (d) the advisor(s) of the dissertation author, and (e) the prestige ranking of the physical education doctoral program in which the degree was earned. Each dissertation abstract or title was coded for the academic specialty of physical education it reflected according to a classification paradigm derived from Zeigler's (1982, 1983) taxonomy. Each entry was also coded for the primary research strategy that was used, based on a variation of the paradigm presented by Isaac and Michael (1981).

A series of one-way frequency distributions and two-way crosstabulations were generated to provide answers to five sets of questions which guided the research project. Selected results included the following: (a) functional effects was the most common academic specialty reflected in the dissertations, (b) most of the degrees earned were Doctor of Philosophy degrees, (c) descriptive research was the most frequently used research strategy, (d) more dissertations were written in programs with high prestige than in programs with low prestige, and (e) most of the dissertation advisors guided fewer than five dissertations, and there was limited specialization reflected in the advising of the most prolific advisors. Trends in the academic specialties, degrees, and research strategies from 1964 to 1983 were identified. The results were discussed within the context of doctoral study in physical education, with extrapolation to the field of physical education in higher education as a whole.

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CHAPTER I

INTRODUCTION

Physical education in American higher education has developed from an isolated programmatic innovation into a widespread curricular offering since its beginnings some 100 years ago. Programs of instruction designed to improve the health of undergraduate students have evolved to include activity, teacher preparation, and scholarly inquiry components, at both the undergraduate and graduate levels. However, although undergraduate programs carry out the traditional university functions of teaching and service, it is at the graduate level where the third function of the university, i.e., research, is accomplished. It is graduate study, and doctoral study in particular, which legitimates the membership of physical education in the university community by transmitting knowledge, serving society, and generating new knowledge through research.

There are many facets to graduate study, but the research function is the defining feature of doctoral study in physical education. It encompasses research conducted by both graduate faculty members and doctoral students; it includes research intended for publication as well as research conducted to fulfill degree requirements. Dissertation research is both less accessible and more voluminous than the published research of faculty members, yet it remains a significant component of the research conducted in physical education. Dissertation research constitutes a substantial portion of the body of knowledge of physical education although much of it is never published. It reflects both the

orientation of the doctoral program in which it was conducted and the probable future orientation of the dissertation author. As such, the characteristics of doctoral dissertation research also mirror the nature of graduate level physical education as a whole.

In its present state, the field of physical education embodies a variety of academic specialties. Many physical educators in higher education focus their scholarly activities within a domain that is anchored in either the behavioral, biological, physical, or social sciences, or historical, pedagogical, philosophical, or professional studies. While some physical educators consider themselves generalists, the sophistication within each of the areas of academic emphasis encourages specialization for the production of high quality scholarly work. Professional organizations and publications devoted to specific areas of study support specialization within physical education. The academic specialties with which scholars identify are most evident in the research activites in which they are involved. Dissertation research follows a similar pattern.

A fundamental condition that exists in physical education in higher education is its dual orientation as a profession and/or a discipline. Individuals in the field consider themselves to be practitioners and/or researchers to varying degrees. There are historical foundations to this duality; the field has been associated to a greater or lesser degree at different times with education or science. One indicator of this dual orientation is that both Doctor of Education and Doctor of Philosophy degrees are awarded in physical education, as well as Doctor

of Physical Education and Doctor of Arts. Because of the nature of the dual focus, Doctor of Education or Doctor of Physical Education degree recipients generally identify with different academic specialties than individuals who earn Doctor of Philosophy degrees.

Research in physical education is diverse in terms of the variety of research strategies that are used. The research strategy is often determined by the nature of the problem under investigation, or it may be selected because of the researcher's resources, experience, preference, convenience, or tradition. Some strategies are more appropriate for research within particular academic specialties than others. The different emphases in the occupational activities of the practitioner and the researcher tend to influence the research strategies used in research conducted for the various doctoral degrees. The practitioner is more likely to use a strategy appropriate for an applied setting, while the discipline-based researcher is more likely to use a strategy that is not affected by the limitations of particular settings.

Physical education in higher education is similar to other academic units in that different levels of prestige are accorded to different programs. Impressions of prestige could be generated by factors such as the number of graduates, the academic specialties of the faculty in the program, the kind of research that is done, or the degrees awarded in the program. The prestige associated with each aspect of doctoral programs can vary in terms of both range and importance. It is possible that impressions of prestige are generated by any one of these factors,

or a combination of factors.

An additional factor in doctoral study in physical education is the role of the dissertation advisor. Doctoral study often entails the association of a doctoral student with one, or perhaps two, faculty members who guide the student's culminating research project. An advisor's academic specialty tends to attract students to a doctoral program who are interested in that specialty. Dissertation advisors often gain recognition after guiding the research of a number of students who become active and recognized in the field. Both the number of dissertations and the academic specialties reflected in the dissertations which advisors guide may contribute to the prestige of the doctoral programs with which they are affiliated.

The research project documented in this report was designed to explore the empirical dimensions of doctoral dissertation research in physical education. While limited to five selected characteristics--academic specialties, degrees, research strategies, prestige, and dissertation advisors--the project included virtually all of the dissertations written in physical education between 1964 and 1983. This approach to investigating the doctoral dissertation research established a solid base of information about the dissertations, which, in turn, was used to make inferences about the nature of the field as a whole.

Statement of the Problem

The purpose of this research project was to examine doctoral dissertations written by students in departments of physical education

in the United States from 1964 through 1983 in order to answer the following questions:

1. Which academic specialties of physical education were reflected in the dissertation research? What proportion of the dissertations reflected each of the academic specialties? Did these proportions change from 1964 to 1983?

2. For which doctoral degrees were the dissertations written? What proportion of the dissertations were written for each degree? Did these proportions change from 1964 to 1983? Which academic specialties were reflected in the dissertations written for each degree?

3. Which research strategies were used in the dissertation research? What proportion of the dissertations used each of the research strategies? Did these proportions change from 1964 to 1983? Which research strategies were used in dissertations that reflected the different academic specialties? Which research strategies were used in dissertations written for the different degrees?

4. How many degrees were awarded in physical education doctoral programs with different prestige levels? Which academic specialties were reflected in dissertations written in doctoral programs with different levels of prestige? Which research strategies were used in the dissertation research in programs with different levels of prestige? Which degrees were awarded in programs with different levels of prestige?

5. Who were the advisors for the dissertation research? How many dissertations did each advisor guide? Who were the most prolific advisors? What were the academic specialties reflected in the dissertations they guided? What were the prestige levels of the programs with which the most prolific advisors were affiliated?

Definition of Terms

The following terms were given specific definitions for use in the research project:

Academic specialty. The area of specialization within physical education reflected in the dissertation research. The academic specialties were defined to be the eight specialties proposed by Zeigler (1982, 1983):

1. Background, Meaning, and Significance: Historical and philosophical dimensions of sport and physical education, including comparative aspects.

2. Functional Effects of Physical Activity: Anatomical and physiological adaptations to exercise, including health-related aspects.

3. Management Theory and Practice: Organization, administration, and supervision of sport and physical education.

4. Measurement and Evaluation: Characteristics of tests, evaluation instruments, and measurement procedures in sport and physical education, including test construction.

5. Mechanical and Muscular Analysis of Motor Skills: Effects of physical structure on movement, including biomechanics and neuroskeletal musculature.

6. Motor Learning and Development: Dynamics of developmental and non-developmental motor skill acquisition, including physical growth and neural control.

7. Program Development: Sport and physical education curricula and instructional strategies, including general education, teacher preparation, recreation, and athletics.

8. Sociocultural and Behavioral Aspects: Social, cultural, and psychological dimensions of sport and physical education, including political and economic aspects.

Prestige. A subjective impression of status in a hierarchy, including elements of quality, esteem and visibility. Prestige was defined as the physical education doctoral program prestige rankings generated by Massengale (1981). Prestige ranks were applied to institutions without reference to multiple programs within institutions.

Research strategy. The primary characteristics of the process by which the dissertation research was conducted. The research strategies were defined to be seven of the nine strategies proposed by Isaac and Michael (1981), and two additional strategies:

1. Action Research: Development of new approaches or skills for solution of problems in the setting where the problems exist.

2. Case and Field Studies: Intensive, in-depth, comprehensive study of a single individual or social unit.

3. Causal-Comparative Research: Investigation of cause and effect relationships where independent variables already exist and cannot be manipulated.

4. Descriptive Research: Systematic description of the characteristics of a given domain which provides an overview of that domain.

5. Historical Research: Reconstruction of the past based on verified evidence, focusing on specifics of time, location, person, and event.

6. Philosophical Research: Examination of theoretical constructs in order to understand the nature of the constructs, relying on abstraction and systematic analysis.

7. Product Development: Development of a product or procedure for use in specified types of settings.

8. Quasi-Experimental Research: Investigation of cause and effect relationships by assessing the effects of an intervention, where control and/or manipulation of all relevant variables is not possible.

9. True Experimental Research: Investigation of cause and effect relationships by assessing the effects of an intervention while controlling and/or manipulating all relevant variables.

Scope of the Research Project

This research project was conducted within the following boundaries:

1. Only dissertations listed in Dissertation Abstracts International, Completed Research in Health, Physical Education and Recreation, or American Doctoral Dissertations were examined.

2. Only dissertations written for degrees awarded between 1964 and 1983 (inclusive) were examined.

3. Only dissertations in physical education written at universities in the United States were examined.

4. All dissertations whose content did not include specific reference to physical education, physical activity, sport, or exercise were eliminated from the analyses.

Basic Assumptions

The following assumptions were acknowledged to underlie the research project and were not examined as a part of the investigation:

1. Bibliographic information in the indexes was accurate.

2. The abstracts accurately reported the nature of the dissertation research.

3. The use of different classification paradigms and/or different operationalization of classification paradigms could have produced

different results.

4. Accuracy of coding may have been affected by theoretical biases, professional experience, and fatigue of the principal investigator.

Significance of the Research Project

The legitimacy of the membership of physical education in the academic commmunity has been challenged throughout its history. These challenges have come from within and outside the field, on both conceptual and practical levels. Whether the impetus was intellectual curiosity or administrative peril, physical educators in higher education have examined and re-examined the nature of their own endeavors. One recurring theme in these analyses has been the question of whether physical education is an academic discipline with a primary research orientation or a profession with a primary service orientation (Brooks, 1981; Henry, 1964, 1978; Kroll, 1982; Locke, 1977).

The discipline-profession controversy has particular implications for the role of research in physical education in higher education. If the arguments that physical education is an academic discipline are accepted, then research would have priority over service in the field. On the other hand, if physical education is acknowledged to be a profession, then service would have priority over research. The dilemma has yet to be resolved. In reality, physical education manifests both disciplinary and professional elements and is not exclusively one or the other. However, the overriding argument that research is an essential element of any academic unit within higher education makes the

declaration of physical education as an academic discipline more attractive for survival in the academic arena.

Thus, the motivation for strengthening the status of physical education as an academic discipline has direct implications for the research enterprise in the field. If movement towards a discipline were to occur, there would be more research in the disciplinary academic specialties and less in the applied specialties, more students would earn Doctor of Philosophy rather than Doctor of Education degrees, and more rigorous research strategies would be utilized. However, the dearth of information regarding the actual nature of the research in the field makes it difficult to determine whether the research reflects the field's possible movement towards status as a discipline. This research project generated information that made such analyses possible.

While the research component of physical education in higher education has received little empirical attention, other aspects of graduate level physical education have been assessed. Factors such as program requirements (Cullum, 1972), prestige (Baker, 1980), faculty mobility (Crase, 1971; Massengale & Sage, 1982; Sage & Massengale, 1985), evaluation of doctoral programs (Brasher, 1979; Piper, 1969), specialization (Fallon, 1970; Knight, 1975, Resick, 1967), research productivity (Sutton, 1979), and personnel availability (Killorn, 1984; Perry & Milner, 1979) have been examined. The information about dissertation research generated in this project complements such analyses and adds to the overall knowledge about graduate level physical education.

The results of this research project describe the status of dissertation research in physical education over a 20-year period. The information generated also suggests trends in physical education in higher education as a whole. Identification of these trends may aid in describing the status of physical education within the academic community and its future as a field of study.

Summary

Doctoral dissertations in physical education reflect the academic specialties, the different doctoral degree emphases, and the research strategies used in the field. Doctoral program prestige and the role of the dissertation advisor are also aspects of the process and product of doctoral study. The research project documented in this report was designed to describe these five characteristics of doctoral dissertations written by students in departments of physical education in the United States from 1964 through 1983. Five sets of specific questions were posed to guide the project. Selected terms were defined, and the scope and basic assumptions of the research project were established. The results of the research project contribute to the body of knowledge about doctoral dissertations in physical education and support inferences about graduate study in the field.

CHAPTER II

CONTEXTUAL CONSIDERATIONS

The research project documented in this report was designed to describe selected characteristics of doctoral dissertations written by students in departments of physical education in the United States from 1964 through 1983. The project was designed and the results were interpreted in light of both the existing body of knowledge about doctoral dissertations in physical education and the available social scientific research methodology. This chapter first describes the knowledge base relevant to various aspects of doctoral dissertations in physical education: (a) the historical context, (b) the nature of academic specialties, (c) the degrees granted, (d) the nature of the research strategies utilized, (e) doctoral program prestige, and (f) the role of the dissertation advisor. It then describes the nature of the research strategy that was selected for the conduct of the project, including (a) the nature of the research problem, (b) characteristics of content analysis, and (c) related applications of content analysis.

Doctoral Study in Physical Education

Historical context. Doctoral programs in physical education in the United States developed following the maturation of undergraduate and masters level programs. The first undergraduate programs appeared in the 1870s and masters programs began just after the turn of the century. The first doctoral program in physical education was at Teachers College, Columbia University, which granted the first doctoral degree in physical education in 1926 (Kroll, 1982). Since that time, the number

of institutions with doctoral level physical education programs has grown to nearly 60 (Conley, 1985). Between 1926 and 1964, the number of doctoral graduates increased from a handful to more than 100 per year. By 1968, more than 200 degrees were awarded each year; the number of doctoral graduates peaked in the mid-1970s when nearly 300 degrees were awarded annually (National Center for Education Statistics, 1976, 1977, 1978, 1979, 1980, 1981, 1982, 1983; National Center for Educational Statistics, 1966, 1968, 1969, 1972, 1974).

A controversy that persisted throughout most of the history of doctoral study in physical education is whether the field is or should be an academic discipline or a profession. The first doctoral programs in physical education were primarily professional, i.e., oriented towards a service function. A disciplinary, research orientation was secondary, owing to their derivation from teacher education programs (Kroll, 1982). While discipline-based research was conducted throughout the early development of doctoral study in physical education, the quality and quantity were not outstanding. By the beginning of the 1960s, leaders in the field and outside observers both saw fit to comment on the calibre of advanced study and research in physical education (Conant, 1963; Daniels, 1965; Henry, 1960; Staley, 1961).

In an address to the 1964 annual meeting of the National College Physical Education Association for Men, Franklin Henry made a plea for physical education to become an academic discipline. He argued that physical education possesses the necessary characterstics of a discipline, i.e., an organized body of knowledge and a scholarly rather

than practical orientation. Therefore, it should achieve the status of an academic discipline (Henry, 1964). Although Henry's argument received widespread support, some physical educators countered that the identity of physical education is essentially professional, and status as an academic discipline obscures the principal mission of the field (Kroll, 1965; Locke, 1969, 1977; O'Hanlon & Wandzilak, 1980). Still others have claimed that it is neither a profession nor an academic discipline (Bressan, 1978; Locke & Siedentop, 1980; Morford, 1972; Ross, 1978). The argument persists into the 1980s (Bressan, 1982; Broekoff, 1982; Harris, 1981; Sage, 1984); no universal agreements have been reached.

Doctoral programs in physical education have been one arena in which the discipline-profession controversy has been played out. In the 1960s, several authors (Esslinger, 1966; Fraleigh, 1966; Teeple, 1969; VanDalen, 1968) remarked that graduate study could no longer be merely an extension of undergraduate study; there was a need to prepare competent researchers. Lawson (1976) and Zeigler (1978) presented paradigms for graduate study that reflected both disciplinary and professional elements. Bennett (1978), Eyler (1978), and Harper (1980) commented on some of the intangible implications for doctoral study, e.g., the need for exposure to more than just the area of specialization, the need for flexibility of programs, and the need for time for discovery.

Academic specialties. The field of physical education in higher education today encompasses a diverse range of disciplinary and

professional perspectives. Although human movement is generally acknowledged to be the object of attention, a discrete body of knowledge has developed for many of the different perspectives from which human movement phenomena can be viewed. Specialization within physical education is reflected in doctoral curricula; doctoral programs in physical education differ in both the range and the definition of what constitutes a specialized curriculum. While there is little question that academic specialization does exist, the proper classification and/or nomenclature of these specializations is debatable.

Cullum (1972) identified 17 major areas of study offered in 45 doctoral programs; Knight (1975) used a different classification scheme and found these same 45 programs to have 14 disciplinary and 9 professional areas of specialization. Immorlica and Hall (1977) limited their investigation to 10 programs and found 22 subject matter options; Perry and Milner (1979) categorized doctoral graduates into 13 specializations within physical education. Also, the American Association for Health, Physical Education, and Recreation (1967) identified nine areas for graduate specialization within physical education.

Specializations within physical education were also operationalized in the structure of organizations. The American Association for Health, Physical Education and Recreation Kinesiology Council divided its activities among five areas of study (Barham, 1966); the Big Ten Body of Knowledge Project worked on the basis of six specialization areas (Zeigler & McCristal, 1967). The National Association for Sport and

Physical Education currently sponsors 11 professional councils and 10 disciplinary academies (Kilby, 1985). Also, the Research Quarterly for Exercise and Sport, the major research publication in the field, has different editors responsible for each of 14 specialty areas (Park, 1980). The tendency towards partitioning and the lack of consistency in the identification of academic specialties in physical education suggest a lack of consensus about the identity of the field.

Theoretical analyses of specialization within physical education have produced as much diversity as the empirical analyses. Works by Brown (1967), Fraleigh (1967), Kenyon (1968), Brooke and Whiting (1973), Haag (1979), Lawson and Morford (1979), Ross (1981), and Zeigler (1979, 1983) represent the efforts to develop an appropriate classification paradigm for the specializations in the field. However, while some general strategies are consistent among the authors, e.g., differentiating between social and physical sciences, there is little consensus on the specifics of classification.

Several authors (Bressan, 1983; Fraleigh, 1981; Hoffman, 1985; Park, 1981) noted a trend towards increasing specialization within physical education in higher education. Although empirical evidence is available that confirms the existence of academic specialization in the field, the degree to which specialization has increased in the last 20 years is not only a quantitative question. These authors were concerned with both the behavioral and attitudinal effects of specialization as well as the numbers of physical educators who consider themselves specialists in an academic area. This trend appears to have both

positive and negative effects on the field. On the one hand, higher quality research can be conducted when the researcher can develop expertise within a limited area, while increasing specialization also inhibits communication between specialists in different areas. It was also suggested that this increasing specialization may lead to the disintegration/elimination of physical education in higher education. Increasing specialization may bring with it increasing identification with parent disciplines; identification with physical education may become unnecessary and even inappropriate.

Doctoral degrees. A variety of doctoral degrees are awarded in the field of physical education. While a comprehensive listing of doctoral degree programs does not currently exist, examination of documents such as the NASPE Directory of Graduate Programs (1982) and Peterson's Guide (Conley, 1985) reveals that at least four doctoral degrees are awarded in physical education: Doctor of Arts, Doctor of Education, Doctor of Philosophy, and Doctor of Physical Education. All of these degrees would be classified as research degrees, as opposed to non-research doctorates (such as the MD), in that some sort of research project is required (Schweitzer, 1965).

General characteristics of the different degrees can be described, although the specific program objectives and curricula for each degree are unique. The Doctor of Arts degree is oriented towards the preparation of college and university teachers, and recipients of the Doctor of Arts degree tend to be generalists rather than specialists (Dear, 1977). The Doctor of Education degree is oriented towards

professional practice and leadership; it may be more practical than theoretical (Ashton, 1965). The Doctor of Philosophy degree is directed toward developing the ability to do original research in a specialized field (Schweitzer, 1965). Finally, the aim of Doctor of Physical Education degree is to produce professional physical educators with a strong service orientation (Springfield College, 1980). The objectives of the Doctor of Physical Education and Doctor of Arts degrees appear to be similar. Also, Ashton (1965) and Schweitzer (1965) both noted that it is often impossible to distinguish Doctor of Education and Doctor of Philosophy curricula and dissertations from each other.

In terms of specific degree structures in physical education, Cullum (1972) and Knight (1975) both determined that of 45 doctoral programs in the United States, 16 offered only Doctor of Education degrees, 12 offered only Doctor of Philosophy degrees, 15 offered both Doctor of Education and Doctor of Philosophy degrees, and 2 offered Doctor of Physical Education degrees, one with the Doctor of Philosophy degree and one the Doctor of Physical Education degree exclusively. Resick reported in 1967 that the most common difference between Doctor of Education and Doctor of Philosophy programs in physical education was the absence of a language requirement in the Doctor of Education. Investigations by Crase (1971) and Massengale and Sage (1982) found that more physical educators in higher education hold Doctor of Philosophy than Doctor of Education degrees. Crase reported approximately 20% more Doctor of Philosophy than Doctor of Education degrees for 1968-69 doctoral graduates; Massengale and Sage found almost twice as many Doctor of Philosophy degrees than Doctor of Education for 795 doctoral

program faculty members.

Research strategies. The research strategies used in physical education doctoral dissertation research are as diverse as the specialized content areas in which the research is conducted. The many perspectives from which human movement phenomena can be studied require a wide range of modes of inquiry. Research strategies traditionally used in the physical sciences, the social sciences, analytical disciplines, and creative arts could all be appropriate for research in physical education. Physical educators have discussed the relative merits of specific research strategies for use in the field (Beamish, 1981; Harper, 1973; Harris, 1983; Pelton, 1981; Silva & Parkhouse, 1982; Thomas, 1973). There has also been considerable discussion of the appropriateness of basic and applied research in physical education (Lawson, 1981; Locke, 1969; Razor, 1970; Rothstein, 1973; Stadulis, 1973). However, the basic vs. applied issue reflects more on the nature of the question under investigation than the research strategy used to answer the question.

Most overviews of research strategies used in physical education which could be employed as classification paradigms are found in the organization of research methods textbooks in physical education. The necessity for organizing a textbook in a rational manner has produced paradigms that are functional but deficient in terms of an underlying theoretical framework. Other popular paradigms for classification of research that stem from a narrow scholarly perspective, e.g., Hill and Kerber (1967), Isaac and Michael (1981), Runkel and McGrath (1972) do

not adequately represent physical education research strategies. One of the more complete classification paradigms for physical education research was presented by Thomas and Nelson (1985). It included four basic types of research (analytical, descriptive, experimental, and creative), with several specific strategies under each broad area.

Empirical analyses of the research strategies used in physical education are rare. A comprehensive study was reported by Cureton (1949), who analyzed the research strategies used in 416 doctoral dissertations completed between 1930 and 1946. Of the 11 types of research strategies studied, the most common technique used was "analytical survey and measurement." Although the data were not subjected to a summary analysis, the research materials reported in Volumes 1-4 of the Health, Physical Education and Recreation Microforms Publications Bulletins were all classified under some 27 research methods headings. The paucity of both theoretical and empirical analyses of physical education research may be symptomatic of the uncertain identity of the field. It may not be possible to develop a firm understanding of the nature of the research strategies used in physical education until consensus is reached on the nature of the field as a whole.

Doctoral program prestige. In his classic work on American graduate education, Berelson (1960) described prestige hierarchies of graduate programs that exist in many fields of study. The notion of prestige, as one dimension of the broader sociological concept of stratification, is based upon evaluations which members of the social

organization make of one another. The notion of quality is similar to prestige, but prestige tends to be generated by a combination of judgments of specific quality indicators and is therefore less empirically bound (Broom & Selznick, 1979).

Analyses of both prestige and quality of doctoral programs in the field of physical education in higher education have been reported. Baker (1980) surveyed Active Fellows of the American Academy of Physical Education and directors of graduate study to develop quality rankings for 60 physical education doctoral programs. Six specific program criteria were evaluated as well as a rating of overall quality. Massengale (1981) asked members of the National Association for Sport and Physical Education to rate the quality of the graduate faculty and the effectiveness of the doctoral training program for 58 doctoral programs. The subjective ratings obtained by these two investigators were very similar; Massengale and Sage (1982) reported a correlation of .91 between the two sets of ratings.

Several investigators developed prestige ratings based on the objective criteria of publication and citation rates, reasoning that faculty productivity is a major component of program prestige. Kroll (1982) analyzed publication rates in the Research Quarterly from 1930-1979 by both program and individual faculty member. Hasbrook and Loy (cited in Hasbrook & Loy, 1983) analyzed publication and citation rates in selected specialized journals for schools in Baker's (1980) top 20 list. Also, Massengale (cited in Hasbrook & Loy, 1983) examined faculty productivity in terms of publication of books, publications in

Research Quarterly, and presentations at AAHPERD conventions. Hasbrook and Loy (1983) found that the three sets of objective indicators were highly correlated, and that they were more closely related to each other than with the subjective ratings obtained by Baker (1980) and Massengale (1981).

The role of the dissertation advisor. One of the functions of the doctoral dissertation is to stand as evidence that the student has the ability to do independent research and is ready to embark on a career of which research is an integral part (Boyer, 1973). However, no dissertation is a totally independent piece of work; a dissertation advisor plays a role in the dissertation process. The nature of this role may be institutionally defined or may be defined by the particular student-faculty relationship. VanDalen (1968) and Gutin (1972) suggested that the doctoral student-dissertation advisor relationship is analagous to the apprentice-master workman relationship in which the student learns the trade, research, under the advisor's guidance. Other physical educators have characterized the role relationship as both modeling and colleagueship (Siedentop, 1976). At best, a dissertation advisor could be a true mentor--occupying a superior position, an authority in the field, influential, interested in the student's growth and development, and willing to commit time and emotion to the relationship (Collins, 1983).

In two parallel studies, Montoye and Washburn (1979, 1980) outlined "academic genealogies," i.e., doctoral student-dissertation advisor lines of descent for American Academy of Physical Education members and

contributors to the Research Quarterly, respectively. It was found that for both groups, advisors with large progenies tended to be at large universities, served in non-administrative roles, and rarely changed university affiliation. The extent to which dissertation advisors actually are the primary motivating forces in the lives of young professionals is unknown; the nature of the doctoral student-dissertation advisor relationship in physical education has yet to receive empirical attention.

Content Analysis Research Strategy

The nature of the research problem. The nature of the research project documented in this report was essentially descriptive, i.e., the objective was to answer questions about dissertation research in physical education which were empirically verifiable, non-causal, and concerned with a small set of characteristics of a large population. The phenomena of interest were doctoral dissertations in physical education, which could be accessed in two ways: by a survey of the dissertation authors or an analysis of the documents themselves. A survey research strategy would bring the dissertation authors' diverse perceptions of their work into the process, whereas documentary analysis would be restricted to a single perception, albeit that of the principal investigator. Both strategies could produce valid findings, but analysis of the documents themselves would produce more reliable findings. Accordingly, content analysis was deemed to be the most appropriate research strategy for this project.

Content analysis methodology. The research strategy of content

analysis was developed and is most frequently applied in communication research. Although many definitions have been presented, Krippendorff's definition is simple and complete: "Content analysis is a research technique for making replicable and valid inferences from data to their context" (1980, p. 21). Holsti (1968) presented a concise analysis of trends in content analysis research, which include a general increase in the use of content analysis, application to a wider range of problems, and a greater diversity in the materials studied.

The basic content analysis research design contains four primary components: (a) data making, (b) data reduction, (c) inference, and (d) analysis. Data making is further broken down into three elements. The first element in the data-making component is unitizing, i.e., distinguishing and separating the phenomena of interest into discrete units of analysis. Second, data may be sampled to reduce a large volume of potential data to a manageable amount. The third element in data making is recording, in which trained observers follow specific recording instructions and assign established codes to the data according to specific category definitions. The second primary component, data reduction, is simply shaping the data into a form in which it can be analyzed. The inference component is where the theoretical framework underlying the data-context relationship is operationalized, i.e., a model for the relationship between the data as independent variables and the context as the dependent variable is established. The fourth component, analysis, is the identification of patterns in the data. This may involve statistical analysis or may be more casual. Three additional steps may supplement the basic design,

depending on the nature of the research problem: (a) direct validation of the results, (b) testing for agreement with other methods, and (c) testing hypotheses regarding other data (Krippendorff, 1980).

Related applications of content analysis. Content analysis has been used by several authors in physical education and related areas. Four investigations have been reported which analyzed various dimensions of the contents of professional journals: VanDoren and Heit (1973) studied the Journal of Leisure Research; Martin (1974) analyzed published therapeutic recreation research; Groves, Heekin, and Banks (1978) examined the International Journal of Sport Psychology; and Frazer (1983) studied published research in health education related journals. Two analyses of sport in the popular press have been reported; Reid and Soley (1979) examined Sports Illustrated and Anderson (1983) studied a variety of daily newspapers. Also, Hildreth (1979) content analyzed elementary physical education textbooks with reference to sexism, and King and Baker (1982) classified research abstracts regarding the teaching of physical education. Although some studies may not meet the strict requirements of content analysis methodology, many additional published and unpublished studies in physical education and related areas have utilized research strategies based on the content analysis model.

Other fields in which the nature of the research of the field has been examined through content analysis include education (Dillon, 1983; Summers, 1981; West & Robinson, 1980; West, Carmody & Stallings, 1983), psychology (Higbee, Millard & Folkman, 1982; Potter, 1981; Smith &

Schroeder, 1980; Tedeschi, Gaes, Riordan, & Quigley-Fernandez, 1981), and sociology (Stern, 1980; Szreter, 1983). The variety of fields in which content analysis was used in examination of research suggests that content analysis is an appropriate methodology for the exploration of dissertation research in physical education.

Summary. The context in which the research project exists is defined by several elements of the body of knowledge about doctoral study in physical education, including the historical development of doctoral study in the field, the nature and significance of specialization, the characteristics of the doctoral degrees that may be earned, the limited information about the research strategies used in physical education research, factors related to doctoral program prestige, and the relatively unexplored role of the dissertation advisor. Content analysis methodology defines the procedural context for the research project, in terms of its overall appropriateness for addressing the research questions, the fact that other dimensions of sport and physical education have been studied in this manner, and that similar analyses of research have been done in many other fields.

CHAPTER III

PROCEDURES

The research project documented in this report was designed and the results were interpreted in light of both the existing body of knowledge about doctoral dissertations in physical education and the appropriate social science research methodology. The objective elements of the dissertations which were examined were (a) the degree that was earned; (b) the year in which the degree was earned; (c) the college or university where the degree was earned; (d) the advisor of the dissertation author; and (e) the prestige ranking of the physical education doctoral program in which the degree was earned. The academic specialty reflected in the dissertation and the primary research strategy employed were the subjective elements that were studied. This chapter describes the procedures that were used to identify the population of dissertations, to gather the objective data for each dissertation, and to generate the subjective data for each dissertation.

Identifying the Population of Dissertations

General strategy. Three documentary sources were used to identify the dissertations to be studied: (a) Dissertation Abstracts International, (b) Completed Research in Health, Physical Education, and Recreation, and (c) American Doctoral Dissertations. Nearly all of the listings in Dissertation Abstracts were abstracts; listings in Completed Research were both abstracts and titles only; listings in American Doctoral Dissertations were titles only. Abstracts in the "Physical Education" section of Dissertation Abstracts were established as the

primary listings. Dissertations listed in Completed Research and American Doctoral Dissertations were successively matched against the primary Dissertation Abstracts listings to ensure that the final population of dissertations consisted of unique listings. The specific procedures by which the population of dissertations was identified are described below.

Dissertation Abstracts. Beginning with Volume 24 Number 1 (July 1963) through Volume 45 Number 12 (June 1985) of Dissertation Abstracts International (DAI), all abstracts under the "Physical Education" heading were examined. All abstracts with completion dates of 1964-1983 (inclusive) were identified and entered into the DAI working data set. Two abstracts had two authors; these were treated as two separate entries. There were two listings for which no abstract was available; these were not included in the working data set but were retained for future verification. The preliminary DAI working data set contained 4366 entries. Fifteen entries from foreign institutions were deleted from the working data set. Nine entries for which the degree earned was Doctor of Health and Safety (HSD) or Doctor of Recreation (RED) were also deleted. These deletions reduced the size of the DAI working data set to 4342 entries.

Seven elements of each abstract were entered into the computer file: (a) author's name, (b) brief dissertation title, (c) institution awarding degree, (d) year degree conferred, (e) degree, (f) advisor(s), if listed, and (g) reference citation information. The file was structured so that it could be sorted according to any one element or a

combination of elements.

Completed Research. Beginning with Volume 7 (covering 1963-1964) through Volume 26 (covering 1983) of Completed Research in Health, Physical Education, and Recreation (CRE), each listing in the thesis and dissertation section which was either for a doctoral degree or for which a degree was not indicated was identified. Listings with completion dates prior to 1964 or after 1983 were disregarded. The identified listings were compared to the DAI working file which had been alpha-sorted by author. Completed Research listings which matched an entry in the DAI working file were eliminated. A total of 1585 listings were found in Completed Research which did not duplicate a Dissertation Abstracts entry; these were entered into the CRE working data set.

From the working data set of 1585 entries, 101 entries from foreign institutions and 165 entries for which the degree was HSD or RED were deleted. It was found that some entries were listed in more than one volume of Completed Research; 36 duplicate or triplicate entries were deleted. Also, 329 entries for which the major field of study was specified as health education, recreation, or dance (or related terms; see Appendix A) were deleted from the CRE working file. A total of 954 entries remained.

The CRE working file of 954 entries was alpha-sorted by author and matched against the Cumulative Author Indices to Dissertation Abstracts. Entries which matched by author indicated that either the abstract appeared in a section of Dissertation Abstracts other than "Physical Education" or that no abstract was available. Entries which were not

verified on either basis were matched against the topical key-word indices to Dissertation Abstracts to discover possible name changes and/or typographical errors. Fourteen of the 954 entries were found to match a DAI "Physical Education" entry with a variant name and/or name spelling and were deleted. Also, 77 entries which had been included because no degree was given in the CRE listing and for which no degree was discovered through the matching process were deleted. A total of 863 entries remained.

Completed Research entries for which abstracts were found in sections other than "Physical Education" in Dissertation Abstracts were identified and the Dissertation Abstracts citation information was recorded. Entries which were confirmed by author but for which no abstract was available were moved into a separate file. Through this process, 583 of the 863 CRE entries were found to have corresponding abstracts in Dissertation Abstracts. The 583 Completed Research/Dissertation Abstracts abstracts were assembled and reviewed. One abstract was for a Doctor of Public Health (DPH) degree and one was for a RED degree; these entries were deleted from the CRE working file. Two entries with completion dates of 1984 were also deleted. Two of the CRE/DAI entries had no abstract available; these entries were moved to the non-match file. Thus, of 859 legitimate entries in Completed Research which did not appear in the "Physical Education" section of Dissertation Abstracts, 579 had abstracts in other sections of Dissertation Abstracts and 280 did not.

American Doctoral Dissertations. Beginning with the 1963-1964

edition of American Doctoral Dissertations (ADD) through the 1983-1984 edition, all listings under the "Physical Education" heading were examined. The ADD listings were compared to an alpha-sort by author of the preliminary (4366 entry) DAI working file. A total of 633 American Doctoral Dissertations listings were found that did not have a corresponding Dissertation Abstracts "Physical Education" entry; these were entered into the ADD working data set. From the working data set, one entry for which the degree was HSD and 118 entries from foreign institutions were deleted. Entries from the 1963-1964 edition were verified in the Author Index to Dissertation Abstracts and 32 entries for which the completion year was 1963 were identified. The 1963-1964 entries were also verified in the Health, Physical Education, and Recreation Microforms Bulletin (Volume 1) and five additional 1963 entries were identified. The 37 pre-1964 entries were deleted from the ADD working file, leaving 477 entries.

The 477 entries in the ADD working file were alpha-sorted by author and compared to an alpha-sort by author of the preliminary (1497 entry) CRE working file. A total of 334 matching entries were found and were deleted from the ADD working file. The remaining 143 entries were matched against the Cumulative Author Indices to Dissertation Abstracts. Eighty-two entries were found to have corresponding abstracts in Dissertation Abstracts in sections other than "Physical Education," and 61 did not.

Summary. A total of 5344 doctoral dissertations completed in the United States between 1964 and 1983 were identified. Of these, 4342

were listed in the "Physical Education" section of Dissertation Abstracts, 661 were in other sections of Dissertation Abstracts (targeted by entries in Completed Research or American Doctoral Dissertations), 280 were only in Completed Research, and 61 were listed only in American Doctoral Dissertations. A master data file was created which included the data elements available for each of the 5344 entries.

Gathering of Objective Data

General strategy. Four of the five objective elements to be analyzed for each dissertation, i.e., degree, year, college or university, and dissertation advisor, were obtained directly from the citation information listed in the abstract. The fifth objective element, i.e., doctoral program prestige, was obtained from an external source. Procedures were established for handling missing or inconsistent information for each element. In general, information presented in Dissertation Abstracts was taken to be correct; Completed Research and American Doctoral Dissertations entries were edited to reflect the DAI standard as the listings were identified and matched. The specific procedures which were used to edit the data within each element are described below.

Degrees. Dissertations which were listed in American Doctoral Dissertations prior to 1972 did not have degrees listed with the entries. The dissertations in this group were verified in the Health, Physical Education and Recreation Microform Publications Bulletin to determine the correct degree. If a degree could not be determined, it was recorded as UNKNOWN. Degrees which were listed as DED were treated

as EDD degrees, and PED degrees were treated as DPE degrees.

Years. American Doctoral Dissertations listings prior to 1972 did not specify the year the degree was awarded. These data were obtained from the Cumulative Author Indices to Dissertation Abstracts when available. In other cases, the latter year of the two-year period covered in the ADD volume in which the dissertation was listed was recorded as the year the degree was awarded. There were several cases in which two years were listed in a single entry, i.e., year degree requirements completed and year degree awarded. In such cases, the year the degree was awarded was recorded.

College or university. The college or university data were edited to accommodate university name changes and identification of a university within a multi-campus system. The names of two schools were changed within the time period in question. These name changes were verified in American Universities and Colleges (American Council on Education, 1983) and the computer file was edited to include the more recent name. Also, several universities which were parts of multi-campus systems were listed both with and without the campus location. All cases in which a campus location was listed were verified in American Colleges and Universities. "Main" campuses were recorded in the computer file without the location unless it was necessary to differentiate between campuses in the same system.

Dissertation advisors. The initial editing of the dissertation advisor data was done as Completed Research listings were matched against Dissertation Abstracts entries. If a advisor was given in the

CRE listing but was missing in the DAI file, the advisor was edited into the DAI file. After the "missing" advisors were added to the file, 4626 of the 5344 entries in the master file listed one or more advisors. Advisors' names were listed in a variety of ways, e.g., last name only, last name and one initial, last name and first name. The advisor listings were edited so that an advisor's name appeared in the same form each time it was listed. The procedures listed below guided the editing process.

1. The master data file was alpha-sorted using advisor as the primary sort field and school as the secondary sort field. All entries with the same advisor last name but different combinations of intitals and/or first names were listed consecutively. The secondary sort by school ordered the entries within the same advisor name by school, if necessary.

2. Within entries with the same last name, initials were expanded to full names if the initial(s) matched the first letter of the name(s) listed in a contiguous entry and all entries involved listed the same school.

3. If a first name could not be generated in this manner, the advisor's name was verified in an appropriate edition of the National Faculty Directory. The Directory for the year corresponding to that of the most recent entry for that advisor was examined. If a full name matched both initials and school, and was from an appropriate department, this was accepted as the full name. If such a match was not found, earlier and later editions of the Directory were searched

until either a match was found or until it was apparent that the information was not available. Additional matches were found by searching the membership rosters in the Proceedings of the Annual Meetings of the National College Physical Education Association for Men. Names of six advisors were confirmed in one of the sources but were only listed with last name and initials; these were retained in that form.

4. The National Faculty Directory was also used to verify advisor names which appeared with more than one school. First, the years listed for the entries involved were examined for temporal overlap to establish that it was possible that the advisor changed universities. Next, Directories were searched both before and after the pivot year to confirm that the advisor name matched listings at the different schools at the different times. If an advisor's move from one university to another was verified in this manner, entries with the same advisor last name but more than one school were edited as if only one school were listed. Listings in the NCPEAM Proceedings membership rosters were also used to verify changes of university affiliation.

5. Three advisors were listed with hyphenated last names, suggesting name changes following marriage. These changes were verified by matching the first name of the hyphenated last name with other entries with that last name. The entries were edited to reflect the later (hyphenated) last name.

6. A total of 168 entries listed two advisors, and three entries listed three advisors. The procedures were used to edit the second and third advisor fields were similar to those used for the first advisor field. Working from an alpha-sort by second advisor, names were first edited to match formats in the first advisor field. Names that did not match first advisors were verified in the appropriate National Faculty Directory or NCPEAM Proceedings.

7. There were four advisor last names for which first names could not be discovered, and one for which a change of university could not be verified. These advisors for which last names and initials only were available were retained in that form. The one advisor whose change of university affiliation could not be verified was treated as if the change of affiliation had been verified.

Prestige rankings. The physical education doctoral program prestige rankings developed by Massengale (1981) were adopted as the prestige rankings used in this research project. Program rankings were available for 58 institutions which were identified as awarding 10 or more doctoral degrees in physical education in the past 20 years. Rankings were not available for 61 institutions identified as having awarded degrees; these were coded as missing data.

Generating Subjective Data Elements

General strategy. The academic specialty and research strategy data elements could not be obtained in the same straightforward manner as the objective elements. The subjective nature of these elements

required that procedures be established whereby judgments about the academic specialty and research strategy would be accurate and consistent. The steps taken to generate these data elements were (a) development of preliminary coding paradigms for both academic specialty and research strategy, (b) development of coding instructions for academic specialty and research strategy, (c) refining of category definitions and training of coders, (d) conduct of a final pre-coding reliability check, and (e) coding of the complete set of abstracts.

Development of the academic specialty coding paradigm. The taxonomy of academic specialties presented by Zeigler (1982, 1983) was initially selected as the framework for coding the dissertation abstracts according to the academic specialty each one reflected. Zeigler's taxonomy covered the range of academic specialties represented in the dissertation research, but did not have the clearly defined categories that would meet the rigorous demands of content analysis methodology. The taxonomy was worked into a series of categories and decision rules that would maximize the accuracy and reliability of coding decisions. The following steps were taken to produce the preliminary guidelines for coding academic specialties:

1. Zeigler's two primary presentations of the taxonomy (1982 and 1983) were examined and a single combined classification paradigm was developed.

2. Each of the chapters in Zeigler's 1982 book (one for each academic specialty, each written by a different author) was examined to identify topics considered to fall within the specialties that were

not listed nor implied in the combined classification paradigm. These elements were added to the paradigm under the appropriate headings.

3. A matrix was created in which each specialty was paired with each other specialty, a total of 28 pairs. Each pair of specialties, together with the respective elements from the expanded combined classification paradigm, was displayed in a separate table. This juxtaposition of the specialties brought into focus the indistinct conceptual divisions between some specialties.

4. Sample studies which appeared to be codable in two specialties were arbitrarily selected from the population of studies. The titles were recorded on the table containing the pair of specialties in question. These examples highlighted the specific areas in which boundaries between the specialties were indistinct.

5. The problem areas for each specialty-pair were examined. Decision rules were established by which studies in these problem areas could be consistently coded in one specialty or the other. These decision rules effectively narrowed the original broad definitions of the specialties, and provided the means for distinguishing the categories from each other.

6. Some studies still reflected two specialties even after the decision rules were applied. It was decided that studies of this nature would be coded as reflecting both specialties, and the analysis was adjusted to accommodate these double codes.

7. Criteria whereby studies in non-physical education fields, e.g., health education, recreation, dance, safety education could be identified were also established. Articles in Volumes 1 and 3 of the Encyclopedia of Physical Education, Fitness, and Sports (Bosco & Turner, 1981; Frost, 1977) provided general criteria for the content of these fields. If there was no specific reference to physical activity, physical education, sport, or exercise, the entry was coded as non-physical education.

Development of the research strategy coding paradigm. The taxonomy of research strategies presented by Isaac and Michael (1981) was selected as the basic framework for coding the dissertation abstracts according to the research strategy each one employed. The taxonomy was examined to ensure that the range of research strategies used in the dissertation research was covered. The taxonomy was then worked into a series of categories and decision rules that would maximize the accuracy and reliability of coding decisions. The following steps were taken to produce the preliminary guidelines for coding research strategies:

1. The brief descriptions of the nine research strategies in the taxonomy were recorded as the principal components of the classification paradigm.

2. Each of the expanded descriptions of the research strategies was examined to identify characteristics of the strategies that were not listed in the brief descriptions. These characteristics were added to the paradigm under the appropriate headings.

3. Examination of the expanded classification paradigm revealed that two strategies used in the dissertation research were absent: philosophical research and product development. These two strategies and their characteristics were added to the paradigm.

4. A matrix was created in which each of the 11 research strategies was paired with each other one, totalling 66 pairs. Each pair of research strategies, together with the respective elements from the expanded classification paradigm, were displayed in a separate table.

5. The problem areas for each research strategy pair were examined. It was determined that two of the strategies, i.e., developmental research and correlational research could be deleted from the paradigm. Developmental research would always be classified as one of the other strategies as well; it describes the subject matter of the research more accurately than the research strategy. Correlational research is a subset of descriptive research and would therefore always be classified in both categories; retaining it in the classification paradigm would violate the criterion of mutually exclusive categories.

6. For the remaining 45 research strategy pairs, decision rules were established by which studies in the problem areas could be consistently coded as one research strategy or the other. These decision rules were added to the classification paradigm and were also worked into a matrix decision chart.

Development of coding instructions. Preliminary sets of coding instructions for coding both academic specialty and research strategy were developed to guide the coding process. Instructions were developed from the principal investigator's experience in reviewing the abstracts. The guidelines addressed two principal aspects of the coding process: they specified the order in which the coder would use the various resources to make coding decisions, and they directed the coder's attention to the components of the abstract that were most likely to contain information relevant to coding decisions.

Refinement of category definitions and training of coders. The classification paradigms and coding instructions for both academic specialty and research strategy were revised in a second phase of development. Two additional coders worked with the principal investigator; the coders were advanced doctoral students in physical education who were familiar with the breadth of specialties represented and the range of research strategies used in physical education. The following steps were taken to refine the classification paradigms and coding instructions:

1. The principal investigator met with the coders, explained the objectives of the reliability review, and described the coders' role in the process. The principal investigator gave the coders 15 DAI abstracts (with 1984 dates) and instructed them to try to follow the coding instructions and apply the classification paradigms.

2. The coders met a second time with the principal investigator to review the initial attempt at coding. The principal investigator

also coded the same set of 15 abstracts. The coders agreed that the coding instructions were functional and offered minor editorial corrections. Each of the 15 DAI abstracts was then reviewed; each coder indicated which categories were chosen and how these decisions were made. The principal investigator noted areas which generated disagreements.

3. The principal investigator revised the classification paradigms to clarify the ambiguous areas. At the third meeting, these revisions were explained and sets of revised coding paradigms were distributed. The principal investigator distributed 20 CRE abstracts and 10 CRE listings which were titles only and instructed the coders to use the revised paradigms for coding.

4. The coders met a fourth time with the principal investigator to review this second round of coding. The principal investigator also coded the 30 CRE entries. The coding decisions for each entry were discussed and the principal investigator noted areas that required further clarification.

5. The principal investigator revised the classification paradigms once again, clarifying ambiguous areas which were found in the second round of coding. Sets of revised coding paradigms and a listing of modifications were distributed to the coders. The coders were given 30 entries (10 DAI, 10 CRE, 10 ADD) to code with the revised classification paradigms.

6. The coders met a fifth time with the principal investigator to

review the third round of coding. The principal investigator noted the few areas that were still unclear. These areas were clarified in the third and final set of classification paradigms.

Final pre-coding reliability check. A separate index of inter-rater reliability was established for each of the three types of entries (DAI abstracts, CRE abstracts, ADD titles) for each of the two variables to be coded (academic specialty and research strategy). Three samples of entries were drawn for the purpose of generating indices of inter-rater reliability. Two entries were randomly selected from the preliminary computer listings for each year/volume of each data source: 42 entries for DAI, 38 for CRE, 40 for ADD. These sets of entries were reviewed to determine if all of the eight academic specialty and nine research strategy categories were represented. The sample was considered representative if at least two entries could reasonably or possibly be coded into each of the categories. The DAI and ADD samples met these criteria; the CRE sample did not. Additional entries were randomly drawn from the CRE computer listings until appropriate entries were found which would produce at least two entries for each of the categories. Three entries were added to the sample and three non-essential entries were deleted to create the final CRE sample for the reliability check.

The principal investigator and two reliability coders then independently coded each of the 120 sampled entries for academic specialty and research strategy. Using the method suggested by Krippendorff (1980, pp. 136-139), six reliability coefficients were

calculated. The coefficients obtained were: DAI-Academic Specialty: .93; CRE-Academic Specialty: .89; ADD-Academic Specialty: .85; DAI-Research Strategy: .66; CRE-Research Strategy: .67; ADD-Research Strategy: .63. The reliability coefficients for academic specialty demonstrated that the definitions of the categories for this data element were adequate for coding to be consistent among the three coders. However, the reliability coefficients for research strategy were below an acceptable level.

In order to decrease inconsistencies in research strategy coding, the three coders discussed the problem areas, i.e., identifying causal-comparative research and determining uncodable entries. The principal investigator revised the category definitions to reflect the clarifications. Using the same procedures as for the initial test, a new sample of 120 entries was drawn. The principal investigator and the two reliability coders coded these entries for research strategy using the revised category definitions. The three reliability coefficients calculated for this second set of research strategy codes were .87 for DAI, .83 for CRE, and .82 for ADD. These coefficients indicated that the category definitions for research strategy could be applied consistently. The final sets of coding paradigms for academic specialties and research strategies are presented in Appendix B and Appendix C, respectively. The coding instructions which were used for academic specialties and research strategies are presented in Appendix D and Appendix E, respectively.

Coding of entries. The principal investigator coded each of the

5344 abstracts/titles listed in the master file over a 10-week period. The coding units were divided into 25 blocks: one for each of the 21 volumes of Dissertation Abstracts "Physical Education" abstracts, one for Dissertation Abstracts abstracts targeted by Completed Research, one for Dissertation Abstracts abstracts targeted by American Doctoral Dissertations, one for abstracts only in Completed Research, and one for titles only in American Doctoral Dissertations. The 25 blocks were randomly ordered and the units within each block were coded sequentially. Coding was limited to 90 minutes a session, with no more than three sessions in a single day.

The two reliability coders also provided consistency checks throughout the primary coding process. A 5% sample of entries was randomly drawn from each of the coding blocks. As the principal investigator worked through the blocks, one of the two coders (alternately) coded the sample from the block the principal investigator completed. As soon as both sets of codes were available, two reliability coefficients (academic specialty and research strategy) were calculated. If any of these coefficients had been below .60 or the cumulative coefficient had been below .80, the principal investigator would have recoded that year.

The reliability coefficients all met the established criteria. For academic specialty coding, the individual coding block reliability coefficients ranged from .73 to 1.00, with an average coefficient of .91. The cumulative reliability coefficients ranged from .81 to .92, with a final cumulative coefficient of .92. For research strategy

coding, the individual coding block reliability coefficients ranged from .71 to 1.00, with an average coefficient of .87. The cumulative coefficients ranged from .80 to .90, with a final cumulative reliability coefficient of .86. The final coefficients of .92 for academic specialty and .86 for research strategy indicated that the coding of these data elements was consistent both between coders and across time.

Summary

Through a process of sequential matching of listings in Dissertation Abstracts, Completed Research in Health, Physical Education, and Recreation, and American Doctoral Dissertations, a population of 5344 dissertations in physical education completed between 1964 and 1983 was identified. For each dissertation, the degree that was earned, the year in which the degree was earned, the college or university where the degree was earned, the advisor(s) of the dissertation author, and the prestige ranking of the physical education doctoral program were identified. Each dissertation was also coded for the academic specialty it reflected and the primary research strategy that was used. These data elements were entered in a computer file which was used to answer the research questions which had been posed.

CHAPTER IV

ANALYSES AND RESULTS

The research project documented in this report identified a population of 5344 doctoral dissertations written by students in departments of physical education in the United States from 1964 through 1983. Six characteristics were recorded for each dissertation: (a) the academic specialty it reflected, (b) the degree for which it was written, (c) the year in which the degree was earned, (d) the primary research strategy used, (e) the prestige ranking of the doctoral program, and (f) the dissertation advisor(s). These data were used to answer five sets of questions which guided the research project. This chapter describes the analyses which were used to answer the questions and presents the results of the analyses.

General Strategy

One-way frequency distributions and two-way crosstabulations were used as the basic models for the analyses. Chi-square tests were performed on the crosstabulations to assess departure from independence, and Cramer's V statistics were calculated following significant chi-square analyses in order to evaluate the magnitude of the association in the crosstabulation. The statistical analyses were selected in consideration of three factors: (a) the interpretation of the statistics was appropriate for the questions which were examined, (b) the same statistics were applicable to all crosstabulations for consistency of interpretation, and (c) the statistics were appropriate for both categorical and ordinal data. An alpha level of .05 was

established as the criterion level for determining statistical significance.

Academic Specialties

Which academic specialties of physical education were reflected in the dissertation research? What proportion of the dissertations reflected each of the academic specialties? Did these proportions change from 1964 to 1983?

A preliminary frequency distribution of the academic specialty codes was generated for the total population of 5344 dissertations. It was found that 333 of the dissertations were coded as non-physical education; these dissertations were then deleted from the data set. All subsequent analyses were performed on the remaining 5011 dissertations which fell within the domain of physical education.

The frequency distribution of the academic specialties reflected in the dissertations which constituted the final data set is presented in Table 1. It was found that all eight academic specialties were represented. Five hybrid specialties, i.e., perspectives which reflected essential elements of two specialties, were also identified. Only two of the dissertations were uncodable. The largest proportion of dissertations reflected the functional effects specialty area (24%), followed by program development (21%), motor learning and development (14%), sociocultural and behavioral aspects (12%), management theory and practice (11%), background and meaning (7%), mechanical and muscular analysis (6%), and measurement and evaluation (5%). The hybrid specialties together accounted for 1% of the dissertations, with the

Table 1

Academic Specialties Reflected in Physical Education Dissertations, 1964-1983

ACADEMIC SPECIALTY	NUMBER	PERCENT
Background & Meaning	333	7
Functional Effects	1221	24
Management Theory & Practice	526	11
Measurement & Evaluation	239	5
Mechanical & Muscular Analysis	323	6
Motor Learning & Development	701	14
Program Development	1032	21
Sociocultural & Behavioral	579	12
HYBRID SPECIALTIES		
Functional Effects/ Mechanical & Muscular Analysis	5	<1
Functional Effects/ Motor Learning & Development	6	<1
Functional Effects/ Sociocultural & Behavioral	42	1
Motor Learning & Development/ Sociocultural & Behavioral	1	<1
Mechanical & Muscular Analysis/ Program Development	1	<1
Uncodable	2	<1
TOTAL	5011	100

Note. Displayed percentages do not sum to 100 due to rounding; actual percentages sum to 100.

functional effects/sociocultural and behavioral aspects hybrid representing 76% of the hybrid specialty subgroup.

In order to answer the question regarding changes in academic specialties across the 20-year time span represented by the dissertations, the years in which the degrees were earned were blocked into five four-year groups: 1964-1967, 1968-1971, 1972-1975, 1976-1979, and 1980-1983. The distributions of academic specialties reflected in dissertations written in each of these time periods are presented in Table 2. The statistical analyses indicated that there was a significant departure from independence in the crosstabulation, χ^2 (36, N = 5011) = 82.68, $p < .05$. The association between time period and academic specialty was very weak as a table-wide pattern, Cramer's V = .06, reflecting the diverse patterns in the component elements of the crosstabluation. The data indicated that the relative percentage of dissertations in five specialty areas, i.e., background and meaning, management theory and practice, mechanical and muscular analysis, motor learning and development, and program development, varied by 3% or less across the full time span. There was slightly greater variation for the functional effects and measurement and evaluation areas, each showing a decline in the share of the total of more than 3% from the earliest time period to the most recent. The only marked change was a consistent increase in the proportion of dissertations which reflected sociocultural and behavioral aspects, which increased from a 6% share of the 1964-1967 dissertations to a 15% share of those completed in 1980-1983.

Table 2

Academic Specialties Reflected in Physical Education Dissertations, 1964-1983, by Time Period

	1964-1967		1968-1971		1972-1975		1976-1979		1980-1983	
ACADEMIC SPECIALTY	N	PCT	N	PCT	N	PCT	N	PCT	N	PCT
Background & Meaning	46	7	85	7	85	7	64	6	53	6
Functional Effects	185	28	296	25	278	24	233	23	229	24
Management Theory & Practice	71	11	105	9	125	11	116	11	109	11
Measurement & Evaluation	45	7	48	4	61	5	54	5	31	3
Mechanical & Muscular Analysis	31	5	82	7	77	7	66	7	67	7
Motor Learning & Development	96	15	183	15	172	15	123	12	127	13
Program Development	136	21	264	22	233	20	201	20	198	21
Sociocultural & Behavioral	41	6	119	10	128	11	146	14	145	15
Hybrid Specialties	9	1	17	2	9	1	11	1	9	1
Uncodable	0	-	2	<1	0	-	0	-	0	-
TOTAL	660	100	1201	100	1168	100	1014	100	968	100

Note. Displayed percentages do not all sum to 100 due to rounding; actual percentages sum to 100.

Doctoral Degrees

For which doctoral degrees were the dissertations written? What proportion of the dissertations were written for each degree? Did these proportions change from 1964 to 1983? Which academic specialties were reflected in the dissertations written for each degree?

The analysis of the doctoral degree data indicated that four doctoral degrees were earned for the dissertations under study: Doctor of Arts, Doctor of Education, Doctor of Philosophy, and Doctor of Physical Education. The distribution of the dissertations among the four degrees is presented in Table 3. More than half (54%) of the dissertations were written for a Doctor of Philosophy degree. An additional 38% were written for Doctor of Education degrees. These two degrees together accounted for more than 90% of the dissertations; only 6% were written for the Doctor of Physical Education degree and 1% for the Doctor of Arts degree. For the dissertations examined, the degree was not known for less than 1% of the dissertations.

Five four-year time periods were used to examine changes in percentage distribution among the degrees across time. The statistical analyses indicated that there was a significant departure from independence in the crosstabulation, χ^2 (16, N = 5011) = 102.73, p < .05. The association between degree and time period was very weak as a table-wide pattern, Cramer's V = .07, reflecting different patterns in the component elements of the crosstabulation. The data presented in Table 4 indicate that Doctor of Philosophy degrees constituted a greater proportion of degrees in the most recent time period (60%) than in the

Table 3

Doctoral Degrees for which Physical Education Dissertations Were Written, 1964-1983

DEGREE	NUMBER	PERCENT
Doctor of Arts	64	1
Doctor of Education	1925	38
Doctor of Philosophy	2699	54
Doctor of Physical Education	311	6
Unknown	12	<1
TOTAL	5011	100

Note. Displayed percentages do not sum to 100 due to rounding; actual percentages sum to 100.

Table 4

Doctoral Degrees for Which Physical Education Dissertations Were Written, 1964-1983, By Time Period

	1964-1967		1968-1971		1972-1975		1976-1979		1980-1983	
DEGREE	N	PCT	N	PCT	N	PCT	N	PCT	N	PCT
Doctor of Arts	0	-	0	-	21	2	24	2	19	2
Doctor of Education	265	40	495	41	425	36	406	40	334	35
Doctor of Philosphy	330	50	604	50	655	56	534	53	576	60
Doctor of Physical Education	60	9	96	8	66	6	50	5	39	4
Unknown	5	1	6	1	1	<1	0	-	0	-
TOTAL	660	100	1201	100	1168	100	1014	100	968	100

Note. Displayed percentages do not all sum to 100 due to rounding; actual percentages sum to 100.

two earliest time periods (50%). Corresponding to the increase in Doctor of Philosophy degrees, there was a decrease in the share of both Doctor of Education (40% to 35%) and Doctor of Physical Education (9% to 4%) degrees from 1964 to 1983. The first Doctor of Arts degrees were earned in 1973, and the 2% share of all the degrees earned in physical education did not change over time.

The distributions of dissertations reflecting the different academic specialties within the five degree categories are presented in Table 5. The statistical analyses indicated that there was a significant departure from independence in the crosstabulation, χ^2 (36, N = 5011) = 344.65, $p < .05$. The association between degree and academic specialty was relatively weak as a table-wide pattern, Cramer's V = .13, reflecting the variety of patterns in the component elements of the crosstabulation. The most common academic specialty for Doctor of Arts, Doctor of Education, and Doctor of Physical Education degrees was program development, while the most common specialty for Doctor of Philosophy degrees was functional effects. Almost 90% of the dissertations written for Doctor of Arts degrees reflected either management theory and practice or program development, while there was a greater balance among specialty areas for the other three groups. Within Doctor of Education degrees, at least 10% of the dissertations reflected each of five specialties: program development (26%), functional effects (22%), management theory and practice (13%), sociocultural and behavioral aspects (12%), and motor learning and development (11%). Four of the same five specialties, with the exception of management theory and practice, were also reflected in at

Table 5

Academic Specialties Reflected in Physical Education Dissertations, 1964-1983, According to the Degree Earned

ACADEMIC SPECIALTY	DOCTOR OF ARTS		DOCTOR OF EDUCATION		DOCTOR OF PHILOSOPHY		DOCTOR OF PHYSICAL EDUCATION		UNKNOWN	
	N	PCT	N	PCT	N	PCT	N	PCT	N	PCT
Background & Meaning	0	-	103	5	205	8	23	7	2	17
Functional Effects	3	5	422	22	742	28	51	16	3	25
Management Theory & Practice	25	39	252	13	218	8	29	9	2	17
Measurement & Evaluation	3	5	118	6	89	3	29	9	0	-
Mechanical & Muscular Analysis	1	2	65	3	233	9	23	7	1	8
Motor Learning & Development	1	2	213	11	429	16	56	18	2	17
Program Development	31	48	508	26	425	16	68	22	0	-
Sociocultural & Behavioral	0	-	223	12	322	12	32	10	2	17
Hybrid Specialties	0	-	21	1	34	1	0	-	0	-
Uncodable	0	-	0	-	2	<1	0	-	0	-
TOTAL	64	100	1925	100	2699	100	311	100	12	100

Note. Displayed percentages do not all sum to 100 due to rounding; actual percentages sum to 100.

least 10% of the dissertations written for both Doctor of Philosophy and Doctor of Physical Education degrees.

Research Strategies

Which research strategies were used in the dissertation research? What proportion of the dissertations used each of the research strategies? Did these proportions change from 1964 to 1983? Which research strategies were used in dissertations that reflected the different academic specialties? Which research strategies were used in dissertations written for the different degrees?

Each of the nine strategies included in the research strategy classification paradigm was used to some extent in the dissertations; see Table 6. The most common research strategy was descriptive research, which was used in 33% of the dissertations. Quasi-experimental and true experimental research were also used in sizeable proportions of the dissertations, 27% and 20%, respectively. The remaining six research strategies--action research, case and field studies, causal-comparative research, historical research, philosophical research, and product development--were each used in less than 10% of the dissertations. Only 1% of the dissertations were uncodable in terms of the research strategy used.

The distributions of dissertations using the different research strategies within each of the five four-year time periods are presented in Table 7. The statistical analyses indicated that there was a significant departure from independence in the crosstabulation, $\chi^2(36, N = 5011) = 130.32$, $p < .05$. The association between research strategy

Table 6

Research Strategies Used in Physical Education Dissertations, 1964-1983

RESEARCH STRATEGY	NUMBER	PERCENT
Action Research	13	<1
Case & Field Studies	43	1
Causal-Comparative Research	190	4
Descriptive Research	1656	33
Historical Research	242	5
Philosophical Research	65	1
Product Development	384	8
Quasi-Experimental Research	1362	27
True Experimental Research	1019	20
Uncodable	37	1
TOTAL	5011	100

Table 7

Research Strategies Used in Physical Education Dissertations, 1964-1983, by Time Period

	1964-1967		1968-1971		1972-1975		1976-1979		1980-1983	
RESEARCH STRATEGY	N	PCT	N	PCT	N	PCT	N	PCT	N	PCT
Action Research	1	<1	2	<1	0	-	6	1	4	<1
Case & Field Studies	4	1	6	1	11	1	7	1	15	2
Causal-Comparative Research	22	3	22	2	40	3	71	7	35	4
Descriptive Research	225	34	386	32	367	31	329	33	349	36
Historical Resarch	37	6	70	6	58	5	47	5	30	3
Philosophical Research	4	1	18	2	13	1	14	1	16	2
Product Development	64	10	75	6	90	8	83	8	72	7
Quasi-Experimental Research	198	30	357	30	320	27	242	24	245	25
True Experimental Research	103	16	244	20	258	22	214	21	200	21
Uncodable	2	<1	21	2	11	1	1	<1	2	<1
TOTAL	660	100	1201	100	1168	100	1014	100	968	100

Note. Displayed percentages do not all sum to 100 due to rounding; actual percentages sum to 100.

and time period as a table-wide pattern was very weak, Cramer's V = .08, reflecting different patterns in the component elements of the crosstabulation. There was virtually no change across time in the proportion of dissertations using action research, case and field studies, and philosophical research. The proportion of dissertations using causal-comparative and descriptive research strategies fluctuated within a 5% range. From the earliest time period to the latest, dissertations using either historical research or product development decreased minimally. The clearest pattern was a 5% increase from the earliest time period to the latest in the proportion of dissertations which used true experimental research, complemented by a 5% decrease over the same years in dissertations which used a quasi-experimental research strategy.

The question of which research strategies were used in dissertations that reflect the different academic specialties is addressed by the data presented in Table 8. The statistical analyses indicated that there was a significant departure from independence in the crosstabulation, χ^2 (81, $\underline{N}$ = 5011) = 7791.08, $\underline{p} < .05$. The association between research strategy and academic specialty was moderately strong as a table-wide pattern, Cramer's V = .42, reflecting consistent patterns in the component elements of the crosstabulation. Descriptive research was the most common research strategy used in dissertations reflecting management theory and practice (86%), mechanical and muscular analysis (48%), and sociocultural and behavioral aspects (45%). True experimental research was the most frequently used strategy in both functional effects (44%) and motor learning and

Table 8

Research Strategies Used in Physical Education Dissertations, 1964-1983, According to the Academic Specialty Reflected in the Dissertation

RESEARCH STRATEGY	BACKGROUND & MEANING		FUNCTIONAL EFFECTS		MANAGEMENT THEORY & PRACTICE		MEASUREMENT & EVALUATION		MECHANICAL & MUSCULAR ANALYSIS	
	N	PCT	N	PCT	N	PCT	N	PCT	N	PCT
Action Research	0	-	0	-	4	1	0	-	0	-
Case & Field Studies	6	2	1	<1	6	1	0	-	0	-
Causal-Comparative Research	0	-	30	3	10	2	1	<1	3	1
Descriptive Research	27	8	200	16	452	86	48	20	155	48
Historical Research	231	70	0	-	3	1	0	-	0	-
Philosophical Research	55	17	0	-	1	<1	0	-	0	-
Product Development	12	4	19	2	45	9	166	70	21	7
Quasi-Experimental Research	1	<1	419	34	5	1	14	6	29	9
True Experimental Research	0	-	537	44	0	-	10	4	113	35
Uncodable	1	<1	15	1	0	-	0	-	2	1
TOTAL	333	100	1221	100	526	100	239	100	323	100

(CONTINUED)

Note. Displayed percentages do not all sum to 100 due to rounding; actual percentages sum to 100.

Table 8 (Continued)

RESEARCH STRATEGY	MOTOR LEARNING & DEVELOPMENT N	PCT	PROGRAM DEVELOPMENT N	PCT	SOCIOCULTURAL & BEHAVIORAL N	PCT	HYBRID SPECIALTIES N	PCT	UNCODABLE N	PCT
Action Research	0	-	9	1	0	-	0	-	0	-
Case & Field Studies	2	<1	12	1	16	3	0	-	0	-
Causal-Comparative Research	39	6	32	3	74	13	1	2	0	-
Descriptive Research	148	21	340	33	258	45	28	51	0	-
Historical Research	1	<1	3	<1	4	1	0	-	0	-
Philosophical Research	0	-	2	<1	7	1	0	-	0	-
Product Development	1	<1	115	11	5	1	0	-	0	-
Quasi-Experimental Research	218	31	516	50	141	24	19	35	0	-
True Experimental Research	282	40	2	<1	68	12	7	13	0	-
Uncodable	10	1	1	<1	6	1	0	-	2	100
TOTAL	701	100	1032	100	579	100	55	100	2	100

Note. Displayed percentages do not all sum to 100 due to rounding; actual percentages sum to 100.

development (40%) dissertations; quasi-experimental research was the most common strategy used in dissertations in the program development specialty. Seventy percent of the dissertations which reflected the background and meaning specialty area used historical research, and 70% of the measurement and evaluation dissertations were product development studies. Some consistency of academic specialty-research strategy combinations was also apparent: in seven of the eight academic specialty areas, either two or three research strategies accounted for 90% or more of the dissertations. The most diversity was in the sociocultural and behavioral specialty, which included dissertations using eight of the nine research strategies.

The results of the analysis of the research strategies utilized according to the degree earned are presented in Table 9. The statistical analyses indicated that there was a significant departure from independence in the crosstabulation. χ^2 (36, $\underline{N}$ = 5011) = 655.48, $\underline{p}$ < .05. The association between research strategy and degree was very weak as a table-wide pattern, Cramer's V = .08, reflecting the variety of patterns in the component elements of the crosstabulation. For all degree groups, the most common research strategy was descriptive research. In dissertations written for Doctor of Arts, Doctor of Education, and Doctor of Physical Education degrees, the second most common strategy was quasi-experimental research. The second most common strategy for Doctor of Philosophy degrees was true experimental research. The proportions of dissertations using action research, case and field studies, and philosophical research were comparable across all four degrees. Causal-comparative and historical research were not used

Table 9

Research Strategies Used in Physical Education Dissertations, 1964-1983, According to the Degree Earned

RESEARCH STRATEGY	DOCTOR OF ARTS		DOCTOR OF EDUCATION		DOCTOR OF PHILOSOPHY		DOCTOR OF PHYSICAL EDUCATION		UNKNOWN	
	N	PCT	N	PCT	N	PCT	N	PCT	N	PCT
Action Research	0	-	8	<1	5	<1	0	-	0	-
Case & Field Studies	0	-	16	1	25	1	2	1	0	-
Causal-Comparative Research	0	-	79	4	98	4	13	4	0	-
Descriptive Research	37	58	697	36	812	30	108	35	2	17
Historical Research	0	-	75	4	145	5	20	6	2	17
Philosophical Research	0	-	21	1	44	2	0	-	0	-
Product Development	9	14	186	10	158	6	31	10	0	-
Quasi-Experimental Research	16	25	602	31	649	24	93	30	2	17
True Experimental Research	2	3	234	12	739	27	44	14	0	0
Uncodable	0	-	7	<1	24	1	0	-	6	50
TOTAL	64	100	1925	100	2699	100	311	100	12	100

Note. Displayed percentages do not all sum to 100 due to rounding; actual percentages sum to 100.

in dissertations for Doctor of Arts degrees, but were used in similar proportions in dissertations written for the other three degrees. The most pronounced differences were found relative to true experimental research: 27% of the Doctor of Philosophy dissertations used true experimental research, while only 14% of the Doctor of Physical Education, 12% of the Doctor of Education, and 3% of the Doctor of Arts dissertations used a true experimental research strategy.

Doctoral Program Prestige

How many degrees were earned in physical education doctoral programs with different prestige levels? Which academic specialties were reflected in dissertations written in doctoral programs with different levels of prestige? Which research strategies were used in the dissertation research in programs with different levels of prestige? Which degrees were awarded in programs with different levels of prestige?

In order to answer the set of questions regarding doctoral program prestige, the prestige ranks were grouped into six levels, with a seventh level established for unranked programs. Five of the levels covered 10 rank positions. Due to the total of 58 ranks, the sixth level covered 8 positions, and the unranked level grouped 61 programs together.

The total numbers of dissertations written in doctoral programs at the seven prestige levels are presented in Table 10. A general pattern is discernable: more dissertations were written in programs with higher prestige levels that those with lower levels. The top 10 programs

Table 10

Total Number of Physical Education Dissertations, 1964-1983, According to the Prestige Level of the Doctoral Program

PRESTIGE LEVELS	NUMBER	PERCENT
Ranks 1-10	1728	34
Ranks 11-20	867	17
Ranks 21-30	619	12
Ranks 31-40	698	14
Ranks 41-50	491	10
Ranks 51-58	416	8
Unranked (61 Programs)	192	4
TOTAL	5011	100

Note. Displayed percentages do not sum to 100 due to rounding; actual percentages sum to 100.

accounted for one-third of the dissertations, and the top 20 accounted for just over half (51%). The 61 programs which were unranked were the source of 4% of the dissertations. The data presented in Table 11 provide a complementary breakdown of dissertation counts. The statistical analyses indicated that there was a significant departure from independence in the crosstabulation, χ^2 (42, N = 119) = 193.66, p < .05. The association between prestige and number of dissertations was moderately strong as a table-wide pattern, Cramer's V = .52, reflecting consistent patterns in the component elements of the crosstabulation. These data also suggested that the programs at the higher prestige levels produced greater numbers of dissertations. Only two programs appeared to be anomalous: one with high prestige (1-10 rank) and low productivity (11-25 dissertations), and one with low prestige (31-40 rank) and high productivity (more than 200 dissertations).

The question of which academic specialties were reflected in the dissertations written in programs with different levels of prestige is addressed by the data presented in Table 12. The statistical analyses indicated that there was a significant departure from independence in the crosstabulation, χ^2 (54, N = 5011) = 292.93, p < .05. The association between prestige and academic specialty was very weak as a table-wide pattern, Cramer's V = .10. The most common academic specialty for dissertations written in programs at five of the seven levels (excluding 21-30 and unranked) was functional effects. While there was some variation in proportions of specialties within the prestige groups, it did not suggest a clear trend. More dissertations reflecting background and meaning, mechanical and muscular analysis, and

Table 11

Classification of Doctoral Programs According to the Number of Dissertations Written, 1964-1983, and the Prestige Level of the Doctoral Program

	PRESTIGE RANKS 1-10		PRESTIGE RANKS 11-20		PRESTIGE RANKS 21-30		PRESTIGE RANKS 31-40		PRESTIGE RANKS 41-50		PRESTIGE RANKS 51-58		UNRANKED	
NUMBER OF DISSERTATIONS	N	PCT	N	PCT	N	PCT	N	PCT	N	PCT	N	PCT	N	PCT
Less than 10	0	-	0	-	0	-	0	-	0	-	0	-	57	93
10-25 Dissertations	1	10	0	-	0	-	3	30	2	20	2	25	4	7
26-50 Dissertations	0	-	3	30	5	50	3	30	3	30	2	25	0	-
51-75 Dissertations	0	-	2	20	1	10	1	10	4	40	2	25	0	-
76-100 Dissertations	1	10	2	20	3	30	0	-	1	10	2	25	0	-
101-150 Dissertations	3	30	1	10	1	10	2	20	0	-	0	-	0	-
151-200 Dissertations	2	20	2	20	0	-	0	-	0	-	0	-	0	-
More than 200	3	30	0	-	0	-	1	10	0	-	0	-	0	-
TOTAL	10	100	10	100	10	100	10	100	10	100	8	100	61	100

Table 12

Academic Specialties Reflected in Physical Education Dissertations, 1964-1983, According to the Prestige Level of the Doctoral Program

ACADEMIC SPECIALTY	PRESTIGE RANKS 1-10		PRESTIGE RANKS 11-20		PRESTIGE RANKS 21-30		PRESTIGE RANKS 31-40		PRESTIGE RANKS 41-50		PRESTIGE RANKS 51-58		UNRANKED	
	N	PCT	N	PCT	N	PCT	N	PCT	N	PCT	N	PCT	N	PCT
Background & Meaning	142	8	79	9	39	6	23	3	21	4	16	4	13	7
Functional Effects	382	22	221	25	149	24	194	28	131	27	115	28	29	15
Management Thry & Prctce	168	10	70	8	47	8	76	11	55	11	70	17	40	21
Measurement & Evaluation	93	5	29	3	27	4	26	4	28	6	30	7	6	3
Mechan & Muscular Analysis	159	9	35	4	50	8	36	5	24	5	13	3	6	3
Motor Learning & Developmnt	274	16	187	22	69	11	76	11	51	10	29	7	15	8
Program Development	301	17	138	16	158	26	159	23	112	23	112	27	52	2/
Sociocultural & Behavioral	190	11	98	11	73	12	99	14	65	13	27	6	27	14
Hybrid Specialties	17	1	10	1	7	1	9	1	4	1	4	1	4	2
Uncodable	2	<1	0	-	0	-	0	-	0	-	0	-	0	-
TOTAL	1728	100	867	100	619	100	698	100	491	100	416	100	192	100

Note. Displayed percentages do not all sum to 100 due to rounding; actual percentages sum to 100.

motor learning and development tended to be written in high prestige programs than in low prestige programs. The opposite pattern was suggested for management theory and practice and program development. However, these tendencies were not consistent enough to reflect trends.

The results of the analysis of the research strategy data broken down by the prestige level of the doctoral program are presented in Table 13. The statistical analyses indicated that there was a significant departure from independence in the crosstabulation, $\chi^2(54, N = 5011) = 270.11$, $p < .05$. The association between prestige and research strategy was very weak as a table-wide pattern, Cramer's V = .10, reflecting the variety of patterns in the component elements of the crosstabulation. Descriptive research was the most common strategy for dissertations written in the highest three and lowest two prestige groups; quasi-experimental research was most common for the 31-40 and 41-50 prestige rank groups. There was minimal variation in the proportions of dissertations using action research, case and field studies, causal-comparative research, philosophical research, and product development across the prestige groups. On the other hand, there was a tendency for lower proportions of the dissertations written in programs with higher prestige to use descriptive or quasi-experimental research than those written in lower prestige programs. Also, it appeared that true experimental research was used more in dissertations written in higher prestige programs than lower prestige programs.

The data presented in Table 14 illustrate the types of degrees

Table 13

Research Strategies Used in Physical Education Dissertations, 1964-1983, According to the Prestige Level of the Doctoral Program

RESEARCH STRATEGY	PRESTIGE RANKS 1-10		PRESTIGE RANKS 11-20		PRESTIGE RANKS 21-30		PRESTIGE RANKS 31-40		PRESTIGE RANKS 41-50		PRESTIGE RANKS 51-58		UNRANKED	
	N	PCT	N	PCT	N	PCT	N	PCT	N	PCT	N	PCT	N	PCT
Action Research	4	<1	3	<1	4	1	1	<1	1	<1	0	-	0	-
Case & Field Studies	24	1	11	1	5	1	1	<1	1	<1	1	<1	0	-
Causal-Comparative	67	4	25	3	28	5	30	4	17	3	10	2	13	7
Descriptive Research	577	33	247	28	207	33	226	32	153	31	165	40	81	42
Historical Research	107	6	49	6	33	5	16	2	12	2	16	4	9	5
Philosophical Research	27	2	19	2	6	1	5	1	5	1	0	-	3	2
Product Development	131	8	67	8	52	8	42	6	43	9	36	9	13	7
Quasi-Experimental	370	21	188	22	190	31	229	33	181	37	149	36	55	29
True Experimental	406	23	244	28	93	15	147	21	74	15	39	9	16	8
Uncodable	15	1	14	2	1	<1	1	<1	4	1	0	-	2	1
TOTAL	1728	100	867	100	619	100	698	100	491	100	416	100	192	100

Note. Displayed percentages do not all sum to 100 due to rounding; actual percentages sum to 100.

Table 14

Doctoral Degrees Earned in Physical Education, 1964-1983,

According to the Prestige Level of the Doctoral Program

	PRESTIGE RANKS 1-10		PRESTIGE RANKS 11-20		PRESTIGE RANKS 21-30		PRESTIGE RANKS 31-40		PRESTIGE RANKS 41-50		PRESTIGE RANKS 51-58		UNRANKED	
DEGREE	N	PCT	N	PCT	N	PCT	N	PCT	N	PCT	N	PCT	N	PCT
Doctor of Arts	0	-	0	-	0	-	0	-	0	-	64	15	0	-
Doctor of Education	219	13	236	27	339	55	348	50	347	71	323	78	113	59
Doctor of Philosophy	1306	76	521	60	279	45	349	50	141	29	29	7	74	39
Dr of Physical Education	201	12	110	13	0	-	0	-	0	-	0	-	0	-
Unknown	2	<1	0	-	1	<1	1	<1	3	1	0	-	5	3
TOTAL	1728	100	867	100	619	100	698	100	491	100	416	100	192	100

Note. Displayed percentages do not all sum to 100 due to rounding; actual percentages sum to 100.

earned according to the prestige level of the doctoral program. The statistical analyses indicated that there was a significant departure from independence in the crosstabulation, χ^2 (24, $\underline{N}$ = 5011) = 2165.08, $\underline{p}$ < .05. The association between prestige and degree was moderate as a table-wide pattern, Cramer's V = .33, reflecting consistent patterns in the component elements of the crosstabulation. A greater proportion of the degrees awarded in the top 20 ranked programs were Doctor of Philosophy degrees than Doctor of Education degrees. Greater proportions of the degrees awarded in the lower five levels were Doctor of Education degrees rather than Doctor of Philosophy degrees. Also, the proportion of degrees which were Doctor of Philosophy degrees tended to decrease with lower levels of prestige; 76% of the degrees awarded in the top prestige group were Doctor of Philosophy, while these degrees were only 7% of the degrees in the lowest ranked group. The opposite pattern was apparent for Doctor of Education degrees; the proportion of degrees which were Doctor of Education degrees increased from 13% in the highest prestige group to 78% in the lowest ranked group. The low numbers of programs awarding the Doctor of Arts and Doctor of Physical Education degrees preclude meaningful analyses of these factors.

Dissertation Advisors

Who were the advisors for the dissertation research? How many dissertations did each advisor guide? Who were the most prolific advisors? What were the academic specialties reflected in the dissertations they guided? What were the prestige levels of the programs with which the most prolific advisors were affiliated?

The analyses of the data regarding dissertation advisors must be interpreted cautiously due to the fact that an advisor was not listed for 676 (13%) of the 5011 dissertations under study. While the proportion of missing data is small enough that the results would probably not be substantially different if the data were available, the answers to the questions about dissertation advisors can only be tentative. Also, in order to accommodate dissertations for which two or three individuals were listed as advisors, a weighted count for the dissertations was derived. A dissertation for which one advisor was listed counted as 1.0 dissertations for that advisor; a dissertation for which two advisors were listed counted as 0.5 dissertations for each advisor; a dissertation for which three advisors were listed counted as 0.3 dissertations for each of the three advisors.

It was found that 888 individuals served as advisors for the dissertations under study. The complete list of advisors with the weighted number of dissertations advised is presented in Appendix F. A summary analysis of the number of dissertations advised is presented in Table 15. Almost half (46%) of the advisors guided only one dissertation. Approximately two-thirds (69%) advised less than five dissertations, and only 5% of the advisors guided 20 or more dissertations during the 20-year time period covered in this research project.

The names and primary academic specialties of the advisors who guided 20 or more dissertations are presented in Table 16. The primary academic specialty of the advisor was inferred to be the specialty

Table 15

Total Number of Physical Education Dissertations Guided by Dissertation Advisors, 1964-1983

NUMBER OF DISSERTATIONS	NUMBER OF ADVISORS	PERCENT
1 Dissertation or Less	408	46
1.1 to 4.9 Dissertations	239	27
5.0 to 9.9 Dissertations	117	13
10.0 to 14.9 Dissertations	45	5
15.0 to 19.9 Dissertations	34	4
20 Dissertations or More	45	5
TOTAL	888	100

Table 16

Physical Education Dissertation Advisors Who Guided 20 or More Disssertations, 1964-1983

NAME	PRIMARY ACADEMIC SPECIALTY	NUMBER	PERCENT IN PRIMARY SPECIALTY	NUMBER OF SPECIALTIES REPRESENTED
George Moore	Functional Effects	66	52	7
Peter Everett	Functional Effects	58	47	8
H Harrison Clarke	Motor Learn & Devel	53	43	7
Ovid Hunter	Management Theory	51	41	8
Aileene Lockhart	Motor Learn & Devel	46	77	6
John Cooper	Mech & Musc Analysis	45.5	71	7
John Daugherty	Program Development	44	39	8
Bruce Bennett	Background & Meaning	43	79	6
Jack Nelson	Functional Effects	42.5	58	6
Daryl Siedentop	Program Development	42	81	5
Donald Mathews	Functional Effects	39.3	78	5
M Gladys Scott	Program Development	38.5	25	8
Thomas Cureton	Functional Effects	38	92	3
Lewis Hess	Program Development	38	37	6
Leon Griffin	Program Development	33	33	7
Aix Harrison	Functional Effects	33	64	5
Margaret Mordy	Program Development	33	36	6
Robert Bartels	Functional Effects	31	79	4
Keith Henschen	Sociocult-Behavioral	31	74	5
J Tillman Hall	Mgt Thry/Socio-Behav	29.5	33 each	4
Eleanor Metheny	Background & Meaning	29.5	79	4
Arthur Miller	Program Development	28	46	6
Raymond Weiss	Functional Effects	28	32	6
Ann Jewett	Program Development	27.5	75	7
Kenneth Miller	Program Development	27.5	32	6
William Anderson	Program Development	27	52	6
Gail Hennis	Program Development	27	26	7
Betty McCue	Background & Meaning	27	30	4
Edna Wooten-Kolan	Functional Effects	26.5	33	5
Emery Seymour	Sociocult-Behavioral	25	28	8
Edward Fox	Functional Effects	24.3	96	2
George Cousins	Measuremnt & Evaluatn	24	29	8
Francis Drury	Functional Effects	24	54	5
Rosemary McGee	Measuremnt & Evaluatn	24	33	8
Elmo Roundy	Program Development	24	38	5
Charles Mand	Program Development	23.5	38	6
Evelyn Davies	Prorgam Development	23	39	7
Robert Bowen	Motor Learn & Devel	22	32	7
Earle Zeigler	Management Theory	21.5	50	5
James Ewers	Program Development	21	38	7
Clinton Strong	Motor Learn & Devel	21	29	6
Franklin Henry	Motor Learn & Devel	20.5	57	3
Jack Adler	Motor Learn & Devel	20	50	5
Anita Aldrich	Program Development	20	35	7
Celeste Ulrich	Sociocult-Behavioral	20	40	4

reflected by the largest percentage of the dissertations guided by that advisor. All eight academic specialties were represented, with the largest proportions being program development (36%), functional effects (24%), and motor learning and development (13%). Less than 10% of the advisors had inferred primary academic specialties of sociocultural and behavioral aspects (8%), background and meaning (7%), management theory and practice (6%), measurement and evaluation (4%), and mechanical and muscular analysis (2%). However, for less than half (38%) of the most prolific advisors did more than 50% of the dissertations they advised reflect a single academic specialty; the range was from 25% to 96%. Similarly, only one advisor had dissertations which reflected as few as two academic specialties; 62% of the advisors guided dissertations reflecting six or more specialty areas.

The question of the prestige levels of the doctoral programs with which the most prolific advisors were affiliated is addressed by the data presented in Table 17. Four of the advisors changed universities during the 20-year period under study; an average of the ranks for the two programs was used to classify these individuals. The majority (53%) of these advisors were affiliated with programs in the highest (top 10) prestige group and 75% were affiliated with one of the top 20 ranking doctoral programs. Only two of the most prolific advisors were affiliated with programs which were ranked lower than 40 out of the 58 ranked programs.

Summary. A series of one-way frequency distributions and two-way crosstabulations of the academic specialties reflected in the

Table 17

Prestige Levels of Physical Education Doctoral Programs of Advisors Who Guided 20 or More Dissertations, 1964-1983

PRESTIGE LEVEL	NUMBER OF ADVISORS	PERCENT
Ranks 1-10	24	53
Ranks 11-20	10	22
Ranks 21-30	2	4
Ranks 31-40	7	16
Ranks 41-50	0	-
Ranks 51-58	2	4
Unranked	0	-
TOTAL	45	100

Note. Displayed percentages do not sum to 100 due to rounding; actual percentages sum to 100.

dissertation research, the degrees for which the dissertations were written, the research strategies used in the dissertations, and the prestige levels of the physical education doctoral programs in which the dissertations were written were generated. Trends in the academic specialties, degrees, and research strategies from 1964 to 1983 were identified. Information about the dissertation advisors, with emphasis on the most prolific advisors, was also obtained.

CHAPTER V

DISCUSSION

The research project documented in this report generated information regarding the academic specialties, doctoral degrees, research strategies, doctoral program prestige, and dissertation advisors for physical education dissertations written by students in the United States from 1964 through 1983. The questions which guided the research project were framed in the context of what is known about doctoral dissertations in physical education and the appropriate research methodology, with the ultimate objective of discussion of the results within this context. Although the framing questions and analyses focused on specific characteristics of the dissertations, the results can be interpreted within the broader domain of doctoral study in physical education. Both the substantive findings and insights suggested by the research procedures bear upon the meaning and import of the results.

Academic Specialties

One of the major findings that emerged in the examination of academic specializations reflected in doctoral dissertations in physical education was that functional effects of physical activity and program development were the predominant specialties reflected by the dissertations throughout the 20-year period under study. The predominance of functional effects and program development dissertations is intuitively reasonable; these areas tend to be the bases for most informal impressions of the field of physical education. The limited

amount of empirical evidence available regarding academic specialization in doctoral level physical education confirms the functional effects-program development specialty predominance. In four studies reported in different years (Cullum, 1972; Knight, 1975; Perry & Milner, 1979; Resick, 1967), functional effects (exercise physiology) and program development (curriculum and instruction) specializations were found to be available in most of the doctoral programs in physical education. However, the results of these four studies also suggested some inconsistency between doctoral program concentrations and dissertation research. Management theory and practice (organization and administration) concentrations were found to be nearly as widespread as functional effects and program development. In the dissertations under study in this research project, approximately half as many reflected management theory and practice as either of the other two areas. This discrepancy suggests that either doctoral students with curricular concentrations in management theory and practice conducted dissertations that reflected other academic specilaties, or that there were fewer students in management concentrations relative to the other specialty areas.

A second major finding regarding academic specialties reflected in the dissertations was that little change occurred in the distribution of dissertations among the specialties over time, with the exception of an increase in the proportion of dissertations which reflected sociocultural and behavioral aspects of physical activity. The relative stability of the distribution of dissertations among the specializations during the 20-year time span suggests that academic specializations of

physical educators in higher education have not undergone much change. The exception with respect to studies in the sociocultural and behavioral aspects specialty confirms Park's (1981) and Loy, Kenyon, and McPherson's (1980) observations about the growth of this specialty area. Except for the increased popularity of the sociocultural and behavioral specialty, the consistency of the overall distribution among the other academic specializations indicates little movement away from or towards the traditionally professional specializations, i.e., program development, management theory and practice, and measurement and evaluation. The predominantly disciplinary specializations, i.e., functional effects, mechanical and muscular analysis, motor learning and development, and background and meaning have not grown nor diminished substantially in popularity. The balance between disciplinary and professional orientations appeared to be much the same in the 1980s as it was in the 1960s.

Two related aspects of the analyses of academic specialization also merit discussion. First, it should be recognized that this research project was not designed to provide evidence regarding a possible increase in specialization in doctoral level physical education. In coding the dissertations, each one was placed in a specific category (or occasionally two). Specialization was therefore imposed upon the studies, regardless of the generalist/specialist orientation of the dissertation author's program of study. However, an observation made during the conduct of the research project suggested a trend toward identification with specialty areas: in later years, more dissertation authors listed their dissertations in specific sections of Dissertation

Abstracts other than "Physical Education" (e.g., psychology, physiology) than in earlier years.

The nature of the classification paradigm itself limited the accurate protrayal of specialization in the dissertations. One problematic dimension was related to the necessary but perhaps unrepresentative divisions among the specialty areas. For research purposes, it was necessary to establish conceptual dividing lines among academic specializations that are probably straddled by a number of scholars in the field. Thus, the 'one foot in each camp' phenomenon was minimized in the classification paradigm, and may have obscured the number of individuals who conducted research in the 'grey areas.'

A second problematic dimension of the academic specialty classification was that the groupings of areas within specializations may be unrealistic. Several of the academic specialties in Zeigler's (1982, 1983) paradigm contain components that do not necessarily share extensive theoretical and practical content. The motor learning and development academic specialty includes two rather well-defined components, motor learning and motor development. The sociocultural and behavioral aspects of physical activity specialty covers the range from cultural anthropology to experimental psychology. The background, meaning, and significance specialization refers to the kindred but different areas of history, philosophy, and international studies. Zeigler's classification scheme parallels the one proposed in the AAHPER (1967) Graduate Education monograph, but the paradigm fails to reflect the true diversity among the component specializations.

The problem of determining the boundaries between physical education and related areas of study, e.g., dance and recreation, may further reflect on the nature of the field. The notion of human movement studies is broad enough to include many dimensions of related areas, and yet each has enough of a distinct identity to be separated from physical education. The core of each related area can stand on its own, but fringe areas could overlap considerably with the specified domain of physical education. Considering the time span studied, what may have been a program emphasis in doctoral study in the earlier years could be outside of the domain of physical education in the 1980s. Differentiation between physical education and non-physical education dissertations may have inappropriately excluded the work of individuals whose background and orientation were in physical education but whose specific research areas were outside the specified boundaries of the field.

Doctoral Degrees

The analyses of characteristics of doctoral degrees for which the dissertations were written confirmed both theoretical and empirical expectations. The finding that approximately 40% more Doctor of Philosophy degrees were earned than Doctor of Education degrees over the 20-year period is consistent with the information presented by Crase (1971) and Massengale and Sage (1982). The observed increase in the proportion of Doctor of Philosophy degrees among doctoral graduates suggests that the purported emphasis of Doctor of Philosophy programs in developing research abilities may have gained acceptance and popularity. This trend would improve the chances of the field to fulfill its

essential function of research in order to maintain its position in the university community.

The results of the research project also confirmed the idea that there are differences in areas of specialization among individuals who earned the four doctoral degrees in physical education. The most common academic specialty for individuals who earned the three professional degrees (Doctor of Arts, Doctor of Education, Doctor of Physical Education) was the traditionally professional area of program development. The most common specialty area for Doctor of Philosophy degree recipients was functional effects, a traditionally disciplinary area. Also, greater proportions of individuals who earned the three professional degrees produced dissertations in the traditionally professional areas than those who earned the Doctor of Philosophy degree. Although authors such as Ashton (1965), Resick (1967), and Schweitzer (1965) noted only minor differences between Doctor of Education and Doctor of Philosophy degrees, it appeared that the professional orientation was stronger in Doctor of Arts, Doctor of Education, and Doctor of Physical Education dissertations than in Doctor of Philosophy dissertations.

Research Strategies

The analyses of the research strategies used in the doctoral dissertations provide some initial empirical information about a relatively unknown subject. Although none of the findings were surprising, they can serve as a starting point for investigation of yet unexplored areas. The predominance of descriptive research and the

limited use of non-traditional research strategies raises questions about the purpose of the dissertation research. Descriptive research is relatively weak in its usefulness as a theory-testing contribution to the body of knowledge (Dotson, 1980; Platt, 1964). The patterns of research strategy-academic specialty concurrence reinforce the observation of traditional approaches to inquiry within each area. The strategies that require the most sophisticated skills to execute were used the least. However, judgments cannot be made about the appropriateness or the quality of the execution of any research strategy used in the dissertation research.

The most revealing findings with regards to research strategies were the shifting balance of quasi-experimental and true experimental research over the 20 years studied and the association between the Doctor of Philosophy degree and true experimental research. The pattern of increasing true experimental research and decreasing quasi-experimental research has the potential to contribute to a more valid and reliable body of knowledge in physical education. More and stronger inferences can be made with true experimental research than with quasi-experimental research. This tempers the finding that both experimental strategies were both used less frequently than descriptive research. Also, the finding that true experimental research was used in dissertations for Doctor of Philosophy degrees more often than for the other three degrees confirms the tendency towards a stronger research orientation for recipients of that degree.

The question of whether there is an appropriate classification

paradigm of strategies for the research conducted in physical education should also be addressed. This research project used a traditional classification scheme that was adapted for application to the body of research examined. The necessity for adaptation and the significant amount of refining that was required for the paradigm to be functional suggest that the development of an appropriate and accurate classification scheme for research strategies in physical education would require and deserves substantial scholarly attention.

Doctoral Program Prestige

The findings relative to doctoral program prestige complement previous research and add some new insights. There was a distinct pattern that greater numbers of dissertations were written at schools with higher levels of prestige. Similar results were found by Kroll (1982), Massengale (cited in Hasbrook & Loy, 1983), and Hasbrook and Loy (cited in Hasbrook & Loy, 1983) with regard to published research and scholarly presentations of graduate faculty members. The fact that doctoral students' work followed the same pattern strengthens the validity of the hypothesized productivity-prestige link. What is not known, however, is whether the link is causal and, if so, in which direction it functions. Increased visibility via productivity may increase prestige, or increased prestige via some other mechanism may provide more opportunities for visibility. An additional unequivocal finding was the association of Doctor of Philosophy degrees with programs with higher levels of prestige. This confirms the observation that there is a status hierarchy of doctoral degrees.

Fewer differences were found in terms of the academic specialties reflected in the dissertations and the research strategies used among programs at the various prestige levels. Specializations in program development and management theory and practice tended to be reflected by more dissertations written in lower prestige programs than in high prestige programs. Motor learning and development and mechanical and muscular analysis specializations tended to be more common in dissertations written in higher prestige programs. Such a tendency could suggest a possible association of higher prestige with disciplinary specialties and lower prestige with professional specialties. However, the overall patterns were too inconsistent to permit firm conclusions.

In terms of the research strategies used in the dissertation research, there was tendency for dissertations written in higher prestige programs to use more true experimental and fewer quasi-experimental research strategies than those written in lower prestige programs. Although programs at all levels of prestige used descriptive research strategies most often, the differences in the types of experimental strategies used may indicate that the higher prestige programs required more rigorous experimental doctoral dissertation research strategies. This finding adds some validity to the prestige ranking concept. It is possible that prestige is determined not merely by the numbers of dissertations and the types of degrees, but also reflects the type of research conducted.

A large number of programs in which dissertations were written that

fell within the domain of physical education were not ranked in the prestige hierarchy. This may be explained by the fact that Massengale (1981) used the empirical criterion of 10 or more dissertations listed in the "Physical Education" section of Dissertation Abstracts between 1959 and 1979 to determine which programs were to be ranked, rather than a listing of actual programs with majors in physical education. In this research project, with its broader data base and different time period, only four of the 61 unranked schools were found to have produced more than 10 dissertations (a maximum of 18). This suggests that the unranked programs were, for the most part, appropriately distinguished from the ranked programs. However, the problems regarding ranked and unranked programs would not exist if it were possible to determine which schools actually offer doctoral degrees in physical education. There are inaccuracies in every 'official' compilation of physical education doctoral programs. There could also be varying definitions of what constitutes such a program. It could be that some of both the ranked and the unranked programs did not actually have a physical education doctoral program.

Dissertation Advisors

The results of this research project with regard to dissertation advisors must be interpreted cautiously because of the amount of missing information. Nevertheless, the patterns that emerged were so strong that the findings should be given some attention. One of the most noteworthy findings was that most of the dissertation advisors advised very few dissertations. Two factors could account for this, i.e., the timing of beginning and ending of graduate faculty careers and

relocation to universities outside the United States. Timing and relocation could both reduce the number of dissertations derived in this research project; only a portion of the advisors' actual dissertation advising history may be represented. Although these factors might explain the findings, it still appears that most dissertation advisors have had limited experience in guiding doctoral dissertation research. The advisors' experience in guiding masters thesis research and in conducting their own research may compensate for their limited dissertation advising experience. Quantity does not necessarily reflect the quality of the work, but it would probably benefit more doctoral students if dissertation advising expertise were more widespread.

Several patterns emerged in the analyses regarding the most prolific advisors, the most notable observation being the lack of identification of specialization among these dissertation advisors. A simple majority of the dissertations advised did not reflect a single academic specialty for most of the most prolific advisors. Moreover, most of the most prolific advisors guided dissertations that reflected at least six of the eight specialty areas. Although no attempt was made to compare the specialty areas reflected in the dissertations with specialty areas in the advisors' own work, the findings suggest that the advisors guided a substantial number of dissertations outside of their area of expertise. Patterns might be different for less prolific advisors or may have changed across time, but this group of advisors has had an impact on the field. Together they have guided more than 25% of the dissertations that were written. The substantial amount of dissertation advising outside of the advisors' academic specialties

cannot be considered a contribution to the quality of doctoral dissertation research in physical education.

The characteristics of the dissertations guided by the most prolific advisors parallel two aspects of the total population of dissertations: the predominance of program development and functional effects as specialty areas and the association of productivity with prestige of the doctoral program. These findings suggest that specialization and productivity are not only program-wide phenomena but are carried through in the work of individual faculty members. In other words, specialization and productivity are not necessarily generated by the number of graduate faculty members in a program but by the character and quantity of work of each individual.

Doctoral Study in Physical Education

An overview of the results of this research project suggests more hope than fear for the future of the field. The trends discerned over the 20-year period studied are particularly relevant to the possible future of physical education as a field of study. On the positive side, the finding that the distribution of dissertation research among specialization areas was rather static may indicate that this matrix of identity has stood the test of time and represents an accurate portrayal of the nature of the field. Controversy may still abound about the appropriate subject matter of physical education, but the similar proportions of doctoral students who have done their work in the various specialty areas in the 1980s as in the 1960s suggest that the balance between professional and disciplinary interests is likely to remain. No

evidence was found to suggest that one orientation will dominate the other. This same static balance may exist for potential new graduate faculty members. However, on the negative side, the failure to move towards either a disciplinary emphasis or a clearly professional emphasis could be seen as a failure to solidify the academic respectability of the field. If respectability is believed to be associated with the subject matter of inquiry as well as the quality of scholarly inquiry, this static situation could be a hazard to the future of the field.

Another set of findings that are encouraging are the small but consistent trends of increasing rigor in the research strategies utilized in the dissertation research and the increasing proportion of Doctor of Philosophy graduates. More of the recent experimental research which was conducted was classified as true experimental research rather than quasi-experimental; this has the potential to improve the credibility, validity, and reliability of the knowledge generated in the experimental manner. The discouraging findings that descriptive research still predominated and nontraditional research strategies received limited use can be balanced out by this positive trend. Also, it should be emphasized once more that the research strategy alone does not indicate the quality or heuristic value of the research; the appropriateness of the research strategy and the quality of its execution determine quality research.

Although it may be a questionable assumption that Doctor of Philosophy degree recipients have stronger research orientations than

recipients of Doctor of Arts, Doctor of Education, or Doctor of Physical Education degrees, the increasing proportion of Doctor of Philosophy graduates suggests that more new graduate faculty members will have a firm research orientation in their work. This gives promise that the field of physical education in higher education will be even more effective in carrying out its research function as a member of the academic community.

This discussion would not be complete without some mention of observations made in the course of the research process itself. One of the first phenomena encountered was the difficulty of identifying the population of dissertations to be studied. Although the plan of the research project was to use three data sources to derive the final population, the difficulties that emerged in this process were not anticipated. Among the problems encountered were that one of the more productive schools did not submit any abstracts to Dissertation Abstracts, that several schools tended to omit the names of dissertation advisors in Dissertation Abstracts entries, and that the editing of Completed Research was such that entries appeared in more than one volume and entries appeared without a degree and/or a year. All of these factors contributed to the procedural challenge to establish the base of dissertations for study.

Finally, an overriding impression gained in the course of this research project was the size of the body of knowledge that lies buried in the dissertation literature. More than 5,000 such research projects were conducted in physical education over the past 20 years, but the

results of most of these investigations have not been integrated into the active body of knowledge in the field. It is understandable that dissertation authors may choose not to publish the results of their research in the active literature. However, some responsibility also lies on the other side of the line, in that many researchers who do publish their work have tended to ignore, discredit, or minimize their reliance on the dissertation literature. Although it is often a laborious task to delve into the dissertation miasma, the knowledge that is buried there must be given a chance to surface.

CHAPTER VI

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Summary

The research project documented in this report was designed to describe selected characteristics of doctoral dissertations written by students in departments of physical education in the United States from 1964 through 1983. It was conceptualized and carried out in light of both the existing body of knowledge about doctoral dissertations in physical education and the available social scientific research methodology.

Through a process of sequential matching of listings in Dissertation Abstracts International, Completed Research in Health, Physical Education, and Recreation, and American Doctoral Dissertations, a population of 5344 dissertations in physical education completed between 1964 and 1983 was identified. For each dissertation, five objective elements were recorded: (a) the degree that was earned, (b) the year in which the degree was earned, (c) the college or university where the degree was earned, (d) the advisor(s) of the dissertation author, and (e) the prestige ranking of the physical education doctoral program. Each dissertation abstract or title was coded for the academic specialty of physical education it reflected according to a classification paradigm derived from Zeigler's (1982, 1983) taxonomy. Each entry was also coded for the primary research strategy that was used, based on a variation of the paradigm presented by Isaac and Michael (1981).

A series of analyses were performed to provide answers to five sets of questions which guided the research project. One-way frequency distributions and two-way crosstabulations of (a) the academic specialties reflected in the dissertation research, (b) the degrees for which the dissertations were written, (c) the research strategies used in the dissertations, and (d) the prestige levels of the doctoral programs in which the dissertations were written were generated. Trends in the academic specialties, degrees, and research strategies from 1964 to 1983 were identified. Information about dissertation advisors, with emphasis on the most prolific advisors, was also obtained.

Conclusions

The results of the research project documented in this report support the following conclusions:

1. The dissertations written in physical education between 1964 and 1983 reflected eight academic specialities of the field. The most common area was functional effects of physical activity, followed by, in order, program development, motor learning and development, sociocultural and behavioral aspects, management theory and practice, background and meaning, mechanical and muscular analysis, and measurement and evaluation. The proportion of dissertations which reflected sociocultural and behavioral aspects of physical activity increased from 1964 to 1983 while the distribution of dissertations among the other academic specialties was stable.

2. The dissertations were written for Doctor of Arts, Doctor of Education, Doctor of Philosophy, and Doctor of Physical Education

degrees. The majority of the dissertations were written for Doctor of Philosophy degrees; Doctor of Education degrees constituted a smaller but substantial proportion of the degrees. Doctor of Arts and Doctor of Physical Education degrees were earned much less frequently. The proportion of Doctor of Philosophy degrees increased from 1964 to 1983 while the proportion of Doctor of Education and Doctor of Physical Education degrees decreased. The most common academic specialty reflected in dissertations written for the Doctor of Philosophy degree was functional effects. The most common specialty for Doctor of Arts, Doctor of Education, and Doctor of Physical Education degrees was program development.

3. Nine different research strategies were used in the dissertation research. The most common research strategy was descriptive research, followed by, in order, quasi-experimental research, true experimental research, product development, historical research, causal-comparative research, philosophical research, case and field studies, and action research. There was little change from 1964 to 1983 in the distribution of research strategies used in the dissertations with the exception of a trend towards the increasing use of true experimental research and decreasing use of quasi-experimental research. Within seven of the eight academic specialties, two or three research strategies accounted for nearly all of the dissertations. Descriptive research was the most common research strategy used in dissertations for all four doctoral degrees, but more true experimental research was done for Doctor of Philosophy degrees than for the other three degrees.

4. More dissertations were written in programs at higher prestige levels than in programs at lower prestige levels. There was little variation in the distribution of academic specialties reflected in the dissertations according to the prestige level of the program in which they were written. Dissertations written in programs at the higher prestige levels tended to use more true experimental and less descriptive and quasi-experimental research than those written in lower prestige programs. A greater proportion of the degrees earned in higher prestige programs were Doctor of Philosophy degrees than in lower prestige programs; more Doctor of Education degrees were earned in the lower prestige programs than in the higher prestige programs.

5. A total of 888 individuals served as advisors for the dissertations under study. Most of the advisors guided fewer than five dissertations, and only 45 advisors guided 20 or more dissertations. The most common inferred academic specialties of the most prolific dissertation advisors were program development and functional effects. Advising specialties less often reflected, in order, motor learning and development, sociocultural and behavioral aspects, background and meaning, management theory and practice, measurement and evaluation, and mechanical and muscular analysis. A majority of the most prolific mentors were affiliated with the highest prestige doctoral programs.

Recommendations for Further Study

The process and results of the research project documented in this report constituted a preliminary examination of a domain that has received little empirical attention. The base of information and the manner in which the data were studied can serve as starting points for further inquiry. The following recommendations are presented as opportunities for further inquiry that would build on the established base.

1. A similar research project could be conducted using complete dissertations (rather than abstracts) sampled from the population of dissertations which was identified. The use of complete documents would permit the analysis of additional characteristics of the dissertations, e.g., appropriateness of statistical analyses, formats, and quality indicators.

2. The general strategy of the research project could be applied to published physical education research. In addition to supplementing the knowledge base about published research, this would permit comparisons between dissertation research and research that is in the mainstream of the literature of the field.

3. New paradigms for the classification of academic specialties within physical education could be developed. It may be appropriate to consider a multi-faceted paradigm which would include several dimensions, i.e., the abstract body of knowledge, what scholars actually study, and how specializations are operationalized in

organizations and curricula.

4. The characteristics of specialization in doctoral study in physical education could be assessed in a different manner, e.g., survey research. Information regarding the nature of specialization and the curricular relationships between physical education specializations and parent discipline areas would add substance to discussions of the positive and negative aspects of specialization. Also, specializations within programs could be compared to specializations identified in the doctoral dissertations.

5. New paradigms for the classification of research strategies used in physical education could be developed. A well-developed paradigm would add much to the understanding of the nature of the research in the field.

6. The characteristics of doctoral dissertation advising could be examined. Information about the advisors, the students, student-advisor relationships, and the advising process would permit examination of the efficacy of this component of the preparation of future scholars.

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APPENDIX A

MAJORS EXCLUDED FROM THE RESEARCH PROJECT

Dance
Dance and Related Arts

Allied Health
Community Health Education
Curriculum and Instruction (Health Education)
Education (Health Education)
Education/School Health
Health
Health Education
Health Education (Allied Health)
Health Science
Health Services
School Health Education

Education/Recreation
Education (Recreation, Park and Leisure Studies)
Leisure Studies
Recreation
Recreation Administration
Recreation and Leisure
Recreation and Park Management
Recreation and Parks
Therapeutic Recreation

Curriculum and Instruction (Safety Education)

APPENDIX B

ACADEMIC SPECIALTY CODING PARADIGM

[I] BACKGROUND, MEANING, AND SIGNIFICANCE (BM)

HISTORY
*ANY HISTORY IS BM ONLY UNLESS ANOTHER PERSPECTIVE (NOT SUBJECT) IS INCLUDED

PHILOSOPHY
*MEANING: WHAT IT IS
*SIGNIFICANCE: DIRECTIONAL IMPORT
*CONCEPT MUST BE PHILOSOPHICAL RATHER THAN CULTURAL/SOCIOLOGICAL/ PSYCHOLOGIAL; ABSTRACT, NOT APPLIED

INTERNATIONAL
*NON-AMERICAN MUST BE MAJOR FACTOR; ELEMENT OTHER THAN LOCATION MUST APPEAR

CONTEXT FOR SPE OCCURRENCE

COMPARATIVE

INTERNATIONAL RELATIONS

PROFESSIONAL ETHICS
*PROFESSIONAL IDENTITY
*NATURE OF THE PROFESSION

[II] FUNCTIONAL EFFECTS OF PHYSICAL ACTIVITY (FE)

EXERCISE PHYSIOLOGY
*ENERGY UTILIZATION
*STRUCTURAL & FUNCTIONAL ADAPTATIONS TO EXERCISE

ANTHROPOMETRY
*HOW PERFORMANCE IS AFFECTED BY BODY STRUCTURE

BODY COMPOSITION
*FAT, MUSCLE FIBERS

DEVELOPMENT OF LAB TESTS GO HERE; FIELD TESTS GO TO ME
TRAINING PROGRAMS GO HERE BUT INSTRUCTIONAL PROGRAMS TO PD

FITNESS & HEALTH APPRAISAL

EXERCISE THERAPY

NUTRITIONAL APPLICATION

[III] SOCIOCULTURAL AND BEHAVIORAL ASPECTS (SB)

SOCIOLOGY

INDIVIDUAL PSYCHOLOGY
*PERSONALITY, MOTIVATION, ANXIETY, AGGRESSION

SOCIAL PSYCHOLOGY
*TEAM DYNAMICS, AUDIENCE EFFECTS, MODELING
*ATTITUDES DO NOT HAVE TO GO HERE

POLITICAL SCIENCE

GEOGRAPHY

ECONOMICS

MUST GIVE SOME INDICATION OF GROUNDING IN COGNATE DISCIPLINE
MOTOR PERFORMANCE GOES HERE; MOTOR LEARNING TO ML
APPLICATION OF THEORY TO PRACTICE

[IV] MOTOR LEARNING AND DEVELOPMENT (ML)

PSYCHO-MOTOR LEARNING
*COGNITIVE PROCESSES IN MOTOR LEARNING
*NATURE, FREQUENCY, AND DURATION OF PRACTICE
*NEURAL CONTROL OF MOTOR ACTIVITIES

PHYSICAL GROWTH

MOTOR DEVELOPMENT

MOTOR DEVELOPMENT OVERRIDES MM
MOTOR PERFORMANCE WITHOUT LEARNING GOES TO SB
PHYSIOLOGY CAN GO HERE BUT EXERCISE PHYSIOLOGY MUST CONSIDER FE

[V] MECHANICAL AND MUSCULAR ANALYSIS OF MOTOR SKILLS (MM)

BIOMECHANICS
*KINETIC, KINEMATIC FACTORS
*INTERNAL AND EXTERNAL FORCES
*STRUCTURE RELATED TO MOTION

NEURO-SKELETAL MUSCULATURE
*SKELETAL PARTS, MUSCLE GROUPS, WHICH NERVES DO WHAT, ROLE OF BLOOD SUPPLY

ONLY STUDIES WITH SPECIFIED CONTROLS
TRAINING PROGRAMS GO HERE, INSTRUCTIONAL TO PD
DEVELOPMENT OVERRIDES

[VI] MANAGEMENT THEORY AND PRACTICE (MT)

THEORY ABOUT THE MANAGEMENT FUNCTION
*MANAGEMENT=ADMINISTRATION=SUPERVISION
*"ORGANIZATION AND ADMINISTRATION"
*LEADERSHIP TASKS, PROCESSES
*SOLUTIONS OF PROBLEMS IN ORGANIZATIONS

APPLICATION OF THEORY TO PRACTICE
*PLANNING, ORGANIZING, CONTROLLING, AND EVALUATING EFFECTIVENESS & EFFICIENCY OF ORGANIZATION
*FINANCE, FACILITIES, PROGRAM/CURRICULUM ANALYSIS, ADMINISTRATIVE POLICIES & PROCEDURES, LEGAL ASPECTS, TASKS & QUALIFICATIONS OF ADMINISTRATORS, ORGANIZATIONAL STRUCTURE, JOB SATISFACTION

PROGRAM EVALUATION THAT HAS DIRECT ADMINISTRATIVE IMPLICATIONS GOES HERE
PROGRAM THAT FOCUSES ON ORGANIZATION/OPERATION GOES HERE

[VII] PROGRAM DEVELOPMENT (PD)

THEORY ABOUT PROGRAM DEVELOPMENT

GENERAL EDUCATION

CURRICULUM & INSTRUCTION

*CURRICULUM THEORY & APPLICATION
  *VALUES, AIMS/OBJECTIVES/GOALS, CONTENT, EVALUATION
  *CONTENT GOES HERE BUT IMPLEMENTATION GOES TO MT
*THEORIES OF INSTRUCTION & APPLICATION
  *STRATEGIES (PUPIL GROUPING & PROGRESSIONS), MATERIALS, TEACHER BEHAVIORS, CLASS MANAGEMENT

PROFESSIONAL PREPARATION

INTRAMURAL SPORTS & PHYSICAL RECREATION

INTERCOLLEGIATE ATHLETICS
*CAN GO TO PROGRAM FOCUS

PROGRAMS FOR THE HANDICAPPED, INCLUDING CURRICULUM & INSTRUCTION
*CAN GO TO OTHER AREA IF NOT C/I FOCUS

TRAINING PROGRAMS GO TO OTHER SPECIALTIES BUT INSTRUCTIONAL PROGRAMS GO HERE
GENERAL QUESTIONS ABOUT IMPACT OF CLASSES
MOTIVES FOR PARTICIPATION
ALL LEVELS, INCLUDING PROFESSIONAL

[VIII] MEASUREMENT AND EVALUATION [ME]

THEORY ABOUT THE MEASUREMENT FUNCTION
*VALIDITY, RELIABILITY, OBJECTIVITY, ACCURACY, APPROPRIATENESS, COST
*FITNESS, PERFORMANCE, AFFECTIVE, COGNITIVE

APPLICATION OF THEORY TO PRACTICE
*TEST SELECTION/CONSTRUCTION

MEASURE MUST BE PRIMARY FOCUS, NOT BY-PRODUCT

[IX] NON-PHYSICAL EDUCATION (NO)

HEALTH EDUCATION
*HEALTH SERVICES
*SCHOOL HEALTH
*COMMUNITY HEALTH
*HEALTH KNOWLEDGE, ATTITUDES, BEHAVIOR

DANCE
*BALLET, DANCE THERAPY, FOLK DANCE, JAZZ, MODERN, SQUARE, SOCIAL

RECREATION
*RECREATION ADMINISTRATION
*RECREATION & PARK MANAGEMENT
*THERAPEUTIC RECREATION
*LEISURE ATTITUDES & BEHAVIOR

SAFETY EDUCATION
*DRIVER EDUCATION

CODE AS NO ONLY IF IT IS CLEAR THAT NO REFERENCE TO PHYSICAL ACTIVITY, PHYSICAL EDUCATION, SPORT, MOVEMENT, OR EXERCISE

APPENDIX C

RESEARCH STRATEGY CODING PARADIGM

[I] HISTORICAL RESEARCH (HI)

PURPOSE: TO RECONSTRUCT THE PAST SYSTEMATICALLY AND OBJECTIVELY BY COLLECTING, EVALUATING, VERIFYING, AND SYNTHESIZING EVIDENCE TO ESTABLISH FACTS AND REACH DEFENSIBLE CONCLUSIONS, OFTEN IN RELATION TO PARTICULAR HYPOTHESES

EMPIRICAL DATA?	YES	LOGICAL INFERENCE, NOT STATISTICAL
PRODUCT?	--	MORE QUALITITATIVE THAN QUANTITATIVE
INTERVENTION?	NO	CONCERNED WITH SPECIFICS OF TIME,
CONTROL?	--	LOCATION, PERSON, EVENT--NOT
PROBLEM SITE?	--	GENERIC
RETROSPECTIVE?	YES*	MANY FORMS OF EVIDENCE ARE POSSIBLE
COMPREHENSIVE?	YES*	QUANTITATIVE TRENDS NOT SUFFICIENT;
CAUSE & EFFECT?	--	IF NO DEPTH, IT'S DE OR CC

[II] DESCRIPTIVE RESEARCH (DE)

PURPOSE: TO DESCRIBE SYSTEMATICALLY THE FACTS AND CHARACTERISTICS OF A GIVEN POPULATION OR AREA OF INTEREST, FACTUALLY AND ACCURATELY

EMPIRICAL DATA?	YES	CAN BE RETROSPECTIVE IF LIMITED TO
PRODUCT?	NO	QUANTITATIVE TRENDS
INTERVENTION?	NO*	DATA COLLECTION PER SE IS NOT INTERVENTION
CONTROL?	--	NO SPECIFIC CAUSE & EFFECT
PROBLEM SITE?	--	OVERVIEW RATHER THAN IN DEPTH
RETROSPECTIVE?	--	
COMPREHENSIVE?	NO*	
CAUSE & EFFECT?	NO*	

[III] CASE AND FIELD STUDY RESEARCH (CF)

PURPOSE: TO STUDY INTENSIVELY THE BACKGROUND, CURRENT STATUS, AND ENVIRONMENTAL INTERACTIONS OF A GIVEN SOCIAL UNIT: AN INDIVIDUAL, GROUP, INSTITUTION, OR COMMUNITY

EMPIRICAL DATA?	YES	PRIMARY PURPOSE IS DESCRIPTION
PRODUCT?	NO	GO IN DEPTH ON SINGLE UNIT RATHER THAN
INTERVENTION?	--	SURVEY ACROSS UNITS
CONTROL?	NO	FOCUS ON SPECIFIC, NOT GENERIC
PROBLEM SITE?	--	NOT SOLVING A SPECIFIC PROBLEM
RETROSPECTIVE?	--	SINGLE SITE NOT SUFFICIENT--MUST ALSO
COMPREHENSIVE?	YES*	BE IN DEPTH
CAUSE & EFFECT?	--	

[IV] CAUSAL-COMPARATIVE RESEARCH (CC)

PURPOSE: TO INVESTIGATE POSSIBLE CAUSE-AND-EFFECT RELATIONSHIPS BY OBSERVING SOME EXISTING CONSEQUENCE AND SEARCHING BACK THROUGH THE DATA FOR PLAUSIBLE CAUSAL FACTORS.

EMPIRICAL DATA?	YES	MUST HAVE SPECIFIC CAUSE AND EFFECT
PRODUCT?	--	VARIABLES
INTERVENTION?	NO	DIFFERENCES OR RELATIONSHIPS MUST BE
CONTROL?	--	PRIMARY VARIABLES
PROBLEM SITE?	--	SIMILAR TO QE OR TE BUT NON-MANIPULABLE
RETROSPECTIVE?	YES*	INDEPENDENT VARIABLES
COMPREHENSIVE?	NO	DATA COLLETION PER SE IS NOT INTERVENTION
CAUSE & EFFECT?	YES*	MUST HAVE SPECIFIC REFERENCE TO EFFECT OF ANTECEDENT VARIABLES

[V] TRUE EXPERIMENTAL RESEARCH (TE)

PURPOSE: TO INVESTIGATE POSSIBLE CAUSE-AND EFFECT RELATIONSHIPS BY EXPOSING ONE OR MORE EXPERIMENTAL GROUPS TO ONE OR MORE TREATMENT CONDITIONS AND COMPARING THE RESULTS TO ONE OR MORE CONTROL GROUPS NOT RECEIVING THE TREATMENT

EMPIRICAL DATA?	YES	MUST DEMONSTRATE CONTROL OF VARIABLES
PRODUCT?	--	MUST INDICATE ALL SUBJECTS RECEIVED
INTERVENTION?	YES*	IDENTICAL TREATMENT
CONTROL?	YES*	SHOULD INCLUDE AT LEAST ONE LEVEL OF
PROBLEM SITE?	--	RANDOMIZATION
RETROSPECTIVE?	NO	CONTROL GROUP NOT ESSENTIAL
COMPREHENSIVE?	--	
CAUSE & EFFECT?	YES	

[VI] QUASI-EXPERIMENTAL RESEARCH (QE)

PURPOSE: TO APPROXIMATE THE CONDITIONS OF THE TRUE EXPERIMENT IN A SETTING WHICH DOES NOT ALLOW THE CONTROL AND/OR MANIPULATION OF ALL RELEVANT VARIABLES

EMPIRICAL DATA?	YES	MUST LACK SOME CONTROL OR RANDOMIZATION
PRODUCT?	--	USUALLY IN APPLIED SETTING
INTERVENTION?	YES*	ALL SUBJECTS DID NOT RECEIVE IDENTICAL
CONTROL?	YES/NO	TREATMENT
PROBLEM SITE?	--	INTERVENTION DOES NOT HAVE TO BE DONE BY
RETROSPECTIVE?	NO	INVESTIGATOR
COMPREHENSIVE?	--	
CAUSE & EFFECT?	YES	

[VII] ACTION RESEARCH (AC)

PURPOSE: TO DEVELOP NEW SKILLS OR NEW APPROACHES AND TO SOLVE PROBLEMS WITH DIRECT APPLICATION TO THE CLASSROOM OR WORKING WORLD SETTING

EMPIRICAL DATA?	YES	NOT JUST DESCRIPTIVE
PRODUCT?	--	RESULTS TO BE APPLIED PRIMARILY IN
INTERVENTION?	YES	SPECIFIC SETTING
CONTROL?	NO	
PROBLEM SITE?	YES*	
RETROSPECTIVE?	NO	
COMPREHENSIVE?	--	
CAUSE & EFFECT?	--	

[VIII] PHILOSOPHICAL RESEARCH (PH)

PURPOSE: TO EXAMINE THEORETICAL CONSTRUCTS WITH THE OBJECTIVE OF THOROUGH UNDERSTANDING OF THE NATURE OF THE CONSTRUCTS

EMPIRICAL DATA?	NO*	MUST USE LOGICAL ANALYSIS, NOT STATISTICAL
PRODUCT?	NO	FOCUS ON ANALYSIS, NOT DATA GATHERING
INTERVENTION?	NO	DEALS WITH ASSUMPTIONS, PRINCIPLES,
CONTROL?	NO	PROPOSITIONS
PROBLEM SITE?	--	DATA ARE ABSTRACT, GENERIC
RETROSPECTIVE?	--	
COMPREHENSIVE?	YES*	
CAUSE & EFFECT?	--	

[IX] PRODUCT DEVELOPMENT (PR)

PURPOSE: TO DEVELOP A PRODUCT OR PROCEDURE THAT CAN BE USED IN CLASSES OF SETTINGS

EMPIRICAL DATA?	YES	MUST BE USABLE IN CLASSES OF SETTINGS,
PRODUCT?	YES*	NOT JUST WHERE DEVELOPED
INTERVENTION?	--	FOCUS ON PRODUCT, NOT PROBLEM IT SOLVES
CONTROL?	--	FOCUS ON DEVELOPMENT OF PRODUCT, NOT
PROBLEM SITE?	NO	APPLICATION
RETROSPECTIVE?	NO	
COMPREHENSIVE?	NO	
CAUSE & EFFECT?	--	

APPENDIX D

ACADEMIC SPECIALTY CODING INSTRUCTIONS

OBJECTIVE:

DETERMINE THE PRIMARY ACADEMIC SPECIALTY REFLECTED IN EACH DISSERTATION ABSTRACT.

GENERAL GUIDELINES

1. Use all of the information available, title as well as text.

2. Identify the primary topics or variables under study.

   A. Look to the title and statements regarding findings for specification of topics and/or variables.

   B. Look to the summary and/or conclusions to pick up the author's apparent decisions about which topics and/or variables are primary.

   C. If the nature of a variable could have been changed without substantively changing the study, that variable would not be primary.

   D. Read the abstracts carefully to be sure physical activity is reflected.

3. Identify academic specialties under which the primary topics and/or variables fall.

   A. Refer to the expanded combined classification paradigm.

   B. If a specialty is not clear, refer to the classification paradigm regarding the two specialties under which the variable is most likely to fall.

C. If a specialty is not obvious, look up the topic/variable in the index to Zeigler's book. If a topic/variable is listed and is only found in one chapter, use the specialty of that chapter.

D. If the topics and/or variables under study are elements of health education, recreation, dance, safety education, or other non-physical education fields and do not include any specific reference to physical activity, physical education, sport, or exercise, CODE as NON-PHYSICAL EDUCATION.

E. If title does not obviously reflect physical activity but could, CODE it as UNCODABLE, not NON-PHYSICAL EDUCATION.

4. If the abstract does not contain sufficient information from which to make these judgments, CODE as UNCODABLE.

5. If all primary topics/variables are in the same specialty, CODE.

6. If all primary topics/variables are not in the same specialty, put yourself in the position of the author. Would your preparation have been in one academic specialty rather than the other? In which specialty would your next piece of research most likely fall? What would be included in the literature review? If your answers to these questions are obvious and the same, CODE.

7. If two specialties are possible, ask yourself if they are really being studied together or is a general question being addressed. If two specialties are indicated, use DOUBLE CODE.

APPENDIX E

RESEARCH STRATEGY CODING INSTRUCTIONS

OBJECTIVE:

DETERMINE THE PRIMARY RESEARCH STRATEGY USED IN EACH DISSERTATION ABSTRACT.

GENERAL GUIDELINES

1. Use all of the information available, title as well as text.

2. Identify the principal components of the research process.

   A. Determine whether the phenomena under study were empirical or non-empirical.

   B. Determine whether a 'recyclable' product was produced or not.

   C. Determine whether the researcher applied some intervention/ manipulation or not.

   D. Determine whether the setting for the investigation was "real" or not.

   E. Determine whether the setting was the site where the problem under study actually existed.

   F. Determine whether the investigation was retrospective or prospective from the researcher's entry point.

   G. Determine whether the findings were discrete or unified, broad or in-depth.

3. If the abstract does not contain sufficient information from which to make these judgments, CODE as UNCODABLE.

4. Identify the research strategy matching the combination of principal components.

   A. Refer to the classification paradigm.

   B. If a strategy is not clear, refer to the classification paradigm for the two strategies which are most likely to be appropriate.

   C. If a strategy is not obvious, refer to examples from the Isaac & Michael text for additional cues.

   D. If a strategy is not obvious, start with the most likely possibility and ask yourself what other categories are possible or reasonable; if there is enough information to eliminate <u>all reasonable</u> possibilities, code as the most likely.

5. CODE for the primary research strategy.

APPENDIX F

DISSERTATION ADVISORS

	ADVISOR	NUMBER		ADVISOR	NUMBER
1	ABERCROMBIE Betty	15.0	46	BARTZ Douglas	1.0
2	ABRAHAM Lawrence	1.0	47	BATES Barry T	10.0
3	ACUFF Bette C	1.0	48	BAUGHMAN Willis	2.0
4	ADAMS J A	1.0	49	BAUMGARTNER Theodore	11.0
5	ADAMS Sam	1.0	50	BAYLESS John G	4.0
6	ADLER Jack D	20.0	51	BEHLING Mary	4.0
7	ADRIAN Marlene	11.0	52	BEITEL Patricia	2.0
8	ALBRIGHT John	0.5	53	BELL James	0.5
9	ALDRICH Anita	20.0	54	BELL John	0.5
10	ALEXANDER John	15.0	55	BELT W Dwayne	1.0
11	ALEXANDER Kern	1.0	56	BENNETT Bruce	43.0
12	ALLEY Louis E	17.0	57	BENT Rudyard K	1.0
13	ALLSEN Philip	19.0	58	BERGER Richard	6.0
14	ALSOP William	8.0	59	BERLIN Pearl	13.0
15	AMUNDSEN Louis	1.0	60	BERNAUER Edmund	1.0
16	ANDERSON Bruce	2.0	61	BERRINGER Orville	1.0
17	ANDERSON Eugene	1.0	62	BERRYMAN Doris	1.0
18	ANDERSON Harold	1.0	63	BEVERIDGE Sandy K	4.0
19	ANDERSON William	27.0	64	BHALLA Ramesh	0.5
20	ANDREWS Gladys	1.0	65	BILLINGS Charles	0.3
21	ANDREWS James	2.0	66	BIRCH Jack W	1.0
22	ANSORGE Charles	0.5	67	BIRD Anne Marie	1.0
23	ANTONACCI Robert	1.0	68	BIRD Patrick J	2.5
24	ARMSTRONG Terry	1.0	69	BLACKBURN J Robert	1.0
25	ASHBROOK Willard P	7.0	70	BLAKE Roy F	1.0
26	ASPREY Gene M	11.0	71	BLOHM Fred	4.0
27	BABIN Wayne L	7.0	72	BLYTH Carl S	4.0
28	BAHNEMAN Carl	1.0	73	BOILEAU Richard	5.0
29	BAIN Linda L	1.5	74	BONNER Hugh W	2.0
30	BAKER Melvin C	1.0	75	BONNETTE Allen	6.0
31	BALKE Bruno	5.0	76	BOOKWALTER Karl	15.0
32	BALL Edith L	1.0	77	BOOTHE Robert	1.0
33	BALLEW J Hunter	1.0	78	BORCHARDT John	4.0
34	BALLOU Ralph	4.0	79	BORKOVEC Thomas	0.5
35	BANGERTER Blauer	3.0	80	BOROZNE Joseph	2.0
36	BARBER Josephine	2.0	81	BORZA Eugene N	0.5
37	BARDO Harold	1.0	82	BOS Ronald R	1.0
38	BARHAM Jerry N	13.0	83	BOWEN Robert T	22.0
39	BARKER Ruel M	8.0	84	BRACKENBURY Robert	1.0
40	BARNARD Harry	1.0	85	BRAIN George B	1.0
41	BARNES Mildred	2.0	86	BRIGHTBILL C K	1.0
42	BARNES William	1.0	87	BRISCOE William	1.0
43	BARRETT Kate R	8.0	88	BRODY Leon	1.0
44	BARTELMA David	0.5	89	BROEKHOFF Jan	14.0
45	BARTELS Robert	31.0	90	BROOKS George	2.0

	ADVISOR	NUMBER		ADVISOR	NUMBER
91	BROUSSARD Martin	1.0	136	CHRISTINA Robert	3.5
92	BROWN Barry S	2.0	137	CHURCH Kenneth	1.0
93	BROWN James D	1.0	138	CLARK Travis E	1.0
94	BROWN Linda L	0.5	139	CLARKE David H	19.0
95	BROWN Roscoe C	8.0	140	CLARKE H Harrison	53.0
96	BRUBAKER Clifford	2.0	141	CLARKSON Pris	1.0
97	BRUMBACH Wayne	6.0	142	CLELAND Donna	2.0
98	BUCHER Charles	1.0	143	CLIFTON Marguerite	6.0
99	BULLINGTON Richard	1.0	144	CLIPSON William	2.0
100	BULLOCK Terry	1.0	145	CLUTE Morrel	1.0
101	BUNDSCHUH Ernest	2.0	146	COATES Edward	0.5
102	BURDESHAW Dorothy	2.0	147	COBB Richard	1.0
103	BURDICK John M	0.5	148	CODY Carolyn	4.0
104	BURKE Edmund J	1.0	149	COKER Gordon	2.0
105	BURKE Norma Peggy	6.0	150	COLEMAN Dorothy	2.0
106	BURKE Roger K	4.0	151	CONLEE Robert	4.0
107	BURNHAM Stanley	1.0	152	CONNOR Helen R	4.0
108	BURRIS Barbara	1.0	153	COOPER John D	0.5
109	BURT John J	2.0	154	COOPER John M	45.5
110	BURTON Elsie C	2.0	155	COOPER Shirley	7.0
111	BUSKIRK Elsworth	10.0	156	CORBIN Charles	0.5
112	BUTLER Lonis C	16.0	157	COSTA Richard	0.5
113	BYRD Ronald James	14.0	158	COSTILL David	0.5
114	CAFFREY Garret	1.0	159	COTTRELL Milford	1.0
115	CALL C Boyd	4.0	160	COUNSILMAN James	8.0
116	CAMPBELL Donald	6.0	161	COUSINS George	24.0
117	CAMPISI Paul	1.0	162	COUSINS Jack E	2.0
118	CAMPNEY Harry	1.0	163	CRABTREE William	1.0
119	CAPEN Edward K	14.0	164	CRAFT Diane	1.0
120	CARLE Wayne	1.0	165	CRAWFORD William	1.0
121	CASADY Donald	10.0	166	CROGHAN John H	1.0
122	CAVANAGH Peter	7.0	167	CRYER Walter	2.0
123	CHAFFIN Don B	0.5	168	CULLINAN Paul	1.0
124	CHALOUPKA Larry	1.0	169	CUMBEE Frances	3.5
125	CHAMBERS Martha	2.0	170	CURETON Kirk J	4.5
126	CHAMBLESS Jim	9.0	171	CURETON Thomas	38.0
127	CHAMPION Lynn	1.3	172	CUTTER Vance	0.5
128	CHAPMAN Sarah	1.0	173	CYPHER Irene F	1.0
129	CHEEK Don Lynn	1.0	174	DAINIS Andrew	1.0
130	CHEFFERS John	16.6	175	DANIELS Jack T	2.0
131	CHENEY Gay E	1.0	176	DARST Paul W	2.0
132	CHEVRETTE John	7.0	177	DAUGHERTY John	44.0
133	CHILTON Stuart	1.0	178	DAVIES Evelyn	23.0
134	CHRISTENBURY Edward	2.0	179	DAVIS Russell	1.0
135	CHRISTIAN Quentin	2.0	180	DAVIS S E	1.0

	ADVISOR	NUMBER		ADVISOR	NUMBER
181	DAY Barbara	1.0	226	ESSLINGER Arthur	1.0
182	DAY Phyllis M	4.0	227	EVANS J Robert	1.0
183	DAYRIES John	0.5	228	EVANS Warren R	1.0
184	DEACH Dorothy	1.0	229	EVAUL Thomas W	6.0
185	DEFRANTZ Anita	1.0	230	EVERETT Betty	5.0
186	DELON Floyd G	1.0	231	EVERETT Peter	58.0
187	DELREY Patricia	2.0	232	EVONUK Eugene	12.0
188	DEVAULT M Vere	1.0	233	EWERS James R	21.0
189	DEVRIES Herbert	10.0	234	EYLER Marvin H	16.0
190	DIBONA Gerald	0.5	235	FAIN Gerald	0.3
191	DICKINSON Arthur	1.0	236	FAIT Hollis F	4.0
192	DILLMAN Charles	4.0	237	FANT Helen E	7.0
193	DINUCCI James	9.0	238	FARRAR Roger P	1.0
194	DIZNEY Henry F	1.0	239	FARRELL Joan E	2.5
195	DOBBINS D Alan	1.0	240	FAULKNER John	7.0
196	DODDER Richard	1.0	241	FAUST Augustus	1.0
197	DONNELLY Richard	3.0	242	FEE F Mary	3.0
198	DORNBUSCH Sanford	1.0	243	FEHL Patricia	3.0
199	DOTSON Charles	5.5	244	FELDT Leonard	2.0
200	DOUGHERTY M Frances	2.0	245	FERDUN Edrie	1.0
201	DOUGLAS J William	6.0	246	FINK Ruth White	2.5
202	DOWELL Linus J	18.0	247	FISHER A Garth	13.0
203	DOWLING William	1.0	248	FOLEY Walter S	1.0
204	DRAKE William	1.0	249	FORSYTH Robert	0.5
205	DRISCOLL Margaret	8.5	250	FOSS Merle L	4.0
206	DROWATZKY John	8.0	251	FOURIER Arthur	3.0
207	DRURY Francis	24.0	252	FOX Edward L	24.3
208	DUFFY Patrick	1.0	253	FOX Grace I	1.0
209	DUGGAN Anne Schley	2.0	254	FOX Margaret G	18.5
210	DUKE Derwood N	1.0	255	FRALEY Lester	1.0
211	DUNN John M	3.0	256	FRANCIS Rulon	4.0
212	DURRANCE Charles	1.0	257	FRANKS B Don	5.0
213	DURRANT Earlene	1.0	258	FRASIER James	0.5
214	DUTTON Wilbur	1.0	259	FRENCH Esther	2.0
215	EBERLE August	1.0	260	FRENCH John W	1.0
216	ECKEL Howard	1.0	261	FRENCH Ronald	6.0
217	ECKERT Helen	1.0	262	FROHRIB Darrell	0.5
218	EDGLEY Betty	1.0	263	FROST Reuben B	8.0
219	EDINGTON Dee W	1.0	264	GABBARD Carl	1.0
220	EDWARDS Steven	2.0	265	GABRIELSEN Bramwell	4.0
221	ELLFELDT Lois	7.0	266	GABRIELSEN Milton	5.0
222	ELLIS Michael	4.5	267	GALLAHUE David	1.0
223	ENDWRIGHT John	2.0	268	GALLOWAY Charles	1.0
224	ERSING Walter	11.0	269	GALVAK Emil S	1.0
225	ESPENSCHADE Anna	1.0	270	GANSLEN Richard	2.0

	ADVISOR	NUMBER		ADVISOR	NUMBER
271	GARRETT Hubert	15.5	316	HAMBURG Marian	1.0
272	GARRETT John L	1.0	317	HANDLEY Herbert	1.0
273	GAUTHIER R Adrien	1.0	318	HANSEN Gary F	7.0
274	GENASCI James	7.0	319	HARCLEROAD Fred F	1.5
275	GENCH Barbara	4.0	320	HARPER Donald	5.0
276	GENTILE Antoinette	12.0	321	HARRIS Dorothy	1.0
277	GENTRY Roy B	2.0	322	HARRIS Ruth W	0.5
278	GERKEN Clay	0.5	323	HARRIS William	1.0
279	GESER L Richard	6.0	324	HARRISON Aix B	33.0
280	GILL Diane L	5.0	325	HARRISON Joyce	5.0
281	GILLANDERS Dorothy	0.5	326	HARRISON Price	1.0
282	GILLIAM Thomas	3.5	327	HARTMAN Betty	1.0
283	GILLILAND John	2.0	328	HARTUNG G Harley	1.0
284	GIRANDOLA Robert	1.0	329	HARTVIGSEN Milton	3.0
285	GISOLFI Carl V	1.5	330	HARVEY Lewis O	0.5
286	GLASSOW Ruth B	1.0	331	HASS C Glen	1.0
287	GODFREY Barbara	17.0	332	HATCH Terrance	1.0
288	GOLDBERGER Michael	2.0	333	HAWTHORNE Jesse J	1.0
289	GOLDENSTEIN Erwin H	1.0	334	HAWTHORNE Richard	1.5
290	GOLDING Lawrence	10.5	335	HAY James G	1.5
291	GOLLNICK Philip	18.0	336	HAYDEN Alice H	2.0
292	GOOD Larry A	3.0	337	HAYES Gene A	2.5
293	GOODMAN Karen	2.0	338	HAYMES Emily M	2.5
294	GORDON C Wayne	1.0	339	HEAGERTY Frank	2.0
295	GORDON Carol E	1.0	340	HEDING Howard	5.0
296	GRAFF Orin B	1.0	341	HELMS William	1.0
297	GRANT Christine	0.5	342	HENDRICKS Troy	16.0
298	GRAVES J Merrill	1.0	343	HENGST Herbert	1.0
299	GRAY Edwin R	1.5	344	HENNIS Gail M	27.0
300	GREENE Walter	1.0	345	HENRY Franklin	20.5
301	GREENLEAF Elizabeth	2.0	346	HENSCHEN Keith	31.0
302	GREER Scott	1.0	347	HERBERT William	4.0
303	GREMILLION J Berton	2.0	348	HERKOWITZ Jacqueline	3.0
304	GRIFFIN Leon E	33.0	349	HESS Lewis A	38.0
305	GRIFFITH LeRoy	0.5	350	HEUSNER William	2.0
306	GROSS Elmer A	2.5	351	HIGGINS Joseph	4.0
307	GUNN Eric M	1.0	352	HILL Joseph E	1.0
308	GURIN Gerald	0.5	353	HILSENDAGER Donald R	6.0
309	GUSTAFSON Arne	13.0	354	HILSINGER Roderick	1.0
310	GUTIN Bernard	18.0	355	HINES Clarence	1.0
311	HALL Evelyn G	2.5	356	HINSON Marilyn	11.0
312	HALL J Tillman	29.5	357	HIXSON Chalmer	9.0
313	HALL Larry T	2.0	358	HODGE Stephen	1.0
314	HALL Stanley	6.0	359	HODGSON James	1.5
315	HALVERSON Lolas	13.0	360	HOFFMAN Shirl	2.0

	ADVISOR	NUMBER		ADVISOR	NUMBER
361	HOLBROOK Leona	3.0	406	JOHNSON Robert	0.5
362	HOLTER Frederick	1.0	407	JOHNSON Ronald	1.0
363	HOLTON Samuel	2.0	408	JOHNSON Warren	5.0
364	HOOD Albert B	1.0	409	JONES Billie J	4.5
365	HOOVER Hiram	1.0	410	JONES Richard	2.0
366	HOPKINS Kenneth	0.5	411	JONES Webb	3.0
367	HORNUNG Carlton	0.5	412	JONES Wendell	1.0
368	HOUNSHELL Paul	0.5	413	JOYCE John	0.3
369	HOWARD Shirley	2.0	414	KAMON Eliezer	2.0
370	HOWE Clifford	1.0	415	KAPLAN Robert	1.0
371	HOWLEY Edward	4.0	416	KARPOVICH Peter	3.0
372	HOYMAN Howard	1.0	417	KATCH Victor	3.0
373	HUBBARD Alfred	16.0	418	KAVANAUGH Allen	1.0
374	HUELSTER Laura	7.0	419	KEAN John M	1.0
375	HULL Ray	1.0	420	KEENAN Verne C	0.5
376	HUME Gwenne J	1.0	421	KEENEY Clifford	2.0
377	HUMPHREY James	14.0	422	KELLEY David L	6.5
378	HUNKINS Francis	1.0	423	KELLY Edward L	1.0
379	HUNSICKER Paul	5.5	424	KELSO J A Scott	1.0
380	HUNT Edward E	1.0	425	KENDRICK Zebulon	2.0
381	HUNT John J	0.5	426	KENYON Gerald	7.0
382	HUNTER Ovid N	51.0	427	KERBER Paul	0.5
383	HURWITZ Irving	1.0	428	KIDESS Attalla	1.0
384	HUSMAN Burris	11.5	429	KIEFFER Leigh	2.0
385	INGRAM Anne G	2.0	430	KIMBALL Edwin	1.0
386	INGRAM Dorothy	11.0	431	KINDIG Louise	6.0
387	ISMAIL A H	17.0	432	KING Douglas W	1.0
388	JACK Harold K	3.0	433	KING F J	1.0
389	JACKSON Andrew	0.5	434	KISTLER Joy W	4.0
390	JACKSON Chester	1.0	435	KLEINMAN Seymour	18.0
391	JACKSON Michael	3.0	436	KLIMO Jonathan	1.0
392	JACOBS H Lee	0.5	437	KNAPP Royce	1.0
393	JAEGER Eloise	7.5	438	KNOWLES Claudia	1.0
394	JANSEN Udo H	3.0	439	KNOWLTON Ronald	7.0
395	JARMAN Boyd O	19.0	440	KOZAR Andrew J	5.0
396	JELINEK James	0.5	441	KRAFT Richard	1.0
397	JENSEN Arthur	1.0	442	KRAHENBUHL Gary	2.0
398	JENSEN Barbara	10.0	443	KRAMER George	12.0
399	JESSUP George	6.5	444	KRAUS Richard	4.0
400	JEWETT Ann E	27.5	445	KRAVAS Constance	1.0
401	JOEKEL Ronald	1.0	446	KRIDER Mary K	0.5
402	JOHNSON B Lamar	1.0	447	KROLL Walter P	10.0
403	JOHNSON Dewayne	5.5	448	KRUG Edward A	0.5
404	JOHNSON LaVon	3.0	449	KURUCZ Robert	19.0
405	JOHNSON Ralph	2.0	450	LAMB David R	4.0

	ADVISOR	NUMBER
451	LAMBERT Charlotte	1.0
452	LAMPSHIRE Richard	1.0
453	LANCEY Barbara	1.0
454	LANDERS Daniel	4.0
455	LANDISS Carl W	19.0
456	LARISH Douglas	1.0
457	LARSON Leonard	2.5
458	LAWRENCE Gordon	1.0
459	LAWTHER John D	3.5
460	LAY Nancy E	1.0
461	LEE Amelia M	1.0
462	LEFEBVRE Claudette	1.0
463	LEHMANN Charles	0.5
464	LEHSTEN Nelson	3.5
465	LEIBOWITZ Herschell	0.5
466	LEIGH Mary H	1.0
467	LERSTEN Kenneth	5.5
468	LESLIE David K	7.0
469	LEVEAU Barney	0.5
470	LEWIS Clifford	8.5
471	LEY Katherine	2.0
472	LEYHE Naomi L	4.0
473	LIBA Marie R	3.0
474	LIEMOHN Wendell	2.0
475	LIFE Mary Louise	5.0
476	LITTLE Mildred	1.0
477	LIVERMAN Robert	3.0
478	LLOYD Lyle L	0.5
479	LOCKE Lawrence	11.0
480	LOCKHART Aileene	46.0
481	LOCKHART Barbara	4.0
482	LOGAN Gene	4.0
483	LOHMAN Timothy	4.0
484	LONDEREE Ben R	6.0
485	LOOCKERMAN William	3.0
486	LOVINGOOD Bill	1.0
487	LOY John W	1.0
488	LUCAS John A	2.0
489	LUESCHEN Gunther	8.0
490	LUNDEGREN Herberta	0.5
491	LYNCH Peter	1.0
492	LYNE Everett	1.0
493	MACBETH Jon	6.0
494	MACKENZIE Marlin M	4.0
495	MAGILL Richard	1.5
496	MAHDESIAN Zaven	1.0
497	MALFETTI James	1.0
498	MALINA Robert	1.0
499	MALUMPHY Theresa	1.0
500	MAND Charles L	23.5
501	MANGUM Michael	1.0
502	MANN Stuart H	0.5
503	MARINACCIO Anthony	1.0
504	MARTENS Rainer	6.0
505	MARTIN R B	1.5
506	MARTINEK Thomas	1.0
507	MASSEY Benjamin	13.5
508	MATHEWS Donald	39.3
509	MATTHEWS David	8.5
510	MAWDSLEY Robert	0.3
511	MAY Frank B	1.0
512	MAYNARD Jerry	1.0
513	MCADAM Robert	2.0
514	MCCABE John F	3.0
515	MCCLELLAN Lincoln	1.0
516	MCCLELLAN Powell	5.0
517	MCCLURE L Morris	1.0
518	MCCRAW Lynn W	17.0
519	MCCRISTAL King	1.0
520	MCCUBBIN William	0.5
521	MCCUE Betty F	27.0
522	MCDAVID Robert F	2.0
523	MCDONALD Douglas	1.0
524	MCGEE Rosemary	24.0
525	MCGILL Frances	1.0
526	MCGOWN Carl	1.0
527	MCINTYRE Anne	1.0
528	MCKAIN Harold	4.0
529	MCKEAN Robert	1.0
530	MCKINNEY E Doris	6.0
531	MCLAUGHLIN John	1.0
532	MCLEMORE Matthew	4.0
533	MCNEIL John D	1.0
534	MEETH L Richard	1.0
535	MELNICK Merrill	1.0
536	MENDEZ Jose	1.0
537	METHENY Eleanor	29.5
538	METZ Kenneth F	5.0
539	MEYEN Edward	1.0
540	MEYERS Carlton	11.0

	ADVISOR	NUMBER
541	MILHOLLAN Frank	1.0
542	MILLER Arthur	28.0
543	MILLER Kathleen	1.5
544	MILLER Kenneth	27.5
545	MILLS Hubert H	0.5
546	MILNER Ernest	1.0
547	MOHR Dorothy R	1.0
548	MOLE Paul A	1.0
549	MONTGOMERY Robert	14.0
550	MONTOYE Henry	3.5
551	MOOD Dale P	1.0
552	MOORE George C	66.0
553	MOORE James T	2.5
554	MOORE Mary Elizabeth	1.0
555	MORAN Joan M	4.0
556	MORDY Margaret	33.0
557	MOREHOUSE Chauncey	3.0
558	MORGAN Thomas	1.0
559	MORGAN William	3.0
560	MORRIS Harold	5.0
561	MORRIS L Delyte	4.0
562	MORROW James R	0.5
563	MORSE William	0.5
564	MOSER Robert P	1.0
565	MOSS John F	1.0
566	MUELLER Frederick	1.0
567	MULLIN John P	2.0
568	MUNDAY Robert	2.0
569	MUNSON B Corlee	5.0
570	MURRAY Mildred	1.0
571	MYERS Bettye	16.0
572	MYHRE Loren G	2.0
573	NAGLE Francis	18.0
574	NEALE Daniel C	1.0
575	NEILSON Neils	18.0
576	NELSON Barbara	15.0
577	NELSON Dale O	3.0
578	NELSON Jack K	42.5
579	NELSON LeRoy	1.0
580	NELSON Richard	14.5
581	NESBITT Howard	1.0
582	NETZER Lanore	1.0
583	NEWELL Karl	3.0
584	NEWMAN James A	0.5
585	NICHOLAS W Channing	1.0
586	NICKERSON Eileen	1.0
587	NIXON John E	17.0
588	NOBLE Bruce J	6.0
589	NORRIE-BROWN Marie	3.5
590	NORTON Dee W	0.5
591	OBERLE George	1.0
592	OGLESBY Carole	4.0
593	OHANLON James	2.0
594	OLSON Arne L	7.0
595	ORD John E	1.0
596	ORTON Kenneth	0.5
597	OSHEA John P	1.0
598	OSNESS Wayne	4.0
599	OSTERHOUDT Robert	2.0
600	OSTERNIG Louis	5.5
601	OSTROW Andrew	7.0
602	OWEN Marjorie	3.0
603	OXENDINE Joseph	5.0
604	PAAR Henry J	1.0
605	PANGLE Roy V	5.0
606	PANGRAZI Robert	2.0
607	PAOLONE Albert	4.0
608	PARGMAN David	6.0
609	PARK Don L	1.0
610	PARK Roberta J	0.5
611	PARKER J Cecil	0.5
612	PARKS Jesse L	12.0
613	PATTERSON Norris	1.0
614	PEACOCK William	6.5
615	PEARSON George	7.0
616	PEARSON Neville	0.5
617	PECHAR Stanley	7.0
618	PELTON Barry C	3.0
619	PENNY Guy D	6.0
620	PERRODIN Alex	1.0
621	PERRY Richard	15.5
622	PETERSEN Fred	3.0
623	PETERSEN Kay H	1.0
624	PETERSON Richard	3.0
625	PETERSON Russell	1.0
626	PEW Richard W	1.0
627	PFEIFFER Robert	0.5
628	PHILLIPS D Allen	4.0
629	PHILLIPS James	0.5
630	PHILLIPS Madge	1.0

	ADVISOR	NUMBER		ADVISOR	NUMBER
631	PILIAVIN Jane	0.5	676	ROONEY John F	4.0
632	PILMANS Andrew	1.0	677	ROSENBERG Helane S	1.0
633	PISCOPO John	2.0	678	ROSENBERG Morris	0.5
634	PLACK Jeralyn	1.5	679	ROSENTSWEIG Joel	13.0
635	PLAGENHOEF Stanley	1.0	680	ROUNDY Elmo S	24.0
636	PLEASANTS Frank	5.0	681	ROWE Patricia	1.0
637	POHNDORF R H	4.0	682	RUCKER W Ray	1.0
638	POINDEXTER Hallie	1.5	683	RUFF Wesley K	4.0
639	PORTER Glen H	1.0	684	RUHLING Robert	15.0
640	POWERS Scott K	1.0	685	RUPIPER Omer J	1.0
641	PROCTOR Samuel	1.0	686	RYAN Allan James	2.0
642	PULLIAS Earl V	2.5	687	RYAN Robert Rodney	8.0
643	PYFER Jean L	4.0	688	SAFRIT Margaret	6.0
644	RANDALL Nomma	5.0	689	SAGE George H	12.0
645	RANKIN Kelly D	1.0	690	SANDER Daryl L	1.0
646	RARICK G Lawrence	17.5	691	SANTAMARIA D L	1.0
647	RASMUS Carolyn	3.0	692	SANTOMIER James	4.0
648	RAZOR Jack E	1.0	693	SCAHILL Jeannette	7.0
649	REDDAN William	7.0	694	SCHEUCHENZUBER H J	1.0
650	REECE Jerald L	1.0	695	SCHMIDT Richard	9.0
651	REED Horace	1.0	696	SCHMINKE Clarence	1.0
652	REEDER Glen P	14.0	697	SCOGIN David	1.0
653	REIFF Guy Gene	3.0	698	SCOTT Lloyd F	1.0
654	REITER Mary Jo	2.0	699	SCOTT M Gladys	38.5
655	REITMAN Walter	0.5	700	SCRIBNER Jay D	1.0
656	REMLEY Mary Louise	1.5	701	SEAGOE May V	1.0
657	REUSCHLEIN Phillip	2.0	702	SEATON Don C	0.5
658	REUTER Edward	9.0	703	SEBOLT Don Roy	1.0
659	REYNOLDS James	1.0	704	SEIDEL Beverly	2.5
660	RHODA William	2.0	705	SEIDLER Armond	1.0
661	RIBISL Paul M	2.0	706	SERFASS Robert	1.0
662	RICCI Benjamin	1.0	707	SEYMOUR Emery	25.0
663	RICHARDS Van	1.0	708	SHAVER Larry G	6.0
664	RICHARDSON Deane	4.0	709	SHAW Donald D	4.0
665	RIDENOUR Marcella	1.0	710	SHAW John H	7.0
666	RIEL Francis J	4.0	711	SHAY Clayton T	15.0
667	RIGBY Toby W	2.0	712	SHEA Charles H	3.0
668	ROADEN O Paul	1.0	713	SHEA John B	1.0
669	ROBERTON Mary	1.0	714	SHEETS Norman	1.0
670	ROBERTS Elizabeth	9.0	715	SHEPERD George	1.0
671	ROBERTS Glyn C	4.0	716	SHERMAN Michael	5.0
672	ROBERTS John A	12.0	717	SHERRILL Claudine	14.0
673	ROBINSON Ira	1.0	718	SHICK Jacqueline	3.0
674	ROBINSON Sarah	3.0	719	SHIELDS Sharon	8.0
675	ROHTER Frank D	4.0	720	SHIRLEY John M	3.0

	ADVISOR	NUMBER
721	SHREVE Robert	1.0
722	SIEDENTOP Daryl	42.0
723	SIGALL Harold	0.5
724	SIGERSETH Peter	18.0
725	SILBERMAN Harry	1.0
726	SIMON J Richard	0.5
727	SINGER Robert	15.5
728	SINNING Wayne	11.0
729	SKINNER Ray	1.0
730	SLATER-HAMMEL Arthur	13.0
731	SLATTON Yvonne	1.5
732	SLAY Billy Borden	2.0
733	SLOAN Muriel R	10.0
734	SLUSHER Howard	7.5
735	SMIDT Gary L	1.5
736	SMITH David W	1.0
737	SMITH Douglas	5.0
738	SMITH Hope M	7.0
739	SMITH Joe F	2.0
740	SMITH L Glenn	1.0
741	SMITH Lenore C	5.0
742	SMITH Leon E	4.0
743	SMITH Ralph B	2.0
744	SMITH Richard	10.0
745	SMITH Ronald A	1.0
746	SNIDER Glen R	1.0
747	SNYDER Jack F	1.0
748	SODERBERG Gary	6.0
749	SOLOMON A H	5.0
750	SORENSEN Aage	0.5
751	SORENSON Herbert	1.0
752	SOUDER Marjorie	3.0
753	SOUTHWORTH Warren H	1.0
754	SPARKS Charley	1.0
755	SPEARS Betty	2.0
756	SPIRDUSO Waneen	8.0
757	SPRAGUE Vernon	1.0
758	SPRAY Judith	1.0
759	STADULIS Robert	0.5
760	STAFFORD Elba	1.0
761	STAMM Carol	1.0
762	STATON Wesley	3.0
763	STEBEN Ralph E	5.0
764	STEEL Donald H	8.0
765	STEEL Margaret	0.5
766	STEELMAN Bob J	1.0
767	STEEVES Frank	1.0
768	STEITZ Edward	3.0
769	STELMACH George	6.0
770	STOEDEFALKE Karl	3.0
771	STONE Franklin	0.5
772	STONE James C	1.5
773	STONE William	1.0
774	STONEMAN Merle	1.0
775	STONER Lela June	2.0
776	STOPP George H	2.0
777	STRATTON Richard	4.5
778	STREET Paul	1.0
779	STRITTER Frank	2.0
780	STRONG Clinton	21.0
781	STULL G Alan	10.0
782	SULLIVAN William	13.0
783	SUMMERS Emory	1.0
784	SURBURG Paul R	2.0
785	SUTTIE Sandra	1.0
786	SUTTON Robert	1.0
787	TAYLOR Bob L	0.5
788	TAYLOR John L	1.0
789	TEAFF Joseph	1.0
790	THOMAS Carolyn	1.0
791	THOMAS Jerry R	5.0
792	THOMAS Tom R	4.0
793	THOMPSON Fred	1.0
794	THOMPSON James	2.0
795	THOMPSON Margaret	6.0
796	THOMSON Ronald	0.5
797	THORPE JoAnne	6.0
798	THORSEN Margaret	2.0
799	TICE Grady G	3.0
800	TIERNEY William	1.0
801	TILLERY H Dale	1.0
802	TIPTON Charles	13.5
803	TOLSON Homer	7.0
804	TRUEX Dorothy	1.0
805	TURNER A Lynn	1.0
806	TWYMAN J Paschal	1.0
807	TYLER Louise L	2.0
808	TYLER Robert W	2.0
809	ULRICH Celeste	20.0
810	ULTMAN James S	1.0

	ADVISOR	NUMBER
811	UPDYKE Wynn F	5.0
812	URCH George E	1.0
813	VACCARO Paul	2.0
814	VANANNE Nancy	7.0
815	VANDALEN Deobold	4.0
816	VANDERVELDEN Lee	2.0
817	VANDERZWAAG Harold	3.0
818	VANHUSS Wayne	6.0
819	VANROSSEN Donald	1.0
820	VAUGHN Joseph	0.5
821	VENDITTI Frederick	1.0
822	VINCENT Marilyn	13.0
823	WAGSCHAL Peter	1.0
824	WAKEFIELD Mark	1.0
825	WALDEN John C	1.0
826	WALKER June	1.0
827	WALLING W Donald	1.0
828	WARD Clarence	1.5
829	WARREN Ned L	6.0
830	WATERLAND Joan	2.0
831	WATKINS Angeline	3.0
832	WATSON Helen B	3.0
833	WATSON Jack	1.0
834	WEAR Maurice D	1.0
835	WEBER Jerome C	2.0
836	WEBSTER Randolph	1.0
837	WEBSTER Staten	0.5
838	WEGNER Artnoll	1.5
839	WEINBERG Robert	1.0
840	WEINSTEIN Gerald	1.0
841	WEISS Harold S	1.0
842	WEISS Raymond	28.0
843	WELCH Hugh G	5.0
844	WELLS John C	1.0
845	WELLS L Janet	9.5
846	WENDLER Arthur	2.0
847	WESSEL Janet A	2.0
848	WEST Barbara H	6.0
849	WEST Charlotte	1.0
850	WEST Jude	0.5
851	WHALEY Martha	6.0
852	WHEATLEY Max D	0.5
853	WHITE Timothy	0.5
854	WHITNEY Douglas	0.5
855	WIDULE Carol J	2.0
856	WIEGAND Robert	6.0
857	WILBUR	2.0
858	WILKERSON James	7.5
859	WILLGOOSE Carl	4.0
860	WILLIAMS Charles	1.0
861	WILLIAMS Richard	1.0
862	WILMORE Jack H	1.0
863	WILSON John M	0.5
864	WILSON Marjorie	9.0
865	WILSON Ronald	1.0
866	WINECOFF Larry	1.0
867	WISHART A Paul	1.0
868	WISWELL Robert	1.0
869	WOLF J Grove	1.0
870	WOOD Frances	1.0
871	WOODS Bob G	1.0
872	WOODS John B	1.0
873	WOOLLACOTT Marjorie	1.5
874	WOOTEN-KOLAN Edna	26.5
875	WRENN Jerry P	3.0
876	WRIGHT Rollin	4.0
877	WRISBERG Craig	2.0
878	WUBBEN Hazlett	3.0
879	WUGHALTER Emily	1.0
880	WYKOFF O D	2.0
881	YEATER Rachel	2.5
882	YELVINGTON James	1.0
883	YONCE Lloyd R	1.0
884	YOST C Peter	1.0
885	YOUNGEN Lois J	2.0
886	ZAICHOWSKY Leonard	10.0
887	ZEIGLER Earle	21.5
888	ZIATZ Daniel H	1.0