AN ABSTRACT OF THE THESIS OF


Title: The Effect of Additional Special Physical Education and Mainstreaming Knowledge and Skills on Preservice Elementary Educators' Attitudes Toward Physical Education with Handicapped and Nonhandicapped Children

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Abstract approved: ____________________________

Dr. Gerald R. Girod

The main purpose of this study was to examine the influence of additional content from areas of mainstreaming and adapted physical education on preservice elementary educators' attitudes toward teaching nonhandicapped and handicapped children in elementary physical education. To achieve this goal (a) an instrument was constructed to assess the attitudes of preservice elementary educators toward teaching physical education to handicapped and nonhandicapped children, and (b) an experiment was devised to influence the attitudes of the treatment groups.

The Elementary Major's Attitude Toward Handicapped Scale (EMATH) was validated utilizing a jury panel and the method of equal-appearing intervals (Edwards, 1957). Twenty items were
matched for cell placement to provide a .74 split-half reliability coefficient adjusted by the Spearman-Brown Prophecy Formula (Gay, 1981).

Sixty-four randomly selected elementary majors involved in student teaching participated in the treatments. The main effects of school, group, and treatment were statistically analyzed using a three way analysis of covariance in a pretest-posttest design.

As a result of the empirical findings of this study, the following conclusions were stated regarding development of positive attitudes in preservice elementary educators toward teaching physical education with handicapped and nonhandicapped children.

1. The application of cooperative learning rationale and models across curriculum lines help preservice elementary educators hold more favorable attitudes toward teaching physical education to handicapped and nonhandicapped children.

2. Provisions for preservice elementary educators to experience limited-direct contact with handicapped children was most advantageous for the acquisition of positive attitudes toward teaching physical education to handicapped and nonhandicapped children.
THE EFFECT OF ADDITIONAL SPECIAL PHYSICAL EDUCATION AND
MAINSTREAMING KNOWLEDGE AND SKILLS ON PRESERVICE ELEMENTARY
EDUCATORS' ATTITUDES TOWARD PHYSICAL EDUCATION WITH
HANDICAPPED AND NONHANDICAPPED CHILDREN

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Typed by the author, Gerald R. Harmon
DEDICATION

To my wife, Becky, this dissertation is dedicated for the understanding and support she gave. Her love and patience carried me when the road became too long.

Some say love it is a river
and that it drowns the tender reed.
And some say love it's like a razor
that it leaves the soul to bleed.
Some say love it is a hunger
an endless aching need.
I say love it is a flower
And you it's only seed.

It's the heart afraid of breaking
that never learns to dance.
It's the dream afraid of waking
that never takes a chance.
It's the one who won't be taken
who cannot seem to give.
And the soul afraid of dying
that never learns to live.

When the night has been to lonely,
and the road has been too long.
And you think that love is only
for the lucky and the strong,
Just remember in the winter,
far beneath the bitter snow,
lies the seed that with the sun's love
in the spring becomes the rose.

-THE ROSE
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I would also like to acknowledge Dr. Carl "Duke" Iverson. Dr. Iverson provided the impetus for this degree by suggesting enrollment and employment in the OSU/WOSC School of Education. I will always be grateful for the time and interest he showed on my behalf.

Lastly, I would like to thank my children, Jessica, Alyssa, Ty and Tad for their support and encouragement. They sacrificed many opportunities in allowing time and resources to complete this program.
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THE EFFECT OF ADDITIONAL SPECIAL PHYSICAL EDUCATION AND MAINSTREAMING KNOWLEDGE AND SKILLS ON PRESERVICE ELEMENTARY EDUCATORS' ATTITUDES TOWARD PHYSICAL EDUCATION WITH HANDICAPPED AND NONHANDICAPPED CHILDREN

CHAPTER ONE

INTRODUCTION

The elementary educator requires very specialized training. The professional requires instruction in content, curriculum and pedagogy for science, social science, math, language arts, reading, art, music, health, and physical education. In addition, practica and coursework in psychology, classroom management and content from special education are included.

Due to the array of disabilities which can exist in elementary children, a sound background in special education techniques is needed by the prospective teacher. The ability to adapt instruction for the various cognitive and psychomotor skills to the disability of the child is an important function of an elementary teacher.

Public Law 94-142, the Education for All Handicapped Children Act of 1975, mandates free education for students with any type of handicap that adversely effects their right to an appropriate education. This law specifies that handicapped students be placed in the least restrictive educational environment from which they can
benefit. Mainstreaming is the acceptable term for the process of placing children in the least restrictive educational environment.

Given the implementation of Public Law 94-142, it was expected that teacher education institutions would revise programs and coursework to prepare elementary teachers to meet the intent of the law in all curriculum areas. However, several authors charged that very little was done in teacher education to prepare future teachers for the complexities of work in classes where children were mainstreamed (Schmelkin and Lieberman, 1984; Ganschow, Weber and Davis, 1984; Warger and Trippe, 1982).

Sarason and Doris (1979) testified to the status of preparing future educators for mainstreaming children.

It is there [teacher education] that they learn there are at least two types of human beings and if you choose to work with one of them you render yourself legally and conceptually incompetent to work with the others.... What we see in our public schools is a mirror image of what exists in colleges and universities. One of the clearest implications of Public Law 94-142 is that the gulf between the special and regular education has to be bridged, and yet the law requires no change in our college and university training centers (p. 391).

The overriding implication of studies by Schmelkin (1981) and Schmelkin and Lieberman (1984) pointed to the need for incorporating knowledge of and skills for teaching handicapped children across the curriculum in math, science, social studies, art,
The intent of this research was to examine the influence of additional content from areas of mainstreaming and adapted physical education on the attitudes of preservice elementary educators toward teaching physical education with handicapped and nonhandicapped children. In this thesis adapted physical education refers to fitting the regular physical education curriculum to the needs of handicapped children. Reasons for a physical education focus included (a) the probability of elementary majors transferring mainstreaming knowledge and skills across curriculum lines to physical education was questionable, and (b) a substantial base of adapted physical education literature provided references in developing a treatment. The term physical education, in this study, was synonymous with movement education that may occur in any curriculum area.

**Background for the Problem**

In the area of physical education, elementary teachers are charged with structuring a learning environment that produces creative and versatile movers out of both nonhandicapped and handicapped learners. This requires competence in motor development, motor learning, physical fitness, exercise physiology, kinesiology, games, dance, gymnastics, and pedagogy.

Buschner (1981,1984) states that most regular classroom teachers lack an adequate background to stimulate fitness, knowledge, motor
skill and positive attitudes for lifelong continuance of movement. Mizen and Linton (1981) express the need for additional special physical education knowledge and skills at the elementary level. Dauer and Pangrazi (1987) feel that a regular classroom teacher should only instruct physical education with the aid of a consultant. Given these opinions, it is reasonable to conclude that if elementary educators are lacking in the development of physical education knowledge and skills to properly instruct nonhandicapped children, it is clear that even more training is necessary to effectively deal with handicapped children in a mainstreamed environment.

This problem is not new. Over a decade ago, Smith (1972) observed:

Elementary (classroom) teachers confronted with 35 squirming children may shy at their responsibility for teaching a subject involving physical skill... Contemplating their plight, they are faced with the realization that, to teach physical education, a background of physical skills plus a knowledge of the whys and hows of teaching these skills is essential .... Frightened, ill prepared, poorly coordinated and inappropriately dressed, the classroom teacher is presented a frustrating task, conducive to criticism and failure (p.79).

Contemporary elementary educators still face the same problems. National and regional employment statistics show that the problem may be increasing.

Statistics compiled in Oregon show a decline in elementary physical
education specialists. A 1978-1979 survey by the Oregon Department of Education indicated that 60% of reporting schools had K-6 elementary physical education specialists. In a 1985-1986 survey conducted by the Oregon Department of Education, the number had declined to 47%. The remaining schools reported teaching physical education using regular classroom teachers (Ritson, 1986).

In addition, Kirchner (1981) states that more than 80% of all elementary physical education nationally is handled by the regular classroom teacher (Buschner, 1984).

As a further indication of the lack of attention for elementary physical education, the 1985-86 national employment survey revealed that a 1010:1 student-teacher ratio existed in elementary schools where physical education was taught by specialists. This can be compared to a 219:1 student-teacher ratio in secondary physical education (Randall, 1986). The same survey reported that the Oregon elementary student-teacher ratio was 512:1 even though only 47% of Oregon elementary schools employed physical education specialists.

At this time, it seems apparent that regular classroom teachers need to be better prepared to meet the needs of nonhandicapped and handicapped children in elementary physical education. Inadequate training in bridging mainstreaming concepts across the curriculum, as well as an inadequate knowledge base in physical education contribute to a chaotic situation. This confusion only produces anxiety and role conflicts for the elementary educator (Buschner, 1985).
Purpose of the Study

Knowledge and skills associated with mainstreaming and physical education are inextricably linked to the future educator's attitude toward teaching handicapped and nonhandicapped children in physical education (Santomier, 1985; Parish, Nunn, and Hattrup, 1982; and Buttery, 1981). If handicapped students are to be successfully integrated into elementary physical education, the attitudes of regular classroom teachers toward teaching physical education is critical. Therefore, the development of knowledge and skills that create a positive attitude should be a major concern of teacher education institutions.

The main purpose of this study was to examine the influence of additional content from areas of mainstreaming and adapted physical education on preservice elementary educators' attitudes toward teaching nonhandicapped and handicapped children in elementary physical education. The major objectives of the study were:

1. To review related literature.

2. To develop a research instrument that compares attitudes of elementary majors toward teaching physical education to handicapped and nonhandicapped students.
3. To determine the influence of additional content from areas of mainstreaming and adapted physical education on preservice elementary educators' attitudes toward teaching nonhandicapped and handicapped children in elementary physical education.

Assumptions of the Study

The work of this study was based on the following assumptions:

1. That subjects shared similar interests in furthering their knowledge and skills in elementary physical education for the handicapped and nonhandicapped.

2. That knowledge and skills, when learned by the participants, were capable of being tested by valid and reliable measures.

3. That respondents reacted to all items honestly.

4. That subjects responded according to the "Hawthorne Effect": a type of response resulting from the subjects' knowledge that they were being treated in a "special" way or involved in an experiment.
5. That students randomly selected from Oregon State University and Western Oregon State College were representative of elementary education majors at those institutions and institutions of similar program and philosophy.
CHAPTER TWO
REVIEW OF RELATED LITERATURE

The scope of this study was such that literature was explored concerning the attitudes of preservice elementary educators toward mainstreaming, teacher training for elementary physical education and attitudes of physical educators toward mainstreaming elementary physical education.

Attitudes Toward Mainstreaming

Preparing preservice teachers for the task of teaching the handicapped children in regular classrooms is an important task for teacher education. Teachers desire the necessary training to cope with the complexities of an integrated classroom (Reynolds and Birch, 1977). If handicapped students are to be successfully integrated into the regular classroom, the preservice educator's attitude toward the handicapped is critical. Research indicates that, in general, regular elementary educators maintain negative attitudes toward the handicapped (Dailey and Halprin, 1981; and Reid 1984). Therefore, the development of knowledge and skills that create a positive attitude should be a major concern of teacher education (Hudson, Reisberg, and Wolf, 1983; Abrahamson, 1981; Buttery, 1981; Daily and Halprin, 1981; and Parish, Nunn and Hattrup, 1982).
Numerous studies have compared the effects of different training strategies on the attitudes of preservice elementary educators toward mainstreaming. The following studies are representative of research in this area.

Noar and Milgram (1981) conducted a study to improve attitudes of preservice educators toward mainstreaming by comparing an experiential alternative with a lecture-discussion strategy. The experiential strategy provided direct contact with exceptional children while the lecture-discussion was without any contact. It was hypothesized that both strategies would increase knowledge, positive attitudes and willingness to work with exceptional children. In addition, the experiential program would be rated higher by participants than the more traditional lecture-discussion type of program.

The one semester preservice training program produced an increase of knowledge and improved general attitudes toward teaching exceptional children in both types of programs. However, the experiential program provided a higher attitudinal rating than the lecture-discussion. On the other hand, the lecture-discussion provided a higher knowledge rating than the experiential. It was concluded that preservice teachers' attitudes would benefit from either an experiential or lecture-discussion type of program, with the latter program less influential.

Dailey and Halpin (1981) conducted a study to determine if undergraduates' attitudes toward the handicapped could be positively
modified by observing videotapes of handicapped children. Fifty-two special education and non-special education majors, enrolled in an introductory special education course, were randomly assigned to an experimental and control group. The experimental group observed videotapes of handicapped children and the control group did not view videotapes of handicapped children.

A second purpose of the study was to determine if attitudes toward the handicapped of special education majors differed significantly from non-special education majors.

A final purpose was to ascertain whether the use of videotapes was differentially effective in modifying attitudes toward the handicapped for special education majors and non-special education majors.

The Attitude Toward Disabled Persons Scale (ATDP) was used to measure the attitude toward the handicapped in general. The Special Vocational Needs Attitude Scale (SVNH) was used to measure the educators' attitude toward special-needs students. An application of analysis of covariance to the randomized-group factorial design was utilized for statistical treatment of the data.

The results of Daily and Halprin's study indicated that treatments were differentially effective in modifying attitudes toward the handicapped for special education majors and non-special education majors. Positive modification of special education majors was satisfied by participation in an introductory course without videotapes. In addition, modifying attitudes of non-special education majors was served by participation in an introductory course with videotapes.
Based on these findings the investigators concluded that, regardless of academic major, videotapes of handicapped children should be used in conjunction with an introductory course for the positive modification of attitudes toward the handicapped.

Parish, Nunn and Hattrup (1982) attempted to reduce negative attitudes of future teachers by using a cognitive-experiential module. Their study hypothesized that cognitive elements as well as affective elements could modify negative attitudes toward the handicapped. Students of the experimental group were presented a two hour cognitive-experiential exercise along with the film, "Leo Beuerman". The exercises consisted of a review of existing research regarding teacher's attitude toward the handicapped, plus the presentation of empathy exercises to promote role playing by the participant.

Fifty-three students from a large midwestern university volunteered from a required educational psychology course. The Personal Attribute Inventory (PIA) was used. The PIA utilized the physically handicapped, emotionally handicapped, learning disabled, mentally retarded and normal children as target stimuli. The t-test was used for statistical analysis.

The result of the treatment indicated that a significant reduction in negative evaluations occurred regarding ratings of physically handicapped, emotionally handicapped, and normal children. The ratings approached significance for mentally retarded, but not for learning disabled children.

Sesow and Adams (1982) surveyed graduating college seniors in
regular elementary education. The purpose of the survey was to determine whether senior attitudes toward mainstreaming were influenced by (a) special education courses, (b) having special education students in student teaching, and/or (c) having friends or relatives who were handicapped.

Forty-nine senior elementary education majors concurrently enrolled in student teaching participated in the survey. A teacher attitudinal questionnaire was utilized. It appeared that this instrument was an informal tool as there were no reliability or validity statistics reported. A stepwise multiple regression statistical analysis was conducted on the statements against (a) the number of special education courses, (b) the number of special education students in student teaching experience, and (c) the number of friends or relatives that were handicapped.

Statistically significant differences were found on statements that were directly related to the area of implementation of mainstreaming programs. In other words, teacher trainees who had mildly handicapped students in their student teaching would be more comfortable with handicapped students in their future classrooms. The number of special education courses, number of special education students in their student teaching, and number of handicapped friends or relatives did not influence statements about mainstreaming mildly handicapped children in regular classrooms.

Hoover and Cessna (1984) investigated preservice teachers' attitudes toward mainstreaming prior to student teaching. This study
compared an experiential and lecture-discussion training mode over time. All subjects were assessed in their overall attitudes toward the education of handicapped students, attitudes toward mainstreaming, confidence in their ability to work with the handicapped, and attitudes toward the role of the regular classroom teacher in the special education evaluation and placement process.

Group I, consisted of 38 students in elementary education, who completed a mainstreaming course during the spring, 1983 semester and a field experience during the fall, 1983 semester. Group II consisted of 27 students who completed the mainstreaming course in the spring, 1982 and a field experience during the fall, 1982 semester.

The Mainstreaming Inventory constructed by Hoover (1983), a Likert type scale, was used in this study. The t-test of significance was employed to compare the two group means on the total scale and subscales.

An analysis of the results indicated that preservice teachers who had a course in mainstreaming and a field experience with handicapped children possessed positive attitudes toward teaching handicapped children in the regular classroom. This included (a) positive attitudes toward mainstreaming, (b) positive attitudes toward the role of the regular classroom teacher in the special education evaluation and placement process, and (c) confidence in their ability to work with handicapped students without the availability of special education support and services.

The results also indicated that group one who most recently
completed the course and field experience exhibited significantly more positive attitudes toward the subscales of the instrument. The investigators rationalized the difference between groups as a result of experience with regular classroom children. As the teacher becomes older and more experienced they become more aware of some of the problems associated with mainstreaming handicapped children in the regular classroom.

In summary, it is reasonable to conclude that (a) one mainstreaming course with or without a field experience can have a significant effect upon the students' attitudes toward mainstreaming, (b) promoting positive attitudes with the use of videotapes and/or direct contact with handicapped children is preferred, and (c) the ideal attitude of more recently trained elementary educators may be replaced by a more realistic one with further experience.

Teacher Training for Elementary Physical Education

Physical educators are highly concerned with the quality of teachers who provide physical education to children. However, most of the literature within the field of physical education is directed toward training specialists and not the regular classroom teacher.

Alternative training approaches for elementary physical education specialists had an underlying theme of integrating physical education training with training for the regular elementary classroom. Programs at the University of Delaware, University of Nebraska-Lincoln and
Southeastern Louisiana University placed the physical education major into the regular classroom environment.

The University of Nebraska-Lincoln prepared the physical education major for a dual endorsement. The graduate could become a physical education specialist or a regular classroom teacher (Bahls, Fagerstrom, Neal and Penney, 1981).

The University of Delaware assigned a clinical experience during the junior year that placed the physical education major into the classroom as a teaching assistant. In this program, each student became directly involved with subjects in the classroom. Students gave supplementary help to children in reading, spelling, math or whatever the classroom teacher prescribed (Kraft and Julien, 1977).

At Southeastern Louisiana University an elementary block experience incorporated a physical education methods course and clinical experience. In this procedure the student received constant, direct supervision in the gymnasium setting by the same person teaching the methodology. A more holistic view of elementary curriculum was encouraged by integrating the various subjects, including physical education (Robinson, 1977).

Jones (1978) investigated the status of preservice training in physical education for the handicapped in the state of Texas. Institutions studied were those with a major sequence leading to a baccalaureate degree in special education, elementary education and physical education. The data gathering instrument was a questionnaire. The findings stated a need for more effectively trained
elementary physical education specialists, classroom teachers and special education teachers who teach physical education to the handicapped.

Additional goals supported by the study included: (a) physical education, elementary, and special education majors should be trained to teach physical education to the handicapped; (b) practicum experiences need to contribute to the effect of the training; (c) student teaching experiences need to include teaching physical education to the handicapped; and (d) course content in adapted physical education need to be broadened with more time in specified weak areas.

The inclusion of physical education specialists into regular classroom settings and methods courses is very limited. However, through this interaction both the physical education specialist and the elementary major may develop experience and knowledge from the school curriculum as a whole. The end result could bring instructional techniques and the curriculum of physical education and elementary education closer while producing better informed elementary teachers.

**Attitudes Toward Physical Education**

Research on attitudes toward teaching elementary physical education to handicapped and nonhandicapped children by regular classroom teachers is lacking. In addition, there is very little research literature on the impact of mainstreaming upon the area of
elementary physical education (Marston and Leslie, 1981). The following discussion is limited to the perceptions and attitudes of physical education specialists.

In a study by Bird and Gansneder (1979), data suggested that many physical education specialists in the state of Virginia were not adequately prepared to provide an appropriate motor and fitness program, as provided for under Public Law 94-142. The areas of inadequacy were, (a) formal training, (b) specific knowledge of handicapping conditions, and (c) self evaluation of ability to perform various tasks related to physical education programing for handicapped students.

Santomier, Craft, Hogan, and Wughalter (1985) examined opinions of physical educators about their attitudes toward mainstreaming. They found that a majority of respondents had negative opinions about mainstreaming mildly handicapped children in physical education. In addition, most respondents labeled their training, skills and equipment as inadequate for dealing with handicapped children in physical education.

Aloia, Knutson, Minner and Von Seggern (1980) presented a study that examined physical educator's initial perceptions of handicapped children. A sample of 36 male and 21 female instructors from the elementary, junior high and senior high levels were randomly selected for this study. Their average teaching experience was 8.5 years.

The instructors were informed that they would have a
hypothetical class that contained one-third educable mentally retarded, one-third physically handicapped and one-third, non-labeled children. A self-constructed instrument was employed that measured four sub-scales. The scales were (a) initial academic expectations by the teacher, (b) initial behavioral expectations by the teacher, (c) teachers' perceptions of the educational labels, and (d) perceptions of teachers' ability to work with handicapped children in physical education.

The results of the study indicated that teacher expectations for academic endeavors for the educably mentally retarded and physically handicapped children were low while expectations for the non-labeled children were higher. Behavioral expectations were low for all identified conditions. Teacher expectations for handicapped conditions mirrored that of academic expectations. Finally, most teachers registered a low perception of their ability to work with handicapped children in physical education.

The conclusions of the study suggested that more preservice and inservice training was necessary to more effectively train the physical educator in dealing with handicapped children. The study also reasoned that training should focus on characteristics of handicapped conditions and also on instructional strategies for teaching physical education with handicapped children.

Minner and Knutson (1982) utilized a similar sampling of 57 physical educators from elementary, junior high, and senior high levels. The average teaching experience was 8.5 years. The purpose
of this study was to determine the initial considerations and needs of mainstreaming handicapped children into physical education.

A researcher-constructed instrument was used to survey the following opinions, (a) anticipated problems of teaching handicapped children in mainstreamed physical education settings, (b) teacher perceptions of the advantages of mainstreaming children in physical education, and (c) physical education teachers' inservice needs and priorities.

The results indicated that 71% of all respondents expected problems with teaching handicapped children in physical education. The elementary representatives felt that the time factor in providing instruction to both handicapped and nonhandicapped was the greatest problem. The junior and senior high representatives felt that non-acceptance of handicapped students by their peers was the major problem of mainstreaming physical education.

Ninety two percent of elementary, 75% of junior high and 59% of senior high physical education teachers felt that mainstreaming would be an advantage for the handicapped child. Improved self-concept for the handicapped appeared as the greatest advantage.

Finally, 85% of elementary, 75% of junior high and 58% of senior high physical education teachers were interested in receiving future inservice. Elementary teachers were interested in specific characteristics of handicapped types. Junior high teachers were more interested in learning appropriate methods for instructing the handicapped in physical education. Senior high teachers were most
concerned with the issues of discipline and legal aspects of mainstreaming children in physical education.

The purpose of a study by Marston and Leslie (1981) was to ascertain if a difference existed in the perceptions of selected components of mainstreaming between elementary physical educators who had handicapped children from those who did not have handicapped children in physical education.

Physical education specialists were randomly selected from 986 elementary schools in the state of Iowa. One hundred and sixty-six or 83% of 200 questionnaires were properly returned for analysis.

The components of mainstreaming selected for investigation were, (a) perceived effect of mainstreaming on teacher effectiveness, (b) perceived effect of mainstreaming on teacher opinion of P.L. 94-142, (c) perceived benefits of mainstreaming for handicapped students, (d) perceived benefit of mainstreaming for nonhandicapped students, and (e) perceived adequacy of professional training.

An analysis of Marston's and Leslie's data suggested that in relation to benefits of mainstreaming, teachers who did have handicapped students in their schools perceived greater benefits for the mainstreamed child. This finding was in agreement with the numerous studies that supported the notion that exposure with the handicapped created positive attitudes toward mainstreaming. In terms of teacher effectiveness, the results clearly showed a relationship between experiences with the handicapped and the teachers' perceptions of their effectiveness to teach the handicapped
in a mainstreamed setting. Finally, in regard to professional preparation, only 2% of the population felt that the preparation they received was adequate to effectively teach the handicapped in a mainstreamed setting.

Rizzo (1985) indicated that physical educators varied in attitude by the type of labeled handicapping conditions. Physical educators favored teaching learning disabled over physically disabled in the physical education setting.

The results of the previous studies are very conclusive. Physical education specialists believe that they are inadequately prepared for the complexities of teaching handicapped and nonhandicapped children in physical education classes. Even though elementary physical educators possess more favorable mainstreaming perceptions than junior and senior high teachers, it is clear that they desire more information in the area of instructional strategies.

Summary

The purpose of this study was to examine the influence of additional content in adapted physical education and mainstreaming on preservice elementary educators' attitudes toward teaching physical education with handicapped and nonhandicapped students. Three major tenets evolved from the above cited research that supported the main purpose of this study. First, preservice elementary educators developed more positive attitudes toward
mainstreaming through the inclusion of coursework on mainstreaming. Experiential training seemed to produce better attitudinal results. Second, the integration of preservice physical educators and elementary majors in coursework and field experiences may produce more effective educators for the complexities of teaching elementary children physical education. Finally, physical education specialists believed that present training in teaching strategies was inadequate for teaching handicapped students in physical education.

Given this empirical evidence, it is reasonable to conclude that future coursework that includes exposure and information on handicapped conditions while integrating classroom and gymnasium instructional techniques may benefit the elementary major.
CHAPTER THREE

DESIGN OF THE STUDY

The purpose of this study was to examine the influence of additional content from areas of mainstreaming and adapted physical education on preservice elementary educators' attitudes toward teaching nonhandicapped and handicapped children in elementary physical education.

The methods and procedures for this study are presented in this chapter. The first section is concerned with attitudes as the dependent variable. The second section is concerned with the preparation of the instrument; the third section concerns the independent variables; the fourth section concerns the selection of the sample, and the final section presents the research design, statistical design and hypotheses.

The Dependent Variable: Attitudes

It is well documented that teachers' attitudes have a powerful effect on the quality of the learning environment in a classroom (Turnbull and Schulz, 1979; MacMillan and Becker, 1977). Now that the concept of mainstreaming has been accepted as an integral part of education, it is imperative that teacher educators look at the attitudes of prospective teachers in regard to integration of handicapped and
nonhandicapped students in all content areas.

For purposes of clarity, this study defines an attitude as "an idea charged with emotion which predisposes a class of actions to a particular class of social situations" (Triandis, 1971, p.2).

This definition suggests that attitudes have three components:

1. The cognitive component represents a mental association to an attitudinal object.

2. The affective component represents the emotion and feelings which charge an association to an attitude object.

3. The behavioral component represents a predisposition to act toward or away from the attitude object (Triandis, 1971).

An example illustrating these components is an elementary educator who associates the idea of "integration" with mainstreaming (cognitive), has strong feelings about its success (affective), and exhibits either approach or avoidance behaviors toward integrated classrooms (behavioral).

Attitudes: Theory and Function

The attitude theory upon which this investigation is based is Leon Festinger's theory of cognitive dissonance (1957). According to this theory, any kind of cognitive inconsistency is uncomfortable and the person will do something to "get rid of it" (Triandis, 1971, p.78). For example, prospective educators may hold inconsistent feelings about
mainstreaming which causes a state of internal dissonance. Therefore, the educator who has contradictory thoughts and attitudes regarding handicaps, handicapped children, physical education, teaching, and himself as a teacher reflects a state of inconsistency.

Another theory, the functional theory, also influences this study. In this point of view, changing attitudes toward an object or even understanding them requires recognition of the function of the attitude (Katz, 1960). Katz, proposes four functions that are served by attitudinal opinions. The four functions are: (a) the instrumental, objective, or utilitarian function; (b) the ego function; (c) the value-expressive function; and (d) the knowledge function.

This study builds upon one of Katz's proposed components for understanding attitudes: the knowledge function. In this function, an individual has a need to give structure to the universe. Attitudes help individuals to simplify and comprehend the complexities of their world and provide cognitive organization, consistency and clarity to their views (Watts, 1984). Therefore, attitude change is facilitated by the input of new information about the attitude object or having new experiences with the object. For example, an elementary educator may need additional information or experiences to approach teaching physical education to handicapped and nonhandicapped students in the regular classroom.

In this study, additional information and experiences were provided concerning teaching handicapped and nonhandicapped children in physical education. The intended outcome was that
elementary education majors would feel more positive toward teaching mainstreamed physical education.

Preparation of the Instrument

The literature was full of inventories that measure teachers' attitudes toward mainstreaming. However, specific inventories that reflected the attitudes of regular classroom teachers toward different curriculum areas in regard to mainstreaming was lacking. Therefore, an instrument that dealt specifically with preservice elementary educators' attitudes toward mainstreaming in physical education was needed.

The following information describes the construction of The Elementary Major's Attitude Toward Handicap Scale (E.M.A.T.H.).

1. The constructs or objects of the instrument were derived from three sources. First, a formal analysis by this author of the literature on adaptive physical education identified certain potential weak areas of the regular classroom teacher's knowledge in adapted physical education. Second, students from the courses, Ed. 367 A, Theory and Practicum III at Oregon State University, a prerequisite class to student teaching were surveyed as to the advantages and disadvantages of mainstreaming elementary physical education pupils. Finally, Rizzo (1987) identified these objects as closely related to his
constructs after informally factoring the Physical Educator's Attitude Toward Handicapped Scale (P.E.A.T.H.).

2. From these analyses, statements were categorized representing five objects. These objects include development of an attitude toward:

1. mainstreaming awareness for physical education,
2. preparing handicapped and nonhandicapped children for the mainstream in physical education,
3. individualization techniques for physical education,
4. planning, management and organization in physical education (PM&O), and
5. adapting games and activities for the handicapped in physical education.

3. A two-dimensional matrix was devised for item pool construction. The vertical axis became the "object" dimension which included the five previously discussed elements. The horizontal axis included two components (cognitive and affective) which Triandis (1971) identified as contributing significantly to attitude development.

4. Formats for the two components were determined. Cognitive items followed the implicative meaning format suggested by
Davis and Triandis (1965). The implicative meaning scale utilized cognitive associations of the objects being assessed. Concepts used for the associations were derived from surveys of 45 Ed. 367A students at Oregon State University. The affective items utilized an adaptation of Rizzo's PEATH scale. The PEATH is a Likert-type attitude scale.

An item construction matrix follows in Table 1 to aid this discussion. Numbers 1-25 are repeated for each of the cognitive and affective components. A pattern for cell distribution exists for ease of interpretation. Lower cells vary due to an imbalance of items per object.

**TABLE 1**
ITEM CONSTRUCTION MATRIX

<table>
<thead>
<tr>
<th>OBJECTS</th>
<th>ATTITUDE COMPONENTS</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Cognitive</td>
<td>Affective</td>
<td></td>
</tr>
<tr>
<td>Awareness</td>
<td>1,6,11,16,21</td>
<td>1,6,11,16,21</td>
<td></td>
</tr>
<tr>
<td>Preparation for Mainstream</td>
<td>3,8,13,18,23</td>
<td>3,8,13,18,22</td>
<td></td>
</tr>
<tr>
<td>Individualization</td>
<td>2,7,12,17,22</td>
<td>2,7,12,17</td>
<td></td>
</tr>
<tr>
<td>Management, Organization and Planning</td>
<td>4,9,14,19,24</td>
<td>4,9,14,19,23,24,25</td>
<td></td>
</tr>
<tr>
<td>Adaptations</td>
<td>5,10,15,20,25</td>
<td>5,10,15,20</td>
<td></td>
</tr>
</tbody>
</table>
5. Fifty items constructed for the item pool were administered to a jury panel of experts. Twelve respondents for this panel were selected who met one or both of the following criteria: (a) college or university instructors of elementary physical education methods or adaptive physical education, or (b) public school teachers whose responsibility was to educate handicapped and nonhandicapped children in physical education. Members of the panel are listed in Appendix A.

6. The method of equal-appearing intervals using mean data for scale and quartile values, was used to establish content validity (Edwards, 1957). Only items with high or low scale values as well as lower quartile values were selected for inclusion into the final assessment scale.

7. Twenty items were matched for cell placement to provide two forms for analysis by split-half reliability on the pretest. A complete item analysis is listed in Appendix D. A Pearson product-moment analysis provided a reliability correlation of .74 when adjusted by the Spearman-Brown prophecy formula (Gay, 1981).
Independent Variables

The independent variables for this investigation included two sets of attribute variables and two treatment variables.

Attribute Variables

Three groups varying in amount of coursework about or contact or experience with handicapped people represented the first set of attribute variables. Two school variables representing preservice elementary majors, at the student teaching level, from Western Oregon State College and Oregon State University represented the other set of attribute variables.

Attribute Variables: Groups

Group one consisted of preservice elementary majors who had no personal contact or experience with handicap types. This group had completed the normal and usual physical education and mainstreaming coursework required for certification.

Group two consisted of preservice elementary majors who had limited personal contact or limited experience with handicapped children. Limited referred to one or two occasions of contact in some
previous field assignment. This group had completed the usual and
normal physical education and mainstreaming coursework required
for certification.

Group three consisted of preservice elementary majors who had
significant personal contact or significant experience with handicapped
children. Significant experience referred to at least one full year as a
paid teacher or aide. Significant contact referred to having a close
friend or family member who was handicapped. Some members of
this group had completed coursework beyond the usual and normal
physical education and mainstreaming coursework required for
certification.

**Attribute Variables: Schools**

The two school variables consisted of preservice elementary
majors, at the student teaching level, identified as either
undergraduate or postbaccalaureate students enrolled in the OSU
(school one) or WOSC (school two) elementary education programs. An
undergraduate student had not yet earned a baccalaureate degree in a
four year bachelor's degree program. A postbaccalaureate student
was a graduate with a baccalaureate degree from an accredited
institution and was so identified by the registrar at his/her campus.
Such students were seeking to complete the certification, or licensing
program.
Treatment Variables

The main purpose of this study was to examine the influence of additional content from areas of mainstreaming and adapted physical education on preservice elementary educators' attitudes toward teaching nonhandicapped and handicapped children in elementary physical education. The outcome of the study was to contrast the attitudes of an experimental and control group.

The control and experimental group represented the treatment effect. The experimental group received information that was in addition to the common core requirements, while the knowledge and skills of the control group was represented by the typical coursework in physical education and mainstreaming required by all elementary majors at OSU and WOSC.

To fully understand the similarities and differences of the treatments, further descriptions are provided. An understanding of the differences is developed by comparing the control and experimental groups in the areas of physical education content, mainstreaming content, methods of instruction, instructional time, instructional setting and instructor qualifications. These comparisons follow.

In terms of physical education content, all subjects, whether they were members of the experimental or control group, received the
usual undergraduate instruction in physical education methodology. All subjects received this content from the Dauer and Pangrazi text (1987), *Dynamic Physical Education for Elementary School Children*. The course syllabi provided a broad range of topics that prepared elementary majors for physical education instruction.

The intent of the experimental treatment was to provide additional adapted physical education knowledge and skills. The purpose of the additional instruction was to influence elementary majors' attitudes toward teaching physical education to handicapped and nonhandicapped children. An outline of the experimental content follows.

I. Awareness of P.L. 94-142 (Fait and Dunn, 1984).
   A. Provisions of 94-142.
   B. Specifications of physical education.
   C. Least restrictive environment

II. Preparing Handicapped and Nonhandicapped Children for the Mainstream in Physical Education.
   A. Evidence that supports cooperative learning as promoting more positive cross-handicapped relationships than do competitive ones (Johnson and Johnson, 1984).
   B. Strategies in preparing for the mainstream.
      1. Individualized education plan (Gearheart and Weishahn, 1980).
2. Positive reinforcement (Dunn and Fredericks, 1985).
4. Enhancing the perceived self-efficacy of mainstreamed students (Craft and Hogan, 1985).
5. "Circle Talk"
7. Simulations (Santomire, 1985).
8. Bibliotherapy on handicapping conditions (Harp and Gallagher, 1986).

III. Individualization Techniques in Physical Education.

A. Rationale (DePaepe, 1984).

B. Strategies in the literature.
   1. Helper, peer tutoring (Mizen and Linton, 1983).
   2. Cross-age helpers (Mizen and Linton, 1983).
   3. Station work (Sherrill, 1981).
   5. Diagnostic-prescriptive movement activities (Sherrill, 1981).
   6. Team teaching or cooperative teaching.
   9. "Groups of Four" (Burns, 1983).
   10. Adaptive playgrounds (Thomas, 1984).
11. Prior teaching (Hughes, 1987).

IV. Management, Planning and Organization for Mainstreaming in Physical Education.

A. Beuter hypothesis: Trainable mentally retarded (TMR) students integrated with intellectually normal pupils in an instructional physical education program show greater improvement in their motor performance than their non-integrated mentally retarded peers (Beuter, 1983).

B. "Groups of Four" implications for elementary physical education, including integrated simulation (Burns, 1983).

V. Adapting Games and Activities for Mainstreamed Physical Education Settings.

A. Seven techniques (Fait and Dunn, 1984).

B. Simulation in nature trail hike, Peavy Arboretum, Corvallis Oregon.

In terms of mainstreaming content, WOSC and OSU students had distinctly different course offerings.

At WOSC, both control and experimental groups received information from the text; The Exceptional Child in the Regular Classroom, Third Edition, by Gearheart and Weishahn. The objectives for this course are listed below.
1. The student will be able to (a) identify the characteristics of each of the following learning problems; (b) state the resource people and assessments typically involved with each problem; and (c) identify common teaching procedures used with such children:

   a. behavior disorders
   b. cultural/lingual differences
   c. educationally able (talented and gifted)
   d. emotional disorders
   e. hearing impaired
   f. learning disabled
   g. physical and health impaired
   h. slow learner
   i. speech impaired
   j. vision impaired
   k. abused children
   l. chemically dependent children

2. Within the assigned practicum setting, the student will complete a project involving the tracking of a child identified as learning disabled (Ferguson, 1987).

At that time, the OSU Elementary Department did not have an organized outline or objectives for its mainstreaming coursework. The
intent for fall, 1987 was to provide guest speakers who elaborated on the role of the regular classroom teacher with exceptional children in regard to the different disabling conditions.

The intent of the experimental treatment was to provide additional mainstreaming knowledge and skills. The purpose of the additional instruction was to influence elementary majors' attitudes toward teaching physical education to handicapped and nonhandicapped children.

The additional mainstreaming content for the experimental group is described in the format of behavioral objectives. These behavioral objectives are listed below.

1. Given (a) the film "Leo Beuerman", (b) specific knowledge about P.L. 94-142, and (c) rationale for the study, the subjects will react positively to a mainstreamed educational environment by stating positive implications for mainstreaming.

2. Given (a) selected strategies involving the preparation of nonhandicapped and handicapped students for the mainstream, and (b) ideas about developing self-concept in handicapped and nonhandicapped students, the subject will rank the strategies according to their appeal for employment as teachers of physical education.

3. Given selected strategies for individualizing physical education
settings, the subject will rank instructional techniques according to the strategy's appeal for utilization as teachers of physical education.

4. Given (a) designated "groups of four", (b) an assigned disability, (c) guidelines for adapting games and activities for handicapped children, and (d) a nature trail hike, the subjects will demonstrate ability in adapting a half mile hike for students with varying disabilities. The assessment of ability will focus upon the group's suggested adaptations for a successful outing for handicapped conditions.

In terms of methods, the control and experimental groups benefited from slightly different approaches. The control group received the typical methods instruction in physical education and mainstreaming which deals with the central needs and concerns of their respective disciplines. The experimental group received instruction that transferred methods from other content areas to the physical education environment and concomitantly, physical education to the classroom. The transfer of methods across curricula lines was referred to as the "integrating methods" process. In order to develop the "integrating methods" process, the three steps listed below were required.

1. The subjects were given pedagogical issues that needed
consideration in teaching physical education for handicapped and nonhandicapped children. The issues of (a) awareness of P.L. 94-142, (b) preparing handicapped and nonhandicapped children for the mainstream, (c) individualization, (d) planning, management and organization of mainstreamed settings, and (e) adapting games and activities for handicapped children were presented.

2. Elementary content area methodology that supported the preceding pedagogical issues were identified. Cooperative learning models were the focus of the methodology discussed.

3. The subject was to transfer all the previous issues and methods to a physical education or movement environment with handicapped and nonhandicapped children. In other words, cooperative learning models were explored in a physical education or movement setting.

In terms of instructional time, the experimental treatment exceeded the control treatment. Eight additional working hours were required to complete the experimental behavioral objectives.

In terms of setting, both control and experimental treatments occurred in lecture and environments for movement. In addition, instructional materials typical for these settings were provided. For example, overhead and film presentations were typical for lecture
presentations. Appropriate balls, equipment and apparatus were available in a movement setting.

In terms of instructors' qualifications, each instructor of the control and experimental treatments were employed in their area of specialization. Each instructor was judged to have adequate experience and training for teaching college or university physical education methods courses as well as public school experience.

In summary, the purpose of describing the content or objectives for the treatment variable was to describe the similarities, differences and benefits of the control and experimental groups. The cost of eight additional working hours represented the variation of content and objectives that may benefit the subjects' professional training.

Selection of the Sample

One group, containing undergraduate and postbaccalaureate students, was randomly selected from the winter, 1988 classes Theory and Practice III (student teaching) at Oregon State University and Western Oregon State College. Alphabetized class lists and a table of random numbers were used to finalize subject selection for the two schools.

Other variables such as, prior physical education experience, prior experience with handicapped people, prior teaching experience, GPA, sex, age, race, special education majors and minors, whether the subject was handicapped or had a handicapped relative were formally
surveyed. These data provided demographic information for establishing attribute group homogeneity. Further homogeneity was aided by all subjects having completed the required physical education and mainstreaming coursework.

The subjects were required to attend all sessions. The instruction was a portion of their concurrent course requirements. Data from students who missed more than 10% of the instruction or were absent for either the pretest or posttest were disregarded.

A sample matrix is provided in Table 2 to visualize sample size in relation to the independent variables.

### Table 2
**Sample Matrix**

<table>
<thead>
<tr>
<th>SCHOOL</th>
<th>OSU</th>
<th>WOSC</th>
<th>EXP.</th>
<th>CONT.</th>
<th>EXP.</th>
<th>CONT.</th>
<th>EXP.</th>
<th>CONT.</th>
<th>EXP.</th>
<th>CONT.</th>
<th>EXP.</th>
<th>CONT.</th>
<th>EXP.</th>
<th>CONT.</th>
<th>EXP.</th>
<th>CONT.</th>
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<tbody>
<tr>
<td>TREATMENT</td>
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<tr>
<td>ATTRIBUTE GROUPS</td>
<td>1</td>
<td>N = 5</td>
<td>N = 5</td>
<td>N = 8</td>
<td>N = 6</td>
<td>N = 13</td>
<td>N = 11</td>
<td>N = 24</td>
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<td></td>
<td>2</td>
<td>N = 9</td>
<td>N = 4</td>
<td>N = 5</td>
<td>N = 3</td>
<td>N = 14</td>
<td>N = 7</td>
<td>N = 21</td>
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<td></td>
<td>3</td>
<td>N = 4</td>
<td>N = 5</td>
<td>N = 6</td>
<td>N = 4</td>
<td>N = 10</td>
<td>N = 9</td>
<td>N = 19</td>
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<td>TOTAL BY SCHOOL</td>
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<td>TOTAL</td>
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<td>N = 14</td>
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<tr>
<td>SCHOOL TOTAL</td>
<td>N = 32</td>
<td>N = 32</td>
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<tr>
<td>GRAND TOTAL</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>N = 64</td>
<td></td>
</tr>
</tbody>
</table>
Research Design

This study utilized a pretest/posttest design as illustrated below. The design included a randomized sampling of elementary student teachers from Oregon State University and Western Oregon State College.

\[
R \ O_1 \ X \ O_2 \\
R \ O_1 \ \ \ O_2 \\
\]

Where:
- \( R \) - random selection of student teachers at OSU and WOSC
- \( X \) - experimental treatment
- \( O_1 \) - attitudinal pretest
- \( O_2 \) - attitudinal posttest

Statistical Design

The main purpose of this study was to examine the influence of additional content from areas of mainstreaming and adapted physical education on preservice elementary educators' attitudes toward teaching physical education to handicapped and nonhandicapped students. This section describes the statistical procedures used to test the hypotheses of the study:

1. The population of this study was randomly selected from the
winter term, 1988 regular student teaching enrollment from the OSU/WOSC School of Education. A sample of 64 individuals provided the research data by completing all phases of the data collection.

2. Respondents were asked to react to 30 attitudinal items by recording the level of agreement or disagreement for each item. Responses were recorded on a six point Likert-type scale, with values ranging from a low of 0.0 to a high of 5.0.

3. Respondents also recorded certain demographic data. These research data were utilized in determining the group attribute variables.

4. A fixed three-way analysis of covariance was used to test the null hypotheses. The .05 significance level was used to determine differences. The Tukey's test was utilized if interaction hypotheses were rejected. A multiple classification test was administered to each hypothesis to determine the adjusted group, treatment and school means.

Hypotheses

This study examined five null hypotheses. A statistical significance of .05 was the level selected for rejection of a null hypothesis. Each
hypothesis is presented below in the null form.

H0: There is no significant mean attitudinal difference between or among schools, treatments, groups or interaction toward:

1. mainstreaming awareness for physical education
2. preparing handicapped and nonhandicapped children for the mainstream in physical education
3. individualization techniques for physical education
4. planning, management and organization in physical education
5. adapting games and activities for the handicapped in physical education.

An hypothesis examining a total attitude score is uninterpretable due to an unusual scoring procedure.

Data Collection

Several steps were involved in the collection of data. The data in this study pertained to the attitudes of preservice elementary education majors toward teaching physical education to handicapped and nonhandicapped children.

The EMATH questionnaire (pretest and posttest) was administered
in the following manner. On January 13, 1988 the pretest was administered to the total group of winter term, OSU/WOSC student teachers. A total of 79 questionnaires were completed.

On January 29, 1988 the eight hour experimental seminar at Peavy Lodge, Corvallis, Oregon was completed. Thirty nine (100%) members of the experimental group were present.

On March 14, 1988 the posttest was administered to the winter term, 1988 OSU/WOSC student teachers. Sixty-four student teachers responded to the posttest. In all, eighty one percent of all participants completed the necessary documentation. Of that total, the experimental group represented the highest completion with 92% in comparison to the control group with a completion rate of 70%.

The final step in the collection of data was to check each questionnaire and assessment form for completeness and clarity of response before inputting the data. The data from the pretest, posttest and assessment form were validated by Suzi Marish, a private consultant for the Survey Research Office at Oregon State University.
CHAPTER FOUR

PRESENTATION OF THE FINDINGS

The analysis of data collected for this study is presented in three sections. The first section presents the results of a three-way analysis of covariance between and among schools, treatments, or groups involved in this attitudinal study. The second section discusses the behavioral component of attitude in regard to this study and presents results of treatment groups involved in demonstrating adaptive teaching behaviors. The third section discusses an inner-item reliability check.

Analyses Used

The main purpose of this study was to examine the influence of additional content from areas of mainstreaming and adapted physical education on preservice elementary educators' attitudes toward teaching nonhandicapped and handicapped children in elementary physical education. A three-way analysis of covariance was applied to the six null hypotheses.

Analysis of covariance (ANCOVA) is a data analysis technique which contains the concepts of analysis of variance and regression where researchers cannot completely control all of the variables of the study. The ANCOVA procedure tests for significance of difference
among post-measure mean scores, accounting for uncontrolled influences in the experiment. The ANCOVA adjusts for initial differences utilizing pre-measure data as a base (Courtney, 1984). Even though random assignment of treatment groups occurred in this study, there was much concern about controlling for initial differences in the sample population. Unmatched variables such as grade level, quality of cooperating teacher, and number of IEP students experienced during student teaching were indicative of the need for additional refinement utilizing the ANCOVA procedure.

Raw data in this study, were analyzed using the SSPS-X program under the guidance of the Survey Research Center at Oregon State University. The program provided for the computed F statistic and significance of F (p). The .05 significance level was used to determine whether to accept or reject the null hypotheses.

Results

The hypotheses are discussed in the order as they appear in Chapter Three.

\textbf{H0: There is no significant mean attitudinal difference between and among schools, treatments, groups or interaction toward: mainstreaming awareness for physical education.}

"Awareness" issues discussed by the experimental group concerned
inclusion of physical education for all handicapped types as well as a
review of tenets encompassing least restrictive environment.

Table 3 shows the results of the ANCOVA. Significance of F levels
indicated no statistical significance for the independent variables
representing schools, treatments, groups or interactions. Apparently,
the three groups, two schools and two treatments viewed awareness
issues similarly.

<table>
<thead>
<tr>
<th>SOURCE OF VARIATION</th>
<th>DF</th>
<th>SUM OF SQUARES</th>
<th>MEAN SQUARE</th>
<th>F</th>
<th>SIGN. OF F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Covariates</td>
<td>1</td>
<td>41.565</td>
<td>41.565</td>
<td>7.993</td>
<td>.007</td>
</tr>
<tr>
<td>Group</td>
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<td>2.375</td>
<td>1.187</td>
<td>.228</td>
<td>.797</td>
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<tr>
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<td>.050</td>
<td>.010</td>
<td>.923</td>
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<td>3.333</td>
<td>.641</td>
<td>.427</td>
</tr>
<tr>
<td>Group x Treatment</td>
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<td>1.134</td>
<td>.218</td>
<td>.805</td>
</tr>
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<td>Group x School</td>
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<td>11.224</td>
<td>5.612</td>
<td>1.079</td>
<td>.347</td>
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<td>Treatment x School</td>
<td>1</td>
<td>3.108</td>
<td>3.108</td>
<td>.598</td>
<td>.443</td>
</tr>
<tr>
<td>Error</td>
<td>53</td>
<td>275.619</td>
<td>5.200</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>63</td>
<td>339.938</td>
<td>5.396</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The comparability of the means adjusted for independents and
covariates for groups, treatments and schools can be seen in Figure 1.
Instrument scale values for the EMATH awareness object were
positive (see Appendix D). In other words, a more positive attitude
resulted in a possible high score of twenty and a negative attitude
resulted in a possible low score of zero. Even though these data were interesting, they cannot be considered statistically significant. Group two, with limited contact or experience with handicapped people, reflected the most positive attitude toward awareness followed by group one who had no contact or experience and group three who had significant contact or experience with handicapped people. The experimental group registered a more positive attitude toward awareness than the control group. WOSC students held a more positive attitude toward awareness than OSU students.

FIGURE 1
COMPARABILITY OF MEANS FOR AWARENESS
### MEAN VALUES

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>SE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grand Mean</td>
<td>11.97</td>
<td></td>
</tr>
<tr>
<td>Group 1</td>
<td>11.92</td>
<td>.01</td>
</tr>
<tr>
<td>Group 2</td>
<td>12.23</td>
<td>.06</td>
</tr>
<tr>
<td>Group 3</td>
<td>11.75</td>
<td>.05</td>
</tr>
<tr>
<td>Exp. Treatment</td>
<td>11.94</td>
<td>.005</td>
</tr>
<tr>
<td>Cont. Treatment</td>
<td>11.99</td>
<td>.003</td>
</tr>
<tr>
<td>OSU</td>
<td>11.74</td>
<td>.04</td>
</tr>
<tr>
<td>WOSC</td>
<td>12.20</td>
<td>.04</td>
</tr>
</tbody>
</table>

**H0:** There is no significant mean attitudinal difference between and among schools, treatments, groups or interaction toward preparing handicapped and nonhandicapped children for the mainstream in physical education.

"Preparation" issues concerned the rationale for cooperative learning models (Johnson and Johnson, 1984) as well as rating models of cooperative learning commonly practiced in local elementary classrooms. Other strategies for preparing handicapped and nonhandicapped children centered on speakers, bibliotherapy, and eliminating practices that lead to embarrassment and failure.

Table 4 shows the results of the ANCOVA. Significance of F levels indicated no statistical significance for the independent variables representing schools, treatments, groups or interaction. It appeared that the three groups, two schools and two treatments saw preparation issues similarly.
TABLE 4
ANALYSIS OF COVARIANCE TABLE: PREPARATION

<table>
<thead>
<tr>
<th>SOURCE OF VARIATION</th>
<th>DF</th>
<th>SUM OF SQUARES</th>
<th>MEAN SQUARE</th>
<th>F VALUE</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Covariates</td>
<td>1</td>
<td>171.160</td>
<td>171.160</td>
<td>33.575</td>
<td>.001</td>
</tr>
<tr>
<td>Group</td>
<td>2</td>
<td>11.340</td>
<td>5.670</td>
<td>1.112</td>
<td>.336</td>
</tr>
<tr>
<td>Treatment</td>
<td>1</td>
<td>8.588</td>
<td>8.588</td>
<td>1.665</td>
<td>.200</td>
</tr>
<tr>
<td>School</td>
<td>1</td>
<td>1.347</td>
<td>1.347</td>
<td>.264</td>
<td>.609</td>
</tr>
<tr>
<td>Group x Treatment</td>
<td>2</td>
<td>15.919</td>
<td>7.959</td>
<td>1.561</td>
<td>.219</td>
</tr>
<tr>
<td>Group x School</td>
<td>2</td>
<td>16.606</td>
<td>8.303</td>
<td>1.629</td>
<td>.206</td>
</tr>
<tr>
<td>Treatment x School</td>
<td>1</td>
<td>5.121</td>
<td>5.121</td>
<td>1.005</td>
<td>.321</td>
</tr>
<tr>
<td>Error</td>
<td>53</td>
<td>270.188</td>
<td>5.098</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>63</td>
<td>500.984</td>
<td>7.952</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The comparability of the means adjusted for independents and covariates for groups, treatments and schools can be seen in Figure 2. Instrument scale values for the EMATH preparation object were positive (see Appendix D). In other words, a more positive attitude resulted in a possible high score of fifteen and a negative attitude resulted in a possible low score of five. Even though the data in Table 4 were interesting, they cannot be considered statistically significant. Figure 2 indicates that group one, who had no contact or experience with handicapped people, reflected the same attitude toward preparation as group two. Group three who had significant contact or experience with handicapped people held the least positive attitude. The experimental group registered a more positive attitude toward
preparation than the control group. WOSC student teachers registered a more positive attitude toward preparation than OSU student teachers.

FIGURE 2
COMPARABILITY OF MEANS: PREPARATION

MEAN VALUES

Grand Mean = \[ \frac{12.02}{\text{Exp.} + \text{Cont.} + \text{OSU} + \text{WOSC}} \]

Group 1 = 12.30 \hspace{1cm} SE = .06
Group 2 = 12.30 \hspace{1cm} SE = .06
Group 3 = 11.36 \hspace{1cm} SE = .15
Experimental Treatment = 12.34 \hspace{1cm} SE = .08
Control Treatment = 11.58 \hspace{1cm} SE = .05
WOSC = 12.17 \hspace{1cm} SE = .03
OSU = 11.87 \hspace{1cm} SE = .03

**H0:** There is no significant mean attitudinal difference between and among schools, treatments, groups or interaction toward individualization techniques for physical education.
Strategies for individualizing physical education instruction were discussed and rated during this phase of the treatment. "Helper" systems, station work, pre-teaching, team teaching and, cooperative learning models were examined.

Table 5 shows the results of the ANCOVA. The F levels indicated no statistical significance for the independent variables representing schools, treatments, groups or interaction. Seemingly, the participants representing three groups, two treatments and two schools were similarly confident in their view toward individualization.

<table>
<thead>
<tr>
<th>SOURCE OF VARIATION</th>
<th>DF</th>
<th>SUM OF SQUARES</th>
<th>MEAN SQUARE</th>
<th>F VALUE</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Covariates</td>
<td>1</td>
<td>239.250</td>
<td>239.250</td>
<td>47.776</td>
<td>.001</td>
</tr>
<tr>
<td>Group</td>
<td>2</td>
<td>21.533</td>
<td>10.766</td>
<td>2.150</td>
<td>.127</td>
</tr>
<tr>
<td>Treatment</td>
<td>1</td>
<td>5.684</td>
<td>5.684</td>
<td>1.135</td>
<td>.292</td>
</tr>
<tr>
<td>School</td>
<td>1</td>
<td>6.938</td>
<td>6.938</td>
<td>1.385</td>
<td>.244</td>
</tr>
<tr>
<td>Group x Treatment</td>
<td>2</td>
<td>2.911</td>
<td>1.455</td>
<td>.291</td>
<td>.749</td>
</tr>
<tr>
<td>Group x School</td>
<td>2</td>
<td>1.285</td>
<td>.643</td>
<td>.128</td>
<td>.880</td>
</tr>
<tr>
<td>Treatment x School</td>
<td>1</td>
<td>.121</td>
<td>.121</td>
<td>.024</td>
<td>.877</td>
</tr>
<tr>
<td>Error</td>
<td>53</td>
<td>265.408</td>
<td>5.008</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>63</td>
<td>542.859</td>
<td>8.617</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The comparability of the means adjusted for independents and covariates for groups, treatments and schools can be seen in Figure 3. Instrument scale values for the EMATH individualization object were
positive (see Appendix D). In other words, a more positive attitude resulted in a possible high score of twenty and a negative attitude resulted in a possible low score of zero. Even though these data indicated an interesting trend to speculate about, they cannot be considered statistically significant. Figure 3 indicates that group two with limited contact or experience with handicapped people reflected the most positive attitude toward individualization followed by group three who had significant contact or experience and finally group one who had limited contact or experience with handicapped people. The experimental group registered a more positive attitude toward individualization than the control group. WOSC students responded more positively toward individualization concepts than OSU students.

FIGURE 3
COMPARABILITY OF MEANS: INDIVIDUALIZATION
MEAN VALUES

Grand Mean = 14.05
Group 1 = 13.29 SE = .16
Group 2 = 14.56 SE = .12
Group 3 = 14.43 SE = .09
Experimental Treatment = 14.32 SE = .07
Control Treatment = 13.68 SE = .04
WOSC = 14.40 SE = .06
OSU = 13.70 SE = .06

HO: There is no significant mean attitudinal difference between and among schools, treatments, groups or interaction toward planning, management and organization (PM&O) of physical education.

During this section, implications for the use of a cooperative learning model entitled "Groups of Four" (Burns, 1983) were determined by examining the rationale for cooperative learning environments in physical education, reviewing rules of "Groups of Four" and participating in a nature trail hike with a variety of simulated handicapping conditions.

Table 6 shows the results of the ANCOVA. Significance of F levels indicated no statistical significance for the independent variables representing schools, groups or interaction. Statistical significance was demonstrated for the variable of treatment. The significance of the F coefficient (.028) suggested that the experimental group with a 6.23 adjusted mean was significantly more positive than the control group adjusted mean of 7.61. The preferred explanation for this difference was that the experimental group became significantly more positive in
knowledge and feelings toward PM&O after the treatment seminar rather than the influences of historical events.

**TABLE 6**
**ANALYSIS OF COVARIANCE TABLE: PLANNING, MANAGEMENT AND ORGANIZATION**

<table>
<thead>
<tr>
<th>SOURCE OF VARIATION</th>
<th>DF</th>
<th>SUM OF SQUARES</th>
<th>MEAN SQUARE</th>
<th>F VALUE</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Covariates</td>
<td>1</td>
<td>47.440</td>
<td>47.440</td>
<td>8.467</td>
<td>.005</td>
</tr>
<tr>
<td>Group</td>
<td>2</td>
<td>6.371</td>
<td>3.185</td>
<td>.568</td>
<td>.570</td>
</tr>
<tr>
<td>Treatment</td>
<td>1</td>
<td>28.748</td>
<td>28.748</td>
<td>5.131</td>
<td>.028</td>
</tr>
<tr>
<td>School</td>
<td>1</td>
<td>9.877</td>
<td>9.877</td>
<td>1.763</td>
<td>.190</td>
</tr>
<tr>
<td>Group x Treatment</td>
<td>2</td>
<td>2.719</td>
<td>1.359</td>
<td>.243</td>
<td>.785</td>
</tr>
<tr>
<td>Group x School</td>
<td>2</td>
<td>5.569</td>
<td>2.784</td>
<td>.497</td>
<td>.611</td>
</tr>
<tr>
<td>Treatment x School</td>
<td>1</td>
<td>.813</td>
<td>.813</td>
<td>.145</td>
<td>.705</td>
</tr>
<tr>
<td>Error</td>
<td>53</td>
<td>296.972</td>
<td>5.603</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>63</td>
<td>401.750</td>
<td>6.377</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The comparability of the means adjusted for independents and covariates for groups, treatments and schools can be seen in Figure 4. Instrument scale values for the EMATH-PM&O object were negative (see Appendix D). In other words, a more positive attitude resulted in a possible low score of five and a negative attitude resulted in a high score of fifteen. These insignificant data, except the treatment effect, must be taken lightly. Group two with limited contact or experience with handicapped people reflected the most positive attitude toward PM&O followed by group three who had significant contact or experience and finally group one who had no contact or experience.
with handicapped people. The experimental group registered a more positive attitude toward PM&O than the control group. OSU students responded more positively toward PM&O concepts than WOSC students.

FIGURE 4
COMPARABILITY OF MEANS: PLANNING MANAGEMENT AND ORGANIZATION

MEAN VALUES
Grand Mean = 6.81
Group 1 = 7.22  SE = .08
Group 2 = 6.50  SE = .07
Group 3 = 6.80  SE = .04
Experimental Treatment = 6.23  SE = .15
Control Treatment = 7.61  SE = .10
WOSC = 7.22  SE = .07
OSU = 6.40  SE = .07

H0: There is no significant mean attitudinal difference between and among schools, treatments, groups or interaction toward adapting
games and activities for handicapped children in physical education.

"Adapting" issues discussed by the experimental group concerned seven strategies for adapting games and activities as presented by Fait and Dunn (1984). Direct experience with adaptive concepts was provided by the nature trail hike with a variety of simulated handicapping conditions.

Table 7 shows the results of the ANCOVA. Significance of the F levels indicated no statistical significance for the independent variables representing schools, treatments, groups or interaction. However, the F level for school (.058) approached significance. This indicated that no generalizations could be drawn as to which groups, treatments or even which schools became most positive toward the adapting object.

**TABLE 7**

**ANALYSIS OF COVARIANCE TABLE: ADAPTATIONS**

<table>
<thead>
<tr>
<th>SOURCE OF VARIATION</th>
<th>DE</th>
<th>SUM OF SQUARES</th>
<th>MEAN SQUARE</th>
<th>F VALUE</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Covariates</td>
<td>1</td>
<td>52.704</td>
<td>52.704</td>
<td>12.725</td>
<td>.001</td>
</tr>
<tr>
<td>Group</td>
<td>2</td>
<td>6.079</td>
<td>3.040</td>
<td>.734</td>
<td>.485</td>
</tr>
<tr>
<td>Treatment</td>
<td>1</td>
<td>2.302</td>
<td>2.302</td>
<td>.556</td>
<td>.459</td>
</tr>
<tr>
<td>School</td>
<td>1</td>
<td>15.593</td>
<td>15.593</td>
<td>3.765</td>
<td>.058</td>
</tr>
<tr>
<td>Group x Treatment</td>
<td>2</td>
<td>14.892</td>
<td>7.446</td>
<td>1.798</td>
<td>.176</td>
</tr>
<tr>
<td>Group x School</td>
<td>2</td>
<td>8.696</td>
<td>4.348</td>
<td>1.050</td>
<td>.357</td>
</tr>
<tr>
<td>School x Treatment</td>
<td>1</td>
<td>1.472</td>
<td>1.472</td>
<td>.355</td>
<td>.554</td>
</tr>
<tr>
<td>Error</td>
<td>53</td>
<td>219.522</td>
<td>4.142</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>63</td>
<td>322.938</td>
<td>5.126</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
The comparability of the means adjusted for independents and covariates for groups, treatments and schools can be seen in Figure 5. Instrument scale values for the EMATH adaptation object were positive (see Appendix D). A more positive attitude resulted in a possible high score of fifteen and a negative attitude resulted in a low score of five. Even though these data were interesting, further discussion was hindered in view of the lack of statistical significance exhibited by the variables of group, school and treatment. Group two with limited contact or experience with handicapped people reflected the most positive attitude toward adaptive instruction followed by group one who had no contact or experience and group three who had significant contact or experience with handicapped people. The experimental group registered a more positive attitude toward adaptive instruction than the control group. WOSC students stated a more positive attitude toward adaptive instruction than OSU students.
FIGURE 5
COMPARABILITY OF MEANS: ADAPTATIONS

MEAN VALUES

Grand Mean = 11.78
Group 1 = 11.63  SE = .03
Group 2 = 12.22  SE = .10
Group 3 = 11.48  SE = .07
Experimental Treatment = 11.94  SE = .04
Control Treatment = 11.56  SE = .03
VOSC = 12.29  SE = .09
OSU = 11.27  SE = .09

Summary

Table 8 portrays three important patterns that seemed apparent from this analysis. While these results were not statistically significant they represented congruence with related literature (Sesow and Adams, 1982; Hoover and Cessna, 1984).

1. Group two who had limited experience, contact or extra
coursework with handicapping conditions generally responded more favorably to attitudinal objects examined than group one who had no experience, contact or extra coursework. Group three who had significant experience, contact or extra coursework responded least favorably to the attitudinal objects examined.

2. The experimental group responded more favorably than the control group toward all attitudinal objects.

3. Student teachers from WOSC generally responded more favorably than student teachers from OSU toward attitudinal objects.

Table 8 shows that statistical significance (italic, bold-face print) was determined in the area of attitude toward:

1. Planning management and organization (PM&O) of physical education in regard to treatment. The experimental group responded more favorably than the control group.
TABLE 8
RANK OF INDEPENDENT VARIABLES BY OBJECT: MOST POSITIVE

<table>
<thead>
<tr>
<th></th>
<th>1st, 2nd, 3rd</th>
<th>1st, 2nd</th>
<th>1st, 2nd</th>
</tr>
</thead>
<tbody>
<tr>
<td>Awareness</td>
<td>#2, #1, #3</td>
<td>Exp., Cont.</td>
<td>WOSC, OSU</td>
</tr>
<tr>
<td>Preparation</td>
<td>#2, #3, #1</td>
<td>Exp., Cont.</td>
<td>WOSC, OSU</td>
</tr>
<tr>
<td>Individualization</td>
<td>#2, #1, #3</td>
<td>Exp., Cont.</td>
<td>WOSC, OSU</td>
</tr>
<tr>
<td>Planning, Management and Organization</td>
<td>#2, #3, #1</td>
<td><em>Exp.</em> Cont.</td>
<td>OSU, WOSC</td>
</tr>
<tr>
<td>Adaptations</td>
<td>#2, #1, #3</td>
<td>Exp., Cont.</td>
<td>WOSC, OSU</td>
</tr>
</tbody>
</table>

Assessment of Behavioral Component

The major focus of this portion of the study was to determine the influence of additional content from areas of mainstreaming and special physical education on preservice elementary educators' actual adaptive teaching behaviors in the classroom. Adaptations in any curriculum area were considered.

Typically, a causal attitude model that suggests that attitude leads to certain behaviors is correct. However, attitude is only one of many causes of behavior. Many values, situational variables, societal mores, and other attitudes can lead an individual's behavior in opposition to
his attitude (Mueller, 1986). Due to this reasoning, the instrument for this study focuses on only the cognitive and affective components of attitude.

Because of this cognitive and affective focus on attitude, the third component, behavioral, was assessed differently. The behavioral component did not appear on the EMATH, nor was it included in the major focus of this study. However, data were collected on the subjects' willingness to demonstrate teaching behavior consistent with the treatment effects.

**Statistical Design**

The OSU/WOSC student teacher assessment form was utilized for the collection of data. The three items utilized from the OSU/WOSC student teaching assessment form were:

1. Demonstrates awareness of individual differences throughout instructional responsibility.
2. Special children participate in and contribute to learning activities.
3. Adjusts instruction for special learners.

Content validity of these items was limited to the expert judgement and use by Teaching Research in Monmouth, Oregon as well as WOSC and OSU elementary faculties. Interrater reliability was utilized in
determining a reliability coefficient for the separate items used in this analysis. Those coefficients were: (1) .16 (2) .46 and (3) .60. The adapted, student teaching assessment form is included in Appendix B.

Values of observed items from the assessment form were determined using a numerical rating system noted in Figure 6.

**FIGURE 6**

**VALUE AND INTERPRETATION OF OBSERVER'S SCORE**

<table>
<thead>
<tr>
<th>Observers Score</th>
<th>Interpretation</th>
<th>Score Numerical Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>++</td>
<td>Superior performance</td>
<td>5</td>
</tr>
<tr>
<td>+</td>
<td>Acceptable performance</td>
<td>3</td>
</tr>
<tr>
<td>+/-</td>
<td>Inconsistent performance</td>
<td>1</td>
</tr>
<tr>
<td>-</td>
<td>Unacceptable performance</td>
<td>0</td>
</tr>
<tr>
<td>NA/√</td>
<td>Not Applicable</td>
<td>no value</td>
</tr>
</tbody>
</table>

Mean values of the three items were utilized in the analysis. Justification for this strategy was rooted in item similarity with EMATH attitudinal objects of; (a) awareness; (b) planning, management and organization; and (c) adaptations.

A three way analysis of variance (ANOVA) model was used to determine the significance of HO: There is no significant mean adaptive teaching performance differences between and among schools, groups, treatment or interactions. A statistical significance of .05 was the level selected for rejection of the null hypothesis. Tukey's test was utilized as a multiple comparison test.
This portion of the study utilized a pretest/postest design as illustrated below.

\[ R \ 0_1 \ X \ 0_2 \ O_p \]
\[ R \ 0_1 \ 0_2 \ O_p \]

Where:
- \( R \) - random selection of student teachers at OSU and WOSC
- \( X \) - experimental treatment
- \( 0_1 \) - attitudinal pretest
- \( 0_2 \) - attitudinal posttest
- \( O_p \) - performance of participants during field observations

Criteria applied for sample selection included (a) a participant of either treatment observed at the same time by the cooperating teacher and supervisor, and (b) an individualized education plan (IEP) filed for a child instructed. A sampling matrix is provided in Table 9 to visualize sample size in relation to independent variables.
### TABLE 9

**SAMPLE MATRIX**

<table>
<thead>
<tr>
<th>SCHOOL</th>
<th>OSU</th>
<th>WOSC</th>
<th>ATTRIBUTE</th>
</tr>
</thead>
<tbody>
<tr>
<td>EXP. CONT.</td>
<td>EXP. CONT.</td>
<td>EXP. CONT.</td>
<td>EXP. CONT.</td>
</tr>
<tr>
<td>TREATMENT</td>
<td>N = 1</td>
<td>N = 4</td>
<td>N = 4</td>
</tr>
<tr>
<td>ATTRIBUTE GROUPS</td>
<td>N = 3</td>
<td>N = 2</td>
<td>N = 2</td>
</tr>
<tr>
<td>TOTAL BY SCHOOL</td>
<td>N = 6</td>
<td>N = 8</td>
<td>N = 9</td>
</tr>
</tbody>
</table>

**Data Collection**

During winter term, 1988 field supervisors from Oregon State University and Western Oregon State College as well as cooperating teachers randomly selected one observation to observe and evaluate participating students in the field. An adapted form of the OSU/WOSC student teacher assessment form was used (Appendix B). The purpose of this rating was to determine the extent of adaptive instruction demonstrated by all student teachers. Supervisors received special instructions about collecting data on participating students. Sixty-six percent of the total population was observed in the manner described. Sixty percent of the population observed (N = 31) had IEP students for
whom to adapt instruction. The adapted, student teacher assessment form and supervisor instructions are included in Appendix B.

Results

The major focus of this portion of the study was to determine the influence of additional content from areas of mainstreaming and special physical education on preservice elementary educators' adaptive teaching behaviors in the classroom. Results of the three-way ANOVA are shown in Table 10.

TABLE 10
ANALYSIS OF VARIANCE: BEHAVIORAL COMPONENT

<table>
<thead>
<tr>
<th>SOURCE OF VARIATION</th>
<th>DE</th>
<th>SUM OF SQUARES</th>
<th>MEAN SQUARE</th>
<th>F VALUE</th>
<th>SIGN. OF F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group</td>
<td>2</td>
<td>3.165</td>
<td>1.583</td>
<td>3.522</td>
<td>.050</td>
</tr>
<tr>
<td>Treatment</td>
<td>1</td>
<td>2.143</td>
<td>2.143</td>
<td>4.769</td>
<td>.042</td>
</tr>
<tr>
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<td>7.388</td>
<td>.014</td>
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<tr>
<td>Group x Treatment</td>
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<td>.236</td>
<td>.118</td>
<td>.263</td>
<td>.772</td>
</tr>
<tr>
<td>Group x School</td>
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<td>.501</td>
<td>.250</td>
<td>5.57</td>
<td>.582</td>
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<tr>
<td>Group x Treatment x School</td>
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<td>.048</td>
<td>.106</td>
<td>.900</td>
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<tr>
<td>Error</td>
<td>19</td>
<td>8.537</td>
<td>.449</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>30</td>
<td>20.344</td>
<td>.678</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Statistical significance was noted for group, treatment, school and interaction of treatment x school. Tukey's multiple comparison test,
adjusted for unequal cell size, was performed on the group variable. Group two performed significantly better than group one but not significantly better than three. Group three performed better than group one, though the difference was statistically insignificant. Results of Tukey's test on group means is shown in Table 11.

**TABLE 11**

MULTIPLE COMPARISON OF GROUP MEANS

<table>
<thead>
<tr>
<th>Groups</th>
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</tr>
<tr>
<td>2</td>
<td>3.8889</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>3.5556</td>
<td></td>
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</tr>
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</table>

The control group, with a mean of 3.73 performed significantly better than the experimental group with a mean of 3.36. WOSC student teachers with a mean of 3.78 performed significantly better than OSU students with a mean of 3.26. There was a significant difference in interaction for the levels of school x treatment. Plotting of the sample means in Figure 7 indicated that a disordinal interaction occurred. Apparently, OSU participants in the experimental group performed more satisfactorily than participants in the control group. However, WOSC participants in the experimental group performed less satisfactorily than those in the control group.
Inference from analysis of data from the behavioral component was limited by inadequate sample size, variability of observers, and the reliability of instrumentation.

Group two which had limited experience, contact or extra...
coursework performed significantly better than group one, but not significantly better than group three. Group three performed better than group one, but not significantly. WOSC students performed significantly better particularly in the control group but, OSU students performed better than WOSC students in the experimental group.

**Inner-Item Reliability**

The purpose of this analysis was to ascertain the relationship of items focused toward attitudes for teaching handicapped and nonhandicapped children in physical education compared to items focused toward attitudes for teaching handicapped and nonhandicapped children in other elementary curricular areas. Concern was expressed about this experiment's use of additional information from special physical education and if the results could indeed be generalized to physical education.

Consistent with the knowledge function of attitudes chosen as a theoretical base for this investigation, this analysis consisted of cognitive and affective correlations. Five cognitive and five affective items, with the highest scale and quartile ratings, were duplicated across other elementary curricular areas. See Appendix D for item numbers and values. Results were obtained from the pretest on January 13, 1988. The Pearson r formula was utilized in this analysis.

The results indicated that a correlation of .62 existed between mainstreaming concepts (cognitive) focused toward physical education
compared to mainstreaming concepts focused toward other elementary curricular areas. A correlation of .83 was found between scores for mainstreaming feelings (affective) focused toward physical education compared to mainstreaming feelings directed toward other curricular areas.

In summary, relationships between mainstreaming concepts focused toward physical education compared to mainstreaming concepts focused toward other elementary curricular areas occurred at the exact same degree only 38% of the time. Although 69% of the time the population formed the exact same relationship between their feelings about mainstreaming concepts focused toward physical education compared to mainstreaming concepts directed toward other curricular areas.

Because exact relationships between concepts occurred less often than relationships between feelings, it is reasonable to conclude that elementary majors do not always transfer mainstreaming concepts across curricula lines into physical education. Apparently, there is a better chance that elementary majors will feel empathy for handicapped children in physical education.
CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Summary

The main purpose of this study was to examine the influence of additional content from areas of mainstreaming and adapted physical education on preservice elementary educators' attitudes toward teaching nonhandicapped and handicapped children in elementary physical education. To achieve this goal (a) an instrument was constructed to assess the attitudes of preservice elementary educators toward teaching physical education to handicapped and nonhandicapped children, and (b) an experiment was devised to influence the attitudes of the treatment groups.

The major objectives, procedures and findings are summarized in the following section:

Objective #1: To review related literature.

This objective was satisfied via the information summarized in Chapter One and Two.

Objective #2: To develop a research instrument to determine the attitudes of elementary educators toward physical education with handicapped and nonhandicapped children.
Development of The Elementary Major's Attitude Toward Handicapped Scale (EMATH) was carried out in the following manner. A jury panel (Appendix A) was selected to validate the EMATH. This panel represented college or university instructors of elementary physical education methods or adaptive coursework as well as public school teachers whose responsibility it is to educate handicapped and nonhandicapped children in physical education. The method of equal-appearing intervals using mean data for scale and quartile values (Appendix D), was used to establish content validity of fifty items representing all objects (Edwards, 1957). Twenty items were matched for cell placement to provide a .74 split-half reliability coefficient adjusted by the Spearman-Brown Prophecy Formula (Gay, 1981).

Objective #3: To determine the influence of additional content from areas of mainstreaming and adapted physical education on preservice elementary educators' attitudes toward teaching nonhandicapped and handicapped children in elementary physical education.

The null hypotheses are reiterated below. Following the listing of each hypothesis are the conclusions drawn from the analysis of the data collected for each hypothesis.

HO: There is no significant mean attitudinal difference between
and among schools, treatments, groups or interaction toward: mainstreaming awareness for physical education--accepted.

Significance of F levels indicated no statistical significance for the independent variables representing schools, treatments, groups, or interaction.

HO: There is no significant mean attitudinal difference between and among schools, treatments, groups or interaction toward: preparing handicapped and nonhandicapped children for the mainstream in physical education--accepted.

Significance of F levels indicated no statistical significance for the independent variables representing schools, treatments, groups or interaction.

HO: There is no significant mean attitudinal difference between and among schools, treatments, groups or interaction toward: individualization techniques for physical education--accepted.

Significance of F levels indicated no statistical significance for the independent variables representing schools, treatments, groups or interaction.
HO: There is no significant mean attitudinal difference between and among schools, treatments, groups or interaction toward planning, management and organization of physical education--rejected.

Significance of F levels indicated no statistical significance for the independent variables representing schools, groups or interaction. Statistical significance was demonstrated for the variable of treatment. The F statistic suggested that the experimental group was significantly more positive than the control group toward the PM&O object.

HO: There is no significant mean attitudinal difference between and among schools, treatments, groups or interaction toward: adapting games and activities for handicapped children in physical education--accepted.

Significance of F levels indicated no statistical significance for the independent variables representing schools, treatments, groups or interaction.

Comparability of means, though insignificant, provide three important patterns.

1. Group two who had limited experience, contact or extra coursework with handicapping conditions generally responded more favorably to attitudinal objects examined than group one
who had no experience, contact or extra coursework. Group three who had significant experience, contact or extra coursework responded least favorably to attitudinal objects examined.

2. The experimental group responded more favorable than the control group toward all attitudinal objects.

3. Student teachers from WOSC generally responded more favorable than student teachers from OSU toward attitudinal objects.

Objective #4: An ad hoc objective was included concerning the influence of additional content from areas of mainstreaming and special physical education on preservice elementary educators’ actual adaptive teaching behaviors in the classroom.

The null hypothesis for this section of the study is reiterated below and conclusions drawn from the analysis of the data are recorded.

H0: There is no significant mean performance differences between and among schools, groups, treatment or interactions in adaptive teaching behaviors—rejected.

Statistical significance was noted for group, treatment, school and
interaction of treatment x school. Group two performed significantly better than group one. Group three also performed more favorably than group one but with no significant difference. The control group performed significantly better than the experimental group. WOSC student teachers in the experimental and control groups performed significantly better than OSU students. There was a significant difference in interaction for the levels of school x treatment.Plotting of the sample means indicated that a disordinal interaction occurred. OSU participants in the experimental group performed more satisfactorily than participants in the control group. However, WOSC participants in the experimental group performed less satisfactorily than those in the control group.

Objective #5: Another ad hoc objective was included which ascertained the relationship of EMATH items focused toward attitudes of teaching mainstreamed children in physical education compared to items focused toward attitudes of teaching mainstreamed children in other elementary curricular areas.

Mainstreaming concepts (cognitive) focused toward physical education compared to concepts focused toward other elementary curricular areas formed a relationship at the exact same degree only 38% of the time. Although 69% of the time the exact same relationship was formed between feelings (affective) about mainstreaming concepts focused toward physical education compared to those
concepts directed toward other curricular areas.

In summary, on the EMATH inner-item reliability check, exact relationships between concepts occurred less often than relationships between feelings. Therefore, it is reasonable to question how effectively elementary majors transfer mainstreaming concepts across curricula lines into physical education. There is a better chance that elementary majors will carry their empathy for handicapped and nonhandicapped children into physical education.

Conclusions

As a result of the empirical findings of this study, the following conclusions are stated regarding development of positive attitudes in preservice elementary educators toward physical education with handicapped and nonhandicapped children.

1. The application of cooperative learning rationale and models across curriculum lines help preservice elementary educator's hold more favorable attitudes toward teaching physical education to handicapped and nonhandicapped children.

2. Provisions for preservice elementary educators to experience limited-direct contact with handicapped children in the field
was most advantageous for the acquisition of positive attitudes. Limited experience referred to one or more experiences during major field practicums contained within teacher education programs.

3. In such a complex treatment it is difficult to know whether the knowledge gained, the setting, or subjects influencing other subjects was the cause of attitude change. If, the knowledge gained was the most influential component then the theoretical notion that knowledge is a function of attitude and can serve as an attitudinal change agent is supported.

Recommendations

The following recommendations are made to aid the comprehensive training of preservice elementary educators in regard to mainstreaming concepts in physical education and across curriculum lines.

1. Elementary education departments should select a theme which incorporates the tenets of cooperative learning rationale and models. These tenets might represent a portion of the research base for pedagogy courses in all curriculum areas including physical education. The respective disciplines could then apply the research to their areas and, hopefully, accrue the benefits
inherent for mainstreamed settings.

2. Within new "fifth year" programs, an "aesthetic cluster" be developed including pedagogy courses in physical education, music, and art. "Cohort" groups purporting to increase their knowledge in these areas could be formulated and guided by the respective instructors. This program structure could encourage the integration of curriculum area content and methods specific to each area. Elementary physical education majors could have a chance to become acquainted with other curriculum area content and methodology. Comcomitantly, elementary majors could become more knowledgable in physical education, music, and art methodology and content.

3. Incorporate a field practicum into the "aesthetic cluster" allowing limited-direct contact with handicapped children. Elementary majors could be asked to demonstrate adaptive teaching behavior in the cognitive, affective and psychomotor domain for handicapped children. The purpose for a limited-direct contact approach is to facilitate a realistic confidence to influence handicapped and nonhandicapped children in physical education.

4. Offer no specific mainstreaming course for the
elementary major. Instead, certain objectives of each "cluster" could focus on mainstreaming concepts which could include cooperative learning rationale and models.

5. Due to low interrater reliability, appropriate inservice of observers is necessary for the present OSU/WOSC student teacher assessment forms to be used in further research.

6. Revise the EMATH to include response categories for three different handicap classifications: emotional, physical, and learning disabled.

7. Revise the EMATH scoring procedure to secure a total attitude score.

Suggestions For Further Study

It is recommended that further research be conducted to address the many questions concerning regular classroom teachers instructing handicapped and nonhandicapped children in physical education. The following questions represent some of that research:

1. Determine the attitudes toward physical education of regular elementary classroom teachers whose responsibility it is to teach all or part of physical education curriculum. Do they care
to teach it?

2. Examine the attitudes of handicapped and nonhandicapped children toward physical education receiving instruction from regular classroom teachers versus instruction received from specialists.

3. Determine the competencies for teaching elementary physical education to handicapped and nonhandicapped children as determined by practicing classroom teachers and physical education specialists. Do elementary majors learn these competencies after their training is complete?

4. Explore the effect of ongoing inservice on the attitudes and performance of classroom teachers who have responsibility for teaching movement?

5. Identify core competencies for teaching emotional, physical and learning disabled children across elementary curriculum lines. Can the same strategies be used effectively in all or part of the elementary curriculum?

6. Survey the occurrence of cooperative learning models being transferred into elementary physical education settings? If so, who is doing it and are there any benefits to student learning or
academic learning time?

7. Examine the social acceptance of handicapped children in elementary physical education settings where cooperative learning models are emphasized versus settings where they are not.

8. Examine any construct validity possibilities occurring from the numerous attitudinal measures toward mainstreaming. If any existed, could those constructs measure attitudes of teachers, parents and children alike in all elementary curriculum areas toward mainstreaming?

Research pertaining to attitudes and performance of regular classroom teachers teaching movement is lacking. This study was designed to determine the effect of additional mainstreaming and special physical education knowledge and skills on elementary majors' attitudes toward teaching physical education to handicapped and nonhandicapped children. The conclusions of this study provide strategies based upon research which help to develop positive attitudes in preservice elementary educators toward physical education with handicapped and nonhandicapped children.
BIBLIOGRAPHY


Harp, D. H. and Gallagher, P. R. (1986). "Understanding handicaps through children's literature", Address at Oregon In-Service Days at Corvallis, Oregon, October, 10, 1986. (Mimeographed)


APPENDICES
APPENDIX A

MEMBERS OF THE JURY PANEL

1. Sally Atkins
   Liberty Elementary School
   Albany, OR
   Re: regular classroom teacher charged with teaching physical education.

2. Joanne Brandhorst
   Western Oregon State College
   Monmouth, OR
   Re: elementary physical education method's professor

3. Joe Caligure
   Western Oregon State College
   Monmouth, OR
   Re: adaptive physical education professor

4. Dominic Cusimano
   Physical Education Specialist
   Corvallis School District
   Corvallis, OR
   Re: elementary physical education specialist

5. John Dunn
   Oregon State University
   Corvallis, OR
   Re: adaptive physical education professor

6. Mark Hawley
   Monmouth Elementary School
   Monmouth, OR
   Re: elementary physical education specialist
7. Linda Hughes  
West Elementary  
Spearfish, SD  
Re: elementary physical education specialist, college teaching experience

8. Kathy Iverson  
Western Oregon State College  
Monmouth, OR  
Re: disabled private/public school special physical educator

9. Norm McCullough  
Physical Education Specialist  
Corvallis School District  
Corvallis, OR  
Re: elementary physical education specialist

10. Don Megale  
Oregon State University  
Corvallis, OR  
Re: elementary physical education method's professor

11. Elizabeth Moeller  
Physical Education Specialist  
Corvallis School District  
Corvallis, OR  
Re: elementary physical education specialist

12. James Morehouse  
Oregon State University  
Corvallis, OR  
Re: doctoral studies and public school experience.
APPENDIX B

INSTRUCTIONS FOR BEHAVIORAL ASSESSMENT: LETTER ONE

January 13, 1988

To: OSU/WOSC Student Teaching Supervisors
From: Jerry Harmon
Re: Assistance with research

It is with mixed emotions that I request your assistance in collecting data for an attitudinal study. I certainly understand the enormous task of data collected on student teachers and yet, in this research study it is impossible to observe the behavior of all subjects in the field without your assistance.

There is no mandate on you or the cooperating teacher to collaborate in this research. However, if one occasion permits, please have the cooperating teacher observe the same lesson as you. There is no stipulation on the curriculum area observed. The only additional data requested is the number and type of handicapped children participating in the lesson and a short description of the teaching sequence. I will provide the necessary forms for you and the cooperating teacher. Please return your completed observations to Dr. Girod on the WOSC campus or to Jerry Harmon on the OSU campus.

The results of your labor will be shared with you at the completion of the study.

Your help is greatly appreciated. If you desire further clarification, please feel free to contact me at OSU.
INSTRUCTIONS FOR BEHAVIORAL ASSESSMENT: LETTER TWO

February 8, 1988

To: OSU/WOSC Student Teaching Supervisors: Elementary
From: Jerry Harmon
Re: Assistance with research

The purpose of this memo is to augment the procedure and information that I requested at the beginning of the term. The procedure is outlined.

1. At some time during each student teacher's E.F.R., have the cooperating teacher and yourself evaluate the same lesson. Do not collaborate on the actual observation.

2. If you wish, use the available one-page form or make a copy of page 4, 5 and 6 of the student teacher assessment form for both you and the cooperating teacher.

3. You and the student teacher are not obligated to observe or teach any particular type of lesson.

4. Assess teaching behaviors in the same way that you usually assess student teachers.

5. Use the same marking system for this procedure as you use for the student teacher assessment form (ie. ++ = Superior performance).

6. If a category on the assessment form does not apply to the lesson observed, please indicate by marking NA (non-applicable).

7. Provide the following demographic information on the back of your forms.
   a. A short description of the lesson observed, or attached lesson plan (ie. objective[s], brief outline of teaching sequence).
   b. The number of I.E.P. students involved in that particular
lesson.

8. Send your forms to Jerry Harmon at OSU or Dr. Girod at WOSC through the campus mail.

I appreciate your efforts in collecting this data. If you have further questions, please contact me at 754-4841.
EXTENDED FULL RESPONSIBILITY TEACHING

BEHAVIOR MANAGEMENT

- Clarify behavioral expectations
- Takes appropriate action when misbehavior occurs
- Indication that a management plan is in force
- Foster a consistent, supportive classroom climate
- Indicate awareness of all children

ATTENDING COMPETENCIES ("WITNESS")

- Thinking/Problem Solving
  - Variety in level of questioning is used
  - Provides opportunity for higher levels of thinking

- Interaction with Class
  - Positive and specific reinforcement for correct responses
  - Provides individual help when wanted
  - Displays warmth toward students

- Recognition of Special Learners
  - Adjusts instruction for special learners

- Materials
  - Set up in advance
  - Distributed efficiently

- Closures
  - Appropriate closure of lesson, review, clean-up
  - Explains future use of materials, concepts, etc.
  - Prepares class for transition

- Independent Work
  - Uses praise, prompt, and leave techniques

- Giving Directions
  - Work procedures explained - demonstrated as needed

- Materials
  - Reflect evidence of teacher creativity

- Special Children Participation
  - Students appropriately respond to requests and directions
  - Students efficiently manage transitions, materials, record keeping, and work time
  - There is a pervasive cooperative atmosphere in the classroom

- Learning Activities
  - Students respond attentively when the teacher wants their attention
  - Students efficiently manage transitions, materials, record keeping, and work time
  - Students appropriately respond to requests and directions

- Behavior Support
  - Students are aware of expected classroom behaviors
  - Learning activities are seldom disrupted by inappropriate behaviors
  - Students respond attentively when the teacher wants their attention

- Special Children Participation
  - Students appropriately respond to requests and directions
  - There is a pervasive cooperative atmosphere in the classroom

- Preventing Disruptive Behavior
  - Students are aware of expected classroom behaviors
  - Learning activities are seldom disrupted by inappropriate behaviors
  - Students respond attentively when the teacher wants their attention

- Promoting Positive Behavior
  - Students are aware of expected classroom behaviors
  - Learning activities are seldom disrupted by inappropriate behaviors
  - Students respond attentively when the teacher wants their attention

- Monitoring Progress
  - Students are aware of expected classroom behaviors
  - Learning activities are seldom disrupted by inappropriate behaviors
  - Students respond attentively when the teacher wants their attention

- Providing Feedback
  - Students are aware of expected classroom behaviors
  - Learning activities are seldom disrupted by inappropriate behaviors
  - Students respond attentively when the teacher wants their attention

- Facilitating Independence
  - Students are aware of expected classroom behaviors
  - Learning activities are seldom disrupted by inappropriate behaviors
  - Students respond attentively when the teacher wants their attention
APPENDIX C

ATTITUDE ASSESSMENT SCALE: EMATH

The Elementary Major’s Attitude Toward The Handicap Scale
E.M.A.T.H.

Explanation:

This questionnaire is concerned with how you feel about teaching handicapped students in regular elementary classes.

For the purpose of this questionnaire a handicapped student refers to a learning, emotional or physically disabled student who requires special educational services to secure an appropriate education.

This questionnaire has two parts: items that ask about you and questions that ask about your attitude. Directions will precede each part.

DIRECTIONS: Write only on the answer sheet. Please provide necessary information at the top of the answer sheet.

Read each item on the test sheets. Select the answer that comes closest to describing your present attitude. If the best answer to describing you is missing, select the answer that comes closest. Mark that answer with an X on the answer sheet. Please read quickly. The questionnaire should not take longer than 20 minutes to complete.

PLEASE ANSWER EACH ITEM.
DO NOT MARK MORE THAN ONE ANSWER PER ITEM.

1. If you have elementary physical education with handicapped and nonhandicapped children you have a lesser chance of integrating students of different abilities.
   a. strongly agree  
   b. agree
   c. mildly agree
   d. mildly disagree
   e. disagree
   f. strongly disagree

2. Whenever possible students with or without handicaps should be taught in the same physical education class.
   a. strongly agree
   b. agree
   c. mildly agree
   d. mildly disagree
   e. disagree
   f. strongly disagree
3. If you have art with handicapped and nonhandicapped children you have a classroom environment that meets every student's needs.

   a. strongly agree       d. mildly disagree
   b. agree               e. disagree
   c. mildly agree         f. strongly disagree

4. If you have elementary physical education with handicapped and nonhandicapped students you have cooperation among children.

   a. strongly agree       d. mildly disagree
   b. agree               e. disagree
   c. mildly agree         f. strongly disagree

5. One advantage of teaching handicapped pupils in regular physical education classes with nonhandicapped students is that students will learn to work together.

   a. strongly agree       d. mildly disagree
   b. agree               e. disagree
   c. mildly agree         f. strongly disagree

6. If you have elementary mathematics with handicapped and nonhandicapped students you have positive self-concepts among all students.

   a. strongly agree       d. mildly disagree
   b. agree               e. disagree
   c. mildly agree         f. strongly disagree

7. If you have elementary physical education with handicapped and nonhandicapped children you have maximum participation of all students.

   a. strongly agree       d. mildly disagree
   b. agree               e. disagree
   c. mildly agree         f. strongly disagree

8. Teaching handicapped students in regular physical education class will encourage the handicapped students to become involved in class activities.

   a. strongly agree       d. mildly disagree
   b. agree               e. disagree
   c. mildly agree         f. strongly disagree
9. If you have elementary music with handicapped and nonhandicapped children you need adequate support staff.
   a. strongly agree    d. mildly disagree
   b. agree             e. disagree
   c. mildly agree      f. strongly disagree

10. If you have elementary physical education with handicapped and nonhandicapped children you have extra instructional preparation.
    a. strongly agree    d. mildly disagree
    b. agree             e. disagree
    c. mildly agree      f. strongly disagree

11. Nonhandicapped students will not benefit from having handicapped students in physical education class.
    a. strongly agree    d. mildly disagree
    b. agree             e. disagree
    c. mildly agree      f. strongly disagree

12. If you have elementary reading with handicapped and nonhandicapped children you need special classes for children with handicaps.
    a. strongly agree    d. mildly disagree
    b. agree             e. disagree
    c. mildly agree      f. strongly disagree

13. If you have elementary physical education with handicapped and nonhandicapped children you have need for special equipment.
    a. strongly agree    d. mildly disagree
    b. agree             e. disagree
    c. mildly agree      f. strongly disagree

14. Handicapped students will not be able to participate in games with nonhandicapped students in regular physical education class.
    a. strongly agree    d. mildly disagree
    b. agree             e. disagree
    c. mildly agree      f. strongly disagree

15. If you have elementary language arts with handicapped and nonhandicapped children you have mastery of skills for all students based on their capability to perform.
    a. strongly agree    d. mildly disagree
    b. agree             e. disagree
    c. mildly agree      f. strongly disagree
16. If you have elementary physical education with handicapped and nonhandicapped children you have a classroom environment that meets every student's need.
   a. strongly agree
   b. agree
   c. mildly agree
   d. mildly disagree
   e. disagree
   f. strongly disagree

17. Teachers will need inservice training before they will be able to teach a physical education class of handicapped and nonhandicapped students together.
   a. strongly agree
   b. agree
   c. mildly agree
   d. mildly disagree
   e. disagree
   f. strongly disagree

18. Whenever possible students with or without handicaps should be taught in the same social studies class.
   a. strongly agree
   b. agree
   c. mildly agree
   d. mildly disagree
   e. disagree
   f. strongly disagree

19. If you have elementary physical education with handicapped and nonhandicapped students you have positive self-concepts among all students.
   a. strongly agree
   b. agree
   c. mildly agree
   d. mildly disagree
   e. disagree
   f. strongly disagree

20. Handicapped students will not be accepted by their nonhandicapped peers in regular physical education class.
   a. strongly agree
   b. agree
   c. mildly agree
   d. mildly disagree
   e. disagree
   f. strongly disagree

21. One advantage of teaching handicapped pupils in regular science classes with nonhandicapped students is that students will learn to work together.
   a. strongly agree
   b. agree
   c. mildly agree
   d. mildly disagree
   e. disagree
   f. strongly disagree

22. If you have elementary physical education with handicapped and nonhandicapped children you need adequate support staff.
   a. strongly agree
   b. agree
   c. mildly agree
   d. mildly disagree
   e. disagree
   f. strongly disagree
23. Handicapped students will learn more rapidly if they are taught with their nonhandicapped peers in physical education.
   a. strongly agree        d. mildly disagree
   b. agree                 e. disagree
   c. mildly agree          f. strongly disagree

24. Teaching handicapped students in health class will encourage the handicapped students to become involved in class activities.
   a. strongly agree        d. mildly disagree
   b. agree                 e. disagree
   c. mildly agree          f. strongly disagree

25. If you have elementary physical education with handicapped and nonhandicapped children you have special classes for children with handicaps.
   a. strongly agree        d. mildly disagree
   b. agree                 e. disagree
   c. mildly agree          f. strongly disagree

26. There will be more discipline problems if I have to teach handicapped students in my regular physical education class with nonhandicapped students.
   a. strongly agree        d. mildly disagree
   b. agree                 e. disagree
   c. mildly agree          f. strongly disagree

27. Nonhandicapped students will not benefit from having handicapped students in listening exercises.
   a. strongly agree        d. mildly disagree
   b. agree                 e. disagree
   c. mildly agree          f. strongly disagree

28. If you have elementary physical education with handicapped and nonhandicapped children you have mastery of skills for all students based on their capability to perform.
   a. strongly agree        d. mildly disagree
   b. agree                 e. disagree
   c. mildly agree          f. strongly disagree

29. Handicapped students can actively participate in most physical education class activities with their nonhandicapped peers.
   a. strongly agree        d. mildly disagree
   b. agree                 e. disagree
   c. mildly agree          f. strongly disagree
Handicapped students will not be able to participate in games with nonhandicapped students in regular oral language activities.

a. strongly agree  
b. agree  
c. mildly agree

d. mildly disagree  
e. disagree  
f. strongly disagree

**PART TWO: DEMOGRAPHIC DATA**

**DIRECTIONS:** Please number and write your answers to this part on the bottom of your answer sheet. Please fill in the needed information to the best of your knowledge.

1. In what year were you born?
2. Have you already earned a college degree? If “yes”, in what academic field?
3. Have you had any formal paid teaching experiences outside of your professional training? If you do, please describe your assignment and the length of time for your involvement.
4. Please list any undergraduate or graduate courses that you have taken that have dealt specifically with physical education for handicapped pupils? Give the course number and title.
5. Please list any undergraduate or graduate courses that you have taken outside of physical education (e.g. special education or elementary education) that have dealt specifically with handicapped pupils. Give the course number and title.
6. Please list any previous teaching experiences with handicapped students. If any, briefly describe the experiences.
7. Do you have a handicapping condition? If “yes”, please give a short description of your disability.
8. Do you have a close relative or friend that has a handicapping condition. If “yes”, please give a brief description of their disabilities.
9. In your present student teaching experience do you have any handicapped students? If “yes” what are the handicaps.

THANK YOU VERY MUCH FOR YOUR HELP
The Elementary Major's Attitude Toward Handicap Scale:
Answer Sheet

Name ________________________________
Social Security Number ____________________
Campus: OSU or WOSC
Status: UG or PB
Gender: M or F
St. Tchg. Assignment: K, 1, 2, 3, 4, 5, 6 other _____
Test: Pre or Post

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2. abcdef
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30. abcdef

AW ___/___/___
PR ___/___/___
IND ___/___/___
PMO ___/___/___
AD ___/___/___

______________________________
Please number and write your demographic information below this line.
### APPENDIX D

#### ITEM ANALYSIS

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* Items that were duplicated for checking inter-item reliability.

Aff. = Affective component of attitude
Cog. = Cognitive component of attitude