Attitudes of physical education graduate students toward the integration of handicapped students into regular classrooms
by Martha Marie Gilthvedt

A thesis submitted in partial fulfillment of the requirements for the degree of Master of Science in Physical Education
Montana State University
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Abstract:
The purpose of this study was to determine the attitudinal changes among physical education graduate students toward the integration of handicapped individuals into regular physical education classrooms. If changes did occur, the relationship of demographic, curriculum and experience variables to these attitudes was to be studied. Specifically, this study attempted to ascertain: (1) the attitudes of physical education graduate students toward integrating handicapped individuals at the beginning and the end of the school year; (2) a comparison of attitudes between physical education graduate students and graduate students in the College of Education toward integration at the beginning and at the end of the school year; and (3) the relationship of specific variables and changes in attitudes, if any, of these students during the school year.

Participants in the study were twenty-two physical education graduate students and seventeen graduate students in the College of Education at Montana State University, Bozeman, Montana. All the students were enrolled at Montana State during the 1980-1981 school year. The students were sent questionnaires at the beginning and at the end of the school year.

The questionnaires sent to the students at the beginning and at the end of the year were developed by Baker, Montemurro, and Kapperman (1973). A version revised by May and Furst (1977) was used by the researcher. A demographic questionnaire was included with the questionnaire given to the students at the end of the school year. This was developed by the researcher and Dr. C. Stewart. Results from these questionnaires supported the hypotheses of the study: (I) there would be no significant change in attitudes from the begin-ing of the school year to the end of the school year; (2) the graduate students' demographies, curriculum, and experiences during the school year would not significantly affect their attitudes toward handicapped students; and (3) no difference would be revealed between physical education graduate students and regular education graduate students' attitudes toward handicapped students.

ATTITUDES OF PHYSICAL EDUCATION GRADUATE STUDENTS TOWARD THE INTEGRATION OF HANDICAPPED STUDENTS INTO REGULAR CLASSROOMS

by

Martha Marie Gilthvedt

A thesis submitted in partial fulfillment
of the requirements for the degree

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in

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This thesis has been read by each member of the thesis committee and has been found to be satisfactory regarding content, English usage, format, citations, bibliographic style, and consistency, and is ready for submission to the College of Graduate Studies.

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Date September 27, 1983

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ABSTRACT

The purpose of this study was to determine the attitudinal changes among physical education graduate students toward the integration of handicapped individuals into regular physical education classrooms. If changes did occur, the relationship of demographic, curriculum and experience variables to these attitudes was to be studied. Specifically, this study attempted to ascertain: (1) the attitudes of physical education graduate students toward integrating handicapped individuals at the beginning and the end of the school year; (2) a comparison of attitudes between physical education graduate students and graduate students in the College of Education toward integration at the beginning and at the end of the school year; and (3) the relationship of specific variables and changes in attitudes, if any, of these students during the school year.

Participants in the study were twenty-two physical education graduate students and seventeen graduate students in the College of Education at Montana State University, Bozeman, Montana. All the students were enrolled at Montana State during the 1980-1981 school year. The students were sent questionnaires at the beginning and at the end of the school year.

The questionnaires sent to the students at the beginning and at the end of the year were developed by Baker, Montemurro, and Kapperman (1973). A version revised by May and Furst (1977) was used by the researcher. A demographic questionnaire was included with the questionnaire given to the students at the end of the school year. This was developed by the researcher and Dr. C. Stewart. Results from these questionnaires supported the hypotheses of the study: (1) there would be no significant change in attitudes from the beginning of the school year to the end of the school year; (2) the graduate students' demographies, curriculum, and experiences during the school year would not significantly affect their attitudes toward handicapped students; and (3) no difference would be revealed between physical education graduate students' and regular education graduate students' attitudes toward handicapped students.

CHAPTER ONE

INTRODUCTION

When Public Law 94-142 became effective in 1977, it specifically stated that physical education must be a regular part of the curriculum for all handicapped students. This meant that all handicapped students not only had to have physical education, but had to be a part of a regular physical education class unless a special physical education class was more appropriate for their needs.

During the 1980-1981 school year, Montana State was part of a training project for the exceptional individual within the Department of Health, Physical Education, and Recreation. One of the objectives of the project was to provide graduate courses and practicum experiences to graduate students. Practicums were an integral part of the program.

The subjects in this study were graduate students from the Departments of Health, Physical Education, and Recreation and the College of Education. The study was designed to discover if any change in attitudes toward the integration of handicapped students developed during the 1980-1981 school year. If any change took place, demographic variables were to be studied. They would be studied to determined if any of those variables affected the change that might have taken place. It

was anticipated that practicum experiences within the graduate physical education curriculum would affect the physical education graduate students.

Statement of the Problem

The purpose of this study was to determine the attitudinal changes that occurred among physical education graduate students toward the integration of handicapped individuals into regular physical education classrooms. If changes did occur, the relationship of demographic, curriculum and experience variables to these attitudes was to be studied.

Specifically, the problems of this study were to ascertain: (1) any attitudinal changes of physical education graduate students and students in the College of Education toward integration of handicapped individuals during the 1980-1981 school year; (2) a comparison of attitudes between the two groups toward integrating handicapped individuals at the beginning and the end of the school year; and (3) the relationship between specific variables and any changes in attitudes of these students during the school year.

Definitions

Attitudes are the sum total of a man's inclinations and feelings, prejudices or biases, preconceived notions, ideas, fears, threats, and convictions about any specific topic (Thurstone, 1959).

Variables are those dimensions of a person which interact and may be changeable (Leedy, 1980).

Specific Handicapped Individuals are those students who find achievement in a school setting unusually difficult because of intellectual, emotional, sensory, physical or perceptual deficits. Individuals was used interchangeably with words such as persons, children, or students (Sarason and Doris, 1978).

Integration is the inclusion of all types of persons in the regular classroom. This would include physically and mentally handicapped persons. Mainstreaming is another term for integration and is used interchangeably with integration (Egbert, 1978).

Demographics are those personal variables, such as age, sex, educational background, etc., which could be factors in individual relationships with handicapped persons (Pietroski, 1979).

Limitations

This study was limited to 22 1980-1981 physical education graduate students and 17 graduate students from the College of Education at Montana State University, Bozeman, Montana. The 22 physical education graduate students were the entire population of graduate students in the Department of Health, Physical Education, and Recreation.

This study was further limited to the respondents' answers to the composite taken from the Mainstreaming Inventory revised and shortened by May and Furst (1977), (Appendix A and B). The original inventory was designed by Baker, Montemurro, and Kapperman (1973). Also limiting

the study were the respondents' answers to the questionnaire developed by the researcher and Stewart (Appendix C).

Assumptions

For the purpose of this study, it was assumed that all of the graduate students who were a part of this study have attitudes toward handicapped individuals.

Justification of this Study

Since the advent in 1975 of Public Law 94-142, which stated that each handicapped individual will receive a free, appropriate education, educators of public schools have had to make provisions for handicapped individuals. Considerable amounts of research concerning attitudes toward the handicapped have been conducted on public school teachers and administrators. Some research has been conducted on preservice teachers, but little research has been conducted on the attitudes of graduate students in education. It has been documented that teachers' attitudes toward students have an effect on students' progress. The attitudes of teachers working with handicapped students were important to the success or failure of teaching the handicapped student (Gickling and Theobald, 1975; Horne, 1979; Kendall, 1979; Rosenthal and Jacobson, 1968). The attitudes of the administrators have an effect on how successful integration was in a school system (Amos and Lamar, 1977; Birch, 1978; Harasymiw and Horne, 1976; Hughes, 1978; Yaffee, 1979). Since the law specifically included physical education as an integral part of this free, appropriate education, it is important for all educators to be cognizant of the

variables that may affect the graduate students' attitudes toward integration. Therefore, since attitudes play such an important role in the educational system, the purpose of this study was to determine whether the graduate students that were a part of this study had changes of attitudes during their year in graduate school and if changes occurred, what variables affected those changes.

CHAPTER TWO

SURVEY OF RELATED LITERATURE

Studies involving the attitudes of graduate students in education toward the integration of handicapped students into regular classrooms were limited. Therefore, the research reviewed pertained mainly to the attitudes of teachers, administrators, and preservice teachers toward the integration of handicapped students into regular classrooms. The assumption has been made by the investigator that literature on the attitudes of all educators toward the integration of handicapped students into regular classrooms was pertinent.

Public Law 94-142, which became effective on October 1, 1977, mandated that public school educators assign handicapped students to classrooms that create the most favorable learning environment for each exceptional child. More specifically, the law stated that handicapped students were to be in regular physical education classrooms unless another environment has been determined to be more favorable.

If handicapped students were to be incorporated into the mainstream of American education, the attitudes of the educators who are expected to teach those students must be explored. Factors affecting the attitudes of teachers toward integration were investigated. The purpose of this review was to examine certain factors that might be pertinent to the attitudes of educators and specifically physical

educators toward the integration of handicapped students into regular classrooms.

Background of Public Law 94-142

To understand the issue of integrating handicapped students into regular classrooms, the background of the situation must be understood. The Education for All Handicapped Children Act, Public Law 94-142, was passed by Congress on November 29, 1975. According to Dean Corrigan,

> This act is the most important piece of education legislation in the history of this country. With its far-reaching implications for schools and colleges, it could be the vehicle through which education emerges as a profession (Corrigan, 1978, p. 18).

Public Law 94-142 mandated that all handicapped persons be given a free, appropriate education at no cost to the parents of the child. This appropriate education is to take place in the least restrictive environment. The regular classroom has been prescribed as the least restrictive environment for any particular handicapping condition, unless another type of classroom setting would better meet the needs of a handicapped individual (Corrigan, 1978). Therefore, regular classroom teachers and all other school personnel must be knowledgeable about both specific handicapping conditions and teaching students with those handicapping conditions (Corrigan, 1978).

The process that resulted in the passage by Congress of P.L. 94-142 began in two different areas--education and civil rights. In education the process started nine years before the law was passed.

It began with a presidential task force on the physically handicapped. Weintraub and Martin (1978) believed that the task force should be committed to the needs of all handicapped children, the mentally handicapped as well as the physically handicapped (Martin, 1978). The task force wanted a federal policy based on an analysis of the full task and a policy that would meet all the needs identified (Martin, 1978). Included in this idea was the concept that handicapped persons should not automatically be set apart. In the past, disabled persons had been set apart in our society. There were educational systems that segregated the handicapped from the non-handicapped (Reynolds, 1978).

The standard to which the presidential task force became committed was the normalization principle established by Wolfensberger (1975). Wolfensberger stated this principle as follows: "...utilization of means which are as culturally normative as possible, in order to establish and/or maintain personal behaviors and characteristics which are as culturally normative as possible" (Wolfensberger, 1975, 28).

The other area that contributed to the advent of P. L. 94-142 was civil rights. Not only had handicapped persons been set apart, but people of different races had been set apart--blacks in segregated schools, Indians on reservations, and Japanese-Americans in internment camps during World War II. The segregated institutions were supposedly created for the good of those persons segregated, but each had shown a pattern of neglect, isolation, and rejection from society (Martin, 1974).

The pursuit of civil rights played a major role in the passage of P. L. 94-142. Several landmark civil rights cases were the forerunners of Public Law 94-142. Brown versus Board of Education in 1954 established the right of all black children to the same educational opportunities as white children (Reynolds, 1978). Brown versus Board of Education laid the ground work for integration, in that the court declared that no child could be expected to succeed in life if that child were denied the opportunity of an education. If the opportunity of an education were given to certain children, it must be made available to all children on equal terms (Gilhool, 1976). The decision stated that segregation had harmful effects for all those involved--handicapped and non-handicapped (Corrigan, 1978).

Brown versus Board of Education was primarily an integration decision, but it was also the basis for the zero rejection philosophy (Gilhool, 1976). If public education were to be provided for all normal children, then it had to be provided for handicapped children (Gilhool, 1976). In 1972, the Pennsylvania schools were mandated to permit retarded persons access to the public schools. This "zero reject" model of education meant that no retarded child would be turned away from a public school. The Peter Mill decision in Washington D.C. (1972) ordered "zero reject" education for all handicapping conditions, not just the mentally retarded (Corrigan, 1978).

These court cases, along with educational groups supported by parents of handicapped children, lawyers, and legislators, influenced the passage of Public Law 94-142 (Corrigan 1978). Reynolds (1978) referred to the Education for All Handicapped Children Act as the Magna

Carta for all those children who have been kept out of the mainstream of education for whatever reason.

Public Law 94-142 declared that every child should have a free appropriate education in the least restrictive environment. However, specifically included in that law is the area of physical education. It stated:

> Physical education services, especially designed if necessary must be made available to every handicapped child receiving a free appropriate public education. Each handicapped child must be afforded the opportunity to participate in the regular physical education program available to non-handicapped children unless: (1) The child is enrolled full time in a separate facility; or (2) The child needs specially designed physical education, as prescribed in the child's individualized education program (House Report, 1975, p. 9).

Stein (1978) maintained that participation in physical activities by handicapped individuals and non-handicapped individuals promoted better health, personal satisfaction and a higher quality of life. Very often the physical well being of the handicapped has been ignored, but now the law requires this opportunity for the handicapped (Stein, 1978).

Since physical education is specifically included in the law, it is imperative that undergraduates in physical education, teachers and graduate students be trained to teach the handicapped. Professionals need both appropriate attitudes and knowledge of specialized techniques to teach handicapped students in regular physical education classes.

Teachers' Attitudes

Research has been conducted concerning the attitudes of teachers toward integrating handicapped students into regular classrooms (Barclay and Kehle, 1979; Dworkin, 1979; Gickling and Theobald, 1975; Horne, 1979; Kendall, 1979; Stephens and Braun, 1980). While some research has been accomplished on pre-service teachers and pre-service teacher education programs, very little research has been accomplished on physical education teachers, and even less on graduate students' attitudes toward integration.

Researchers have revealed that the attitude of the teacher toward mainstreaming was the predominant indicator of success or failure in mainstreaming students into regular classrooms:

> The regular classroom teacher is the single most important factor in the successful integration of handicapped children in regular classes. The attitudes held by these teachers are the key to how successful the integration program will be in coming years (Twitty, 1979, p. 28).

Kendall (1979) studied 224 regular classroom teachers in the Detroit Public School System. The sample population included two teachers from each elementary school, one teacher from each middle school, and one teacher from each high school. She reported from the study that teachers themselves believed their attitude toward a student would affect how well that student adjusted to placement in the regular classroom. Barclay and Kehle (1979) assessed three consecutive studies conducted on the entry of self-contained educably mentally retarded into regular classrooms. Forty-five classrooms of EMR students were randomly selected from the 115 classes of EMR students in Ohio. Conclusions from the studies were that peer-teacher

support systems did affect the EMR students in the regular classroom. A positive peer-teacher attitude made acceptance more likely. A negative peer-teacher attitude made acceptance less likely. 'Picking on' or making fun of a retarded child by peers often was modeled directly from teacher behaviors (Barclay and Kehle, 1979). In a study of 795 teachers from the Southwest Cook County (Illinois) Cooperative for Special Education, the belief that handicapped persons could become useful members of society was studied in relation to the teachers' willingness to integrate handicapped students in their classrooms (Stephens and Braun, 1980). The relationship between those teachers, 61 percent, who held this belief and successful mainstreaming in the regular classroom was significantly greater than those teachers, 39 percent, who did not believe that handicapped persons could become useful members of society. Another significant factor found by Stephens and Braun (1980) was that those teachers who were confident about their ability to integrate handicapped students were more positive about integrating those students.

Horne (1979), as a result of a review of studies on attitudes toward mainstreaming, reported that in our society teachers, peers, and family often have negative attitudes toward handicapped persons. Therefore mainstreaming programs must be designed to develop positive attitudes toward mainstreaming because the attitudes of teachers toward students does affect the teacher's behavior toward those students. Dworkin (1979) concluded from her study of 32 primary classes in the Washington, D.C. public schools that handicapped students were vulnerable to negative attitudes and expectations by the teacher. If

those attitudes and expectations could be made positive, the student had a much greater chance of success in the regular classroom. Gickling and Theobald (1975) determined from a study of 326 teachers and administrators in Tennessee that if mainstreaming were to be successful, the attitudes of the teachers who were going to be working with the handicapped had to be assessed. They found that few (fifteen percent) of the secondary and elementary teachers examined felt they had the necessary skills to teach exceptional children, yet half saw the self contained special education classroom as too restrictive. Gickling and Theobald (1975) raised the issue that the individual preferences of teachers toward certain types of students needed to be recognized. With the recognition of these individual preferences the teaching of attitudinal changes could take place.

Educators who are handicapped themselves have indicated that a focus on the similarities of handicapped and nonhandicapped students facilitates successful integration (Fox, 1978; MacGuagan, 1979, Martin, 1978; Reynolds, 1978). Their ideas agreed with experts in the field. The attitudes of the teachers should be on how much the children were similar, rather than how much they differed (Martin, 1978; Reynolds, 1978).

Factors Affecting Teacher Attitude Toward the Handicapped

In an examination of 176 regular classroom teachers and 82 special education teachers from urban and suburban school districts, Gillung and Rucker (1977) stated that labeling children had negative connotations for both regular and special education teachers. Regular

classroom teachers had lower expectations for students who were labeled than children with identical problems who were not labeled (Gillung and Rucker, 1977). The same finding was true of the 82 special education teachers who were part of the study. Klein (1975) from a study on preschool teachers indicated that mislabeling was the real problem. She stated that a teacher had to become acquainted with the individual's problems, reactions, strengths, and weaknesses. If the teacher understood the needs of the children and accepted the children for how they were, the children had a greater chance of being integrated into the school life of the children who did not have special needs (Klein, 1975).

In a study of 34 regular classroom elementary teachers and 33 junior and senior high teachers from urban and rural Georgia, teachers expressed a preference for the types of exceptional children that were integrated into the regular classroom (Hirshoren and Burton, 1979). Ninety-two percent of the teachers were most willing to have children with behavior disorders placed in the classroom, then sensory and physical handicapped children were preferred. The least accepted were the mentally impaired students. Other research conducted with elementary and secondary teachers drew similar conclusions (Horne, 1979; Shotel, Iano, and McGettigan, 1972). Shotel, Iano, and McGettingan (1972) conducted a study of 115 regular classroom teachers. The study revealed that teachers preferred learning disabled students to emotionally disturbed students and that educable mentally retarded students were least preferred.

Palmer (1979) conducted a study of 102 elementary teachers from a California school district. None of the teachers had taught in special education programs. The study was a simulation of a fifth grade class including educable handicapped, educable mentally retarded, and normal achievers. Remedial instruction was prescribed for the educable handicapped and the educable mentally retarded even though they were performing at the same level as normal achievers. Palmer concluded from the study that a teacher's knowledge of the educational background of educable handicapped and educable mentally retarded may affect the type of instruction used for them in the regular classroom, even though the students may have been performing at the same level as normal achievers. He found that handicapped students were both viewed and treated differently from the other students in the class.

Hughes (1978) concluded from a study on mainstreaming in vocational classrooms that teacher expectations and attitudes had an affect on student achievement and social development. The study included 546 vocational teachers throughout North Carolina. From the study Hughes found that if a teacher had low expectations for a student, the chance of the student achieving beyond that expectation was slim; however, if the teacher had high, but realistic expectations, the teacher would encourage the student to meet those expectations.

Labeling of students, expectations of students, and the preference for certain students all affect the attitudes teachers have toward exceptional individuals. Labels and stereotypes are not just apparent with teachers, but a part of our entire society. Socially, the handicapped person continues to be regarded as a member of a lower level

of our society (Harasymiw and Horne, 1976; Twitty, 1979). Harasymiw and Horne (1976) evaluated 352 urban school teachers. The study included 191 experimental teachers from five schools where handicapped children were incorporated into regular classrooms and 161 control teachers from comparable schools where integration had not been instituted. One of the hypotheses confirmed was concerning social distance attitudes. There was no change in the experimental groups' attitudes toward social distance even though the project resulted in improved attitudes by the experimental group toward the integration of handicapped students into regular classrooms. Twitty (1979) in a study of 146 regular classroom teachers and 169 school administrators in Maryland reported similar results.

Horne (1979) in her review of literature on teachers' attitudes toward integration concluded that even though teachers and others in society may interact more positively with handicapped individuals, the social distance has not changed. These attitudes and possible causes need to be recognized if there is to be improvement in the interaction of handicapped individuals with other members of society and with teachers, administrators, and peers in our school systems (Horne, 1979).

Inservice Programs

If labeling, expectations, and student preference affect teacher attitudes toward handicapping students, what will change those attitudes or create positive attitudes? Several variables appear to create a more positive attitude toward integration. Inservice

training, knowledge and experience, and the administration of education programs for the handicapped have all resulted in more positive attitudes toward integration (Bertness, 1976; Harasymiw and Horne, 1976; Horne, 1979; Johnson and Cartwright, 1979; Klein, 1975; Mandell and Strain, 1978; Nielson, 1979; Pietroski, 1979; Schorn, 1976; Twitty, 1976; Yaffee, 1979).

The attitudes of teachers toward integration were improved as a result of an inservice program that involved classroom experiences with and knowledge about special needs students (Bertness, 1976; Harasymiw and Horne, 1976; Mandell and Strain, 1978; Pietroski, 1979; Twitty, 1979; Yaffee, 1979). Harasymiw and Horne (1976) in their study of 352 urban school teachers included 191 experimental teachers who were part of inservice training. The experimental teachers had more positive attitudes about integration than the 161 control teachers. Mandell and Strain (1978) reported from a study of 90 regular classroom teachers, 54 principals, and 51 special education teachers that inservice training was one of the variables that created a more positive attitude toward integration. Pietroski (1979) studied 55 regular classroom elementary teachers and 54 regular classroom high school teachers in a Boston suburb, who were part of a mandatory inservice program on mainstreaming. She discovered that the inservice training created a positive influence on the classroom teachers' attitudes toward integrating. Programs designed to meet the needs of individual teachers and consulting services for teachers who had handicapped students in regular classrooms resulted in positive attitudes toward mainstreaming (Nielson, 1979; Schorn, 1976). Schorn

(1976) studied the process of consultation with 49 regular classroom teachers from rural schools who participated in his project. The teachers had no formal special education training. All had a minimum of two special needs students in their classrooms. The focus of the consultations were on the teachers' needs rather than the students'. The inservice consultation project did improve the attitudes of the teachers toward integrating handicapped students.

Shotel, Iano and McGettigan in their study of 115 teachers (1972) measured teachers' attitudes at the beginning of a school year when integration was begun and at the end of the year of integration. At the beginning of the school year, elementary classroom teachers were optimistic about integrating handicapped students into their classrooms; however, as the year progressed their positive, optimistic attitudes decreased. The preparation for the integration took place at the beginning of the school year. Once the program began, there was little support from other educators for suggestions and management of the situation. Shotel, Iano, and McGettgan (1972) stated that inservice workshops throughout the year may have helped the teachers retain their initial optimism. They concluded that continuing inservice workshops were important for an effective mainstreaming program within a school system.

Researchers who have conducted studies on the attitudes of teachers toward integration have found that inservice training did help create positive attitudes toward it. Shotel, Iano, and McGettgan (1972) have indicated that the lack of inservice training has created negative attitudes toward the integration process.

Knowledge and Experience

The relationship of knowledge and/or experience in creating positive attitudes toward integrating handicapped students into regular classrooms has also been investigated. According to Mandell and Strain (1978), practical experiences with handicapped children must be provided if teachers are going to develop positive attitudes toward the handicapped. Team teaching and inservice programs were combined to provide knowledge about and experience with teaching special students. Mandell and Strain (1978) emphasized that the teachers believed having the skills to diagnose learning and behavior disorders was a significant factor in having positive attitudes toward integration.

Other researchers (Johnson and Cartwright, 1979; Klein, 1975) concluded that the combination of teaching exceptional students and taking courses which provided knowledge about exceptional students resulted in the most favorable attitudes toward integration. Neither experience with special needs students nor taking courses relating knowledge about special needs students in isolation had any supportive affect on teachers' attitudes. Stephens and Braun (1980) found from their study of 795 teachers in the Southwest Cook County (Illinois) Cooperative for Special Education that regular classroom teachers' willingness to integrate handicapped students into regular classrooms increased as the number of special education courses increased.

Lack of knowledge about the handicapped created negative experiences for teachers who mainstreamed handicapped children (Shotel, Iano, and McGettgan, 1972). Hiroshoren and Burton (1979) reported

similar findings from the three studied they analysed stressing that at the beginning of the process the teachers were eager to have a positive experience, but without continued support and knowledge of the handicapped, the experience became negative.

The combination of knowledge about the handicapped and experience with the handicapped has created more positive attitudes toward integration. Neither knowledge nor experience alone created more positive teacher attitudes toward integration and in some cases experience alone caused negative attitudes to develop.

Administration of Educational Programs for the Handicapped

The process of administering educational programs for the handicapped is another area that affects teachers' attitudes toward integration. Mandell and Strain (1978) in their study of 90 regular classroom teachers, 50 principals, and 51 special education teachers reported that there was no significant relationship between principals' attitudes toward mainstreaming and teachers' attitudes toward mainstreaming. The reason Mandell and Strain cited as causing that discrepancy was the different role of each. Principals were seen as managers, but teachers were dealing directly with the students. Principals were making the decisions, but teachers were implementing those decisions. The study reflected the importance of cooperation and communication between administrators and staff members. Twitty (1979) in her study had results that agreed with Mandell and Strain (1978). Similarly, Hughes (1978) stated that mainstreaming does not occur in a vacuum, but was part of the whole system and has to be integrated into the operation of the entire school.

School systems which have reported success with mainstreaming attribute success to the process by which integration was administered. In Richardson, Texas, the management of authority was decentralized to the individual schools. Faculty and administration of each school were given authority to plan inservice programs and use funds however they felt were appropriate for that school (Birch, 1978). In Madison, Wisconsin, the entire staff cooperated with professors from the University of Wisconsin. The professors were used as resource personnel for the administration and teachers. Mainstreaming was considered a success in Madison (Birch, 1978).

Yaffee (1979) reported that in Colorado Springs mainstreaming has been in effect for about 20 years, and has been successful because it was administered efficiently and was given support from the special education personnel. Another school district that successfully mainstreamed handicapped students was the Tacoma, Washington district. The entire staff of each school was responsible for the integration of the handicapped students into regular classrooms--not just the classroom teacher (Bertness, 1976).

In a study conducted by Harasymiw and Horne (1976), the success of the integration process was partially attributed to the support given to the teachers by the school administration. In a comparison of principals', regular classroom teachers' and special education teachers' perceptions toward administrative practices regarding integration, Amos and Lamar (1977) reported that if mainstreaming were to be successful all three groups must be knowledgeable concerning the physical, psychological and social needs of the handicapped. Staff

development for administrators and faculty was found to be essential for successful mainstreaming of handicapped students (Amos and Lamar, 1977). From a study of 61 teachers, Moore and Fine (1978) reported that the availability of resource personnel made integration of handicapped students significantly more acceptable to regular classroom teachers than having no such support system.

It appears from the research that the cooperation and involvement of the school administration did affect the overall success of a mainstreaming program. Closely related to this was the teachers' need for resource help from special education personnel.

Demographic Influences

In addition to the previously discussed variables, some demographic variables have been investigated in relationship to successful mainstreaming. Pietroski (1979) determined from her study that age, sex, educational degree, and number of years of teaching experience had no significant effect on classroom teachers' attitudes. Having a handicapping condition, having social contact with handicapped individuals, or having family members or peers who had handicapping conditions made small contribution to the classroom teachers' attitudes (Pietroski, 1979). Stephens and Braun (1980) concluded that sex, age, marital status, number of years since obtaining a college degree, number of years of teaching experience, having handicapped children in the family or neighborhood did not significantly relate to the classroom teachers' attitudes.

Other investigators have determined that sex, age, number of years of teaching experience, degree level, the number of special education courses taken and inservice program participation showed no relationship between teachers' positive or negative attitudes toward mainstreaming (Kendall, 1979). The studies conducted by Kendall (1979), Pietroski (1979), Stephens and Braun (1980) determined that sex, age, and number of years of teaching experience had no significance toward influencing teachers' attitudes toward integration. However, Mandell and Strain (1978) and Twitty (1979) concluded from their studies on classroom teachers' attitudes, that the more years of teaching experience, the more negative were the teachers' attitudes toward integration. Mandell and Strain (1978) reported that having previous special education teaching experience was significant in creating positive attitudes for classroom teachers. However, in her study, Twitty (1979) concluded that there was no significant relationship between special education teaching experience and teachers' positive attitudes toward the integration of handicapped students. Twitty (1979) also concluded that personal experience did help create positive attitudes of teachers toward integration. This was opposed to the conclusions drawn by Pietroski (1979) and Stephens and Braun (1980) in their studies. Twitty (1979) also disagreed with Stephens and Braun (1980) on the grade levels teachers were teaching and their attitudes toward integration. Stephens and Braun (1980) concluded that primary and upper elementary teachers were more favorable toward integration than junior high school teachers. Twitty (1979) found no

significant relationship between grade level taught and the attitudes of classroom teachers toward integration.

Two demographic variables were consistently found by the researchers not to affect integration. They were sex and age.

Preservice Teachers' Attitudes

The importance of future teachers' attitudes toward the integration of handicapped students into regular classrooms and the importance of instructing preservice teachers in the area of handicapping conditions and individual differences has been affirmed by many educators (Arends and Arends, 1978; Birch, 1975; Corrigan, 1978; Erickson, 1977; Horowitz, 1977). All preservice teachers should be prepared to handle mainstreaming (Paul, Turnbull and Cruickshank, 1979). Preservice teachers must be prepared to teach all ranges of abilities and conditions; therefore, learning about children with handicapping conditions must be included in the college training of all teachers (Bertness, 1976).

In the studies examined, the need for learning about individual needs and instruction was emphasized (Cole, 1978; Middleton, Morsink, and Cohen, 1979). In a study of 196 recent college graduates who presently held teaching positions, Middleton, Morsink, and Cohen (1979) examined areas that the teachers indicated needed strnegthening. The area designated by the teachers as the greatest need was individualized instruction for all types of students. Paul Turnbull, and Cruickshank stated:

> Educators who acquire these skills during preservice training will have the competencies enabling them to be successful in their initial mainstreaming encounters. Initial success often fosters positive attitudes and self confidence on the part of educators which can contribute to successful outcome of mainstreaming (Paul, Turnbull, and Cruickshank, 1979, p. 114).

Despite a consensus among experts on the importance of instructing preservice educators about all types of children and children's needs, the majority of institutions of teacher education has not been meeting these needs. In a survey of 178 teacher institutions, thirty-four percent required special education courses at the elementary level and twenty-four percent required special education courses at the secondary level (Vacc and Suny, 1978). According to Birch (1978) even though school teachers and administrators have become increasingly familiar with the needs of exceptional children, a minority of preservice teachers has received instruction in this area.

In a study of 235 college students conducted by Baker and Montemurro (1974), preservice teachers at both the elementary and secondary level completed a survey concerning their attitudes toward integrating handicapped students into the regular classroom. The initial response toward integration was positive. The students then took a course that provided information about handicapping conditions and characteristics of learning styles of handicapped students. A post test was given at the conclusion of the course. The researchers reported that the students had even more positive attitudes about integration than before the course was given.

Several conclusions can be drawn from the information on preservice education. The experts agreed on the necessity of preservice

teachers learning about a variety of individual needs and learning styles. Secondly, even though the need has been recognized, many teacher training institutions have not changed curriculum to meet the needs of mainstreaming handicapped students into regular classrooms. Thirdly, college students have been positive about their ability to work with students with handicapping conditions.

Physical Educators' Attitudes

Studies which focused on physical education teachers' attitudes toward integrating handicapped individuals into regular physical education classrooms are limited. Clark (1978) conducted a study on the attitudes of public high school physical educators toward the integration of handicapped students into their regular classrooms. The study was also to determine if differences in the attitudes existed according to specific demographic and experience variables. Two hundred eighteen public high school physical educators in Utah were a part of this study. A majority, 70.4 percent, reported that handicapped students were integrated into their regular physical education classes. The overall attitude of the physical educators was positive. The educators indicated that assistance was needed in the areas of curriculum planning and specific educational programs and procedures. The specific demographic and experimental variables examined in this study did not produce significant differences in the teachers' attitudes toward integration. Clark (1978) concluded that sex, age, number of years of teaching experience, educational level, and courses taken in adapted physical education did not affect the

physical education teachers' attitudes. The major concerns of the physical educators were having handicapped students accepted by regular students and lack of time to teach the handicapped individual properly.

Harris (1979) conducted a survey of Oregon educators to determine their knowledgeability of Public Law 94-142. The study included 23 counselors, 31 classroom teachers, 15 administrators and 30 physical educators. Sixty-five percent of the counselors, 40 percent of the classroom teachers, 55 percent of the administrators and 15 percent of the physical educators were knowledgeable about and aware of the implications of P. L. 94-142.

Graduate Students' Attitudes

Research on the attitudes of graduate students in education or physical education toward the integration of handicapped students into regular classrooms is also extremely limited. In a study of 38 graduate students who were participating in a practicum that taught reading to learning disabled students in the regular classroom, the experience created more positive attitudes toward integration (Weekler and Youngberg, 1975). The graduate students became more positive in their behavior toward the students. They also became more observant of the behavior and needs of the learning disabled students (Weekler and Youngberg, 1975).

Conclusion

The literature reviewed revealed that the attitudes of teachers and administrators does affect how well a handicapped student integrates into the regular classroom. Labeling of students, types of

students preferred, and expectations of the students affect teachers' attitudes toward mainstreamed students. Factors which may create more positive teacher attitudes are inservice programs, gaining knowledge about handicapped persons, and having experience with handicapped persons. The methods with which the programs for the handicapped are administered are also important in determining the attitude of the teachers toward the mainstreaming process.

There was disagreement among researchers on which demographic variables affect the attitudes of educators and which do not. Only two were agreed upon--sex and age. The researchers agreed that the sex and the age of an educator did not affect the attitude of that person toward integration.

The importance of educators meeting individual needs of students has been affirmed by many researchers. However, teacher institutions have often not changed to meet those needs. It appears that even though educators agree in theory with the importance of positive attitudes toward the handicapped, in reality little has been done at the preservice level to insure positive attitudes.

If the studies on regular classroom teachers' attitudes apply also to the physical education teachers, there is a need for more studies on the attitudes of physical education teachers toward integration. It cannot be assumed that physical education teachers have positive attitudes toward integration of handicapped individuals nor that all that is necessary is to instruct the teachers on how to teach the handicapped. If any conclusion can be drawn from one study on the attitudes of graduate students toward the integration of

handicapped students, it would be that involvement with handicapped students in the classroom did create a more positive attitude toward integration into the regular classroom.

CHAPTER THREE

METHODOLOGY

There were three hypotheses in this study. They were: (1) there will be no significant change in attitudes from the beginning of the school year to the end of the school year in the graduate students who were surveyed; (2) the graduate students' demographies, curriculum, and experiences during the school year will not significantly affect their attitudes toward handicapped students; (3) there will be no significant difference between physical education graduate students' and regular education graduate students' attitudes toward handicapped students.

Design and Tool

The data was gathered by a descriptive survey method using a questionnaire. It was an inventory given to physical education graduate students and graduate students in regular education at Montana State University during the fall of 1980. At the end of the school year another inventory, along with additional questions on demography, curriculum, and experience was given to both groups. The second inventory was a parallel composite of the first inventory.

The tool used originated from a 50 item mainstreaming inventory developed and designed by Baker, Montemurro, and Kapperman (1973) of the University of Northern Colorado. This inventory was evaluated

and revised by May and Furst (1977) of the University of Arkansas. The 50 item mainstreaming inventory was condensed to 40 items. The internal consistency of the inventory was determined on samples of the 40 item composite. On the basis of the alpha coefficient, which is an index of overall internal consistency, it was found that a total score did have enough coherence to be meaningful. On the samples given, the coefficient ranged from .905 to .937 where the possible values were from zero to one (May and Furst, 1977).

A factor analysis conducted on the 40 item inventory resulted in eight attitudes emerging as dimensions of the responses given to the statements of the inventory. The eight attitudes were clusters of items that formed independent subscales within the inventory. The eight attitudes were:

1. the respondents' general attitudes toward the self concept of handicapped persons,
2. the respondents' attitude toward regular class placement of handicapped students,
3. the respondents' confidence in the ability to work with handicapped students,
4. the respondents' attitude about the degree to which integration of handicapped students would require changed working conditions, techniques, and materials,
5. the respondents' attitude towards the behavior and motivation of handicapped students,

6. the respondents' own attitude toward the effect of integration on the self-concept and social relationships of the handicapped,
7. the respondents' attitude toward the effects of integration of handicapped students on the other nonhandicapped students, and
8. the respondents' general attitude toward handicapped persons (May and Furst, 1977).

From follow-up tests and factor analysis on the 40 item inventory, the authors, May and Furst, determined that it could be shortened to a 17 item composite and be a useful overall measurement of attitudes toward integration. This was determined through the discovery of the clusters of subscales within the inventory. The reliability of the shortened inventory was determined through the testing of the composite. The alpha coefficients from the 17 item composite were .921 and .928, respectively. The possible values were from zero to one (May and Furst, 1977). May and Furst (1977) estimated from formulas that an eight item composite would yield a coefficient of about .85. This, according to May and Furst, would be high enough for most purposes.

The eight items used for the survey of this study were items May and Furst (1977) recommended using for the shortened composite. A close inspection of the eight statements shows that six pairs of items are closely matched. These are items taken from the clusters formed in the 40 item inventory and the 17 item composite. On the pre- and post-test, they are in the order listed:

1. the respondents' attitude toward the self concept of the handicapped,
2. the respondents' attitude toward the motivation of the handicapped,
3. the respondents' attitude toward social relationships of the handicapped,
4. the respondents' attitude toward the educational achievement of the handicapped,
6. the respondents' attitude toward the responsibilities and burdens of the teachers, and
8. the respondents' general attitude toward handicapped persons (May and Furst, 1977, p. 15).

Number five on the pre- and post-test are more loosely related. Each pertain to the placement of the handicapped in society and to the productivity of the handicapped in society. The number sevens in each test are also loosely connected. Each relates to treating the handicapped like normal children and rejecting segregation of the handicapped.

Some limitations of the tool should be noted. The statements in the 40 item inventory, the 17 item composite and the eight item composite deal with the handicapped as a group. The type of handicapping condition, the tasks to be performed by the learner, resources available, and other circumstances are specifics not addressed on the eight item composite - the pre and post tests. Most respondents would probably prefer to say that their answers depend on the circumstances.

Except for the middle response, the respondents are forced to make a choice (May and Furst, 1977).

Another caution or limitation of the inventory is that it seems to presuppose that mainstreaming is the solution to educating the handicapped. That was not the intentions of the Baker, Montemurro, Kapperman, May and Furst (May and Furst, 1977) nor was it the intention of this researcher. The study of the placement of handicapped students must be done extensively and with openness to the best possible solutions.

Pilot Study

A pilot study was conducted with five adult male and females living in the Bozeman, Montana area. The test was given to them at an office in downtown Bozeman. The purpose of the pilot study was to familiarize the investigator with giving the tool.

Population

The population involved in this investigation was twenty-two physical education graduate students at Montana State University enrolled during the 1980-1981 school year. The questionnaire (Appendix A) and a letter (Appendix D) were hand delivered during November, 1980, to most of the physical education graduate students. Questionnaires were mailed to those to whom the investigator could not deliver each questionnaire.

The other group was seventeen graduate students of the College of Education at Montana State University. Permission to give the questionnaire was received from Dr. Leroy Casagranda and students of

his graduate class in education. The education graduate students were given the questionnaire (Appendix A) during one of their regular class sessions.

At the end of the school year, June, 1981, the parallel composite to the first inventory was given to both the twenty-two physical education graduate students and the seventeen graduate students in education. Again, most of the questionnaires (Appendix B) and letters (Appendix E) were hand-delivered to the students. The investigator mailed the questionnaire and the letter to those students who could not be personally reached. A handwritten letter was included with each one. If a response was not received within three weeks another questionnaire was sent, accompanied by a handwritten letter. If the students did not respond within a month to the second questionnaire and letter, a third questionnaire and another handwritten letter were sent to the students.

Data pertaining to the second hypothesis was gathered by a questionnaire (Appendix C) constructed by the investigator and Stewart (1980). Specific questions relating to demography, curriculum, and experience were included in the questionnaire. This questionnaire (Appendix C) was given to the students with the second questionnaire (Appendix B). All twenty-two physical education graduate students returned the first and second inventories and the questionnaire on demographies. All education graduates returned the first questionnaire. All but one of the seventeen returned the second inventory and the demographic questionnaire. No names were needed on the

returned questionnaires. The subjects were kept anonymous by only recording the last four digits of each respondent's social security number.

CHAPTER FOUR

ANALYSIS OF DATA

The data from the questionnaires were tabulated and transferred to a computer code sheet by the researcher. The information was analyzed with the assistance of Dr. Al Suvak of the Montana State University Testing Service. The composite scores on the attitudinal surveys are provided in Tables 1 and 2. The negative items of the tool were reversed so that the scale could be scored. A single attitudinal score was calculated by taking a mean on the attitudinal items. The highest possible score was five. The lowest possible score was one.

Table 1

Scores of the Attitudinal Surveys

Composite Attitudinal Scores (Pre-Test and Post-Test)
For Physical Education Graduate Students

	N	Pre-test $\bar{x}$	Post-test $\bar{x}$
*Composite Attitudinal Score	22	3.43	3.57

Table 2

Scores of the Attitudinal Surveys

Composite Attitudinal Scores (Pre-Test and Post-Test)
For Education Graduates

	N	Pre-test $\bar{x}$	Post-test $\bar{x}$
Composite Attitudinal Score	16	3.86	3.71

*Composite = average score of all attitude statements on questionnaire (Suvak, 1983)

An analysis of variance was conducted to determine if change in attitudes occurred. The pre-test scores and the post-test scores of the physical education graduate students were compared (Table 3). The pre-test scores and the post-test scores of the graduate students from the College of Education were also compared (Table 3).

Table 3

Composite Attitudinal Scores

Analysis of Variance (2x2) by Class (P.E./Ed)
and by Test (Pre-Post)

Source	SS	DF	MS	F	Prob.
Mean	98534.72	1	98534.72	1979.31	
Class	154.04	1	154.04	3.09	.0828
Test	.11	1	.11	.00	.9628
CT	40.89	1	40.89	.82	.3678
Error	3584.32	72	49.78		

Analyses were conducted on the post-tests given to all the graduate students in the study (Table 3). The analysis of the data was conducted to determine if there was any significant change in the attitudes of the graduate students from the beginning of the school year to the end of the school year. It was also conducted to determine if there was any significant difference between the physical education graduate students' attitudes and the attitudes of the graduate student in the College of Education (Suvak, 1983).

The total scores of the pre- and post-tests are listed in Table 4. Forty was the highest possible total score for the eight items. Individual scores and demographic information are listed in Appendix F. (The average scores and the standard deviations of the demographic variables are listed in Table 5.)

The demographic questionnaire was used to gather data from the graduate students so that if changes in their attitudes occurred, the possible relationships between their attitudes and their demographies could be examined. Since no change occurred between the pre- and post-tests given to any of the graduate students, no analysis of data was conducted on the demographic questionnaire.

TABLE 4

Total Individual Scores of the Pre- and Post- Test (22)
Physical Education Graduate Students

Subject	Pre-test Score	Post-Test Score
1. 5200	30	38
2. 7402	20	23
3. 1400	32	29
4. 4416	27	34
5. 9927	31	25
6. 6662	29	24
7. 2573	27	27
8. 5807	26	24
9. 8001	20	29
10. 3025	35	33
11. 0774	28	27
12. 7068	31	33
13. 6478	21	29
14. 8633	32	34
15. 5434	21	22
16. 2868	32	28
17. 4706	32	34
18. 7229	30	34
19. 9491	33	33
20. 8400	29	28
21. 7205	29	29
22. 6621	15	18

Total Individual Scores of the Pre- and Post-Test (16)
Education Graduate Students

Subject	Pre-test Score	Post-test Score
1. 4326	30	32
2. 9525	31	35
3. 7793	33	32
4. 1205	39	39
5. 6703	33	36
6. 3188	30	31
7. 5155	40	40
8. 3565	33	31
9. 9641	33	32
10. 8975	21	17
11. 6825	32	28
12. 0227	28	26
13. 9832	21	16
14. 7775	29	19
15. 0522	29	29
16. 1033	37	36

Table 5

Average Scores of Demographic Variables

Variable	Males 11 Females 11 (PE)$\bar{\Delta}$	SD	Males 11 Females 6 (ED)$\bar{\Delta}$	SD
Age	26.14	2.23	36.37	5.12
Years teaching experience?	2.41	2.08	7.69	5.35
Years teaching the handicapped?	.68	1.13	2.56	2.85
Courses taken during 1980-81 school year?	.64	1.00	.19	.54
Courses taken prior to 1980-81	1.36	.49	3.87	9.65
Worked with handicapped children?	1.77	.43	1.62	.50
Worked with handicapped university students?	1.86	.35	1.69	.48
Worked with handicapped adults?	1.50	.51	1.75	.48
Hours worked with handicap during 1980-81?	28.45	55.29	78.94	221.20

Results of the Analysis

There were no significant differences found between the pre-test and the post-test of the physical educators or the educators in regular education. Nor was there any significant difference discovered between the test given to both groups. Since there were no significant differences either within or between groups, no additional analysis was completed (Table 3). For individual results on the pre- and post-tests refer to Table 4. The number of courses taken and the number of hours the students interacted with the handicapped are listed by individuals in Table 4. There was no significant correlation between the number of courses taken nor the number of hours the students had worked with the handicapped. Sometimes the attitudes became more positive, sometimes more negative, and sometimes they remained the same. The correlation matrix is given in Appendix G.

Results of the Study

There were three hypotheses tested in this study. They were: (1) there will be no significant change in attitudes of the Physical Education graduates from the beginning of the school year to the end of the school year; (2) the graduate students' demographies, curriculum, and experiences during the school year will not significantly affect any attitudinal changes toward integration of handicapped students; and (3) there will be no difference between physical education students' and regular education graduate students' attitudes toward handicapped students. All three hypotheses were supported by the

data. There were no significant changes in attitudes between the two groups during the school year.

CHAPTER 5

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Summary

The purpose of this study was to determine if changes occurred in physical education graduate students' attitudes toward integrating handicapped individuals into regular physical education classrooms. Specifically, the study attempted to: (1) determine the attitudes of physical education graduate students and graduate students in the College of Education toward integrating handicapped individuals at the beginning and at the end of the 1980-1981 school year; (2) compare their attitudes toward integrating handicapped individuals at the beginning and the end of the school year; and (3) determine the relationship between specific variables and any changes in attitudes of these students during the school year.

This study was limited to twenty-two graduate students in the Department of Health, Physical Education, and Recreation and seventeen graduate students in the College of Education. Data for the study were obtained from three questionnaires given to the thirty-nine graduate students. One questionnaire was given at the beginning of the 1980-1981 school year. Two questionnaires were given to the participants at the end of the school year. All twenty-two of the physical education graduate students returned the first and second questionnaire. All the seventeen regular education graduate students

returned the first questionnaire and all but one returned the second questionnaire. Therefore the population of this study was thirty-eight.

A computer was used to analyze the scores from the pre-tests and the post-tests. All the scores of the pre- and post-tests were converted to a positive mean factor. An analysis of variance was conducted on the computer to determine the change, if any, that occurred in the attitudes of the graduate students during the school year.

No change was determined among any of the groups: (1) pre-test of the physical education graduate students to the post-test of the physical education graduate students'; (2) pre-test of the regular education graduate students to the post-test of the regular education graduate students; (3) pre-test of both groups; and (4) post-test of both graduate groups. Since no change of attitudes was determined during the school year from the pre- and post-tests, no analysis was conducted on the demographic questionnaire.

Conclusions

In the review of literature, information was examined which indicated that attitudes do affect the integration of handicapped students into regular classrooms. The attitude of the teacher was the major factor in the success or failure of integration (Barclay and Kehle, 1979; Dworkin, 1979; Gickling and Theobald, 1975; Horne, 1979; Kendall, 1979; Stephens and Braun, 1980; Twitty, 1979). The attitudes of the administrators and how the programs were administered

also affected the success or failure of mainstreaming (Birch, 1978; Harasymiw and Horne, 1976; Hughes, 1978; Yaffee, 1979).

Inservice programs for teachers were helpful in the integration process. The combination of courses pertaining to handicapping conditions and experience with handicapped persons improved attitudes toward mainstreaming (Harasymiw and Horne, 1976; Horne, 1979; Johnson and Cartwright, 1979; Mandell and Strain, 1978).

The studies using various demographic influences were in disagreement as to which demographies affected attitudes. Therefore no conclusion from the review of literature could be drawn by the investigator. The only two factors with which researchers agreed were that sex and age of the educators did not affect their attitudes (Kendall, 1979; Pietroski, 1979; Stephens and Braun, 1980; Twitty, 1979).

In this study, there were no significant changes during the school year in the attitudes of the graduate students toward the integration of handicapped students. This was a limited study. The population was small. The period of time between the pre-test and the post-test was a relatively short time -- eight to ten months. These limitations of the study ought to be considered in a broader study that would test the results of this study.

The review of literature indicated that our entire society, not just educators, regard handicapped persons as being in a lower status in our society than other people (Harasymiw and Horne, 1976; Twitty, 1979). If this were true then the attitudes that have been formed by

educators were probably deeply engrained and more than eight months of graduate school would be needed for changes to occur in those attitudes.

Stephen and Braun (1980) reported that the more special education courses a teacher had, the more willing the teacher was to integrate handicapped students into the regular classroom. That finding would indicate time or number of special education courses was an important element in the changing of attitudes.

Experts have established the importance of instructing preservice educators on the needs of all types of children (Bertness 1976, Cole 1978, Middleton, Morsink, and Cohen 1979, and Paul, Turnball, and Cruickshank 1979). According to studies conducted, many preservice institutions were not meeting those needs (Vacc and Suny 1978 and Birch 1978). Therefore, graduate students may have had four years of preservice training without instruction about handicapping conditions. Yet according to Public Law 94-142, these future teachers were expected to teach all types of students. A year of graduate school may not be long enough to change attitudes formed or reinforced during undergraduate training.

Another factor that could have affected the outcome of this study was the ceiling effect of the scale. Five was the ceiling on the attitudinal surveys. The scores from these pre- and post-test attitudinal surveys were relatively high. All of them were in the threes. Possibly, they could go no higher. The students did have good attitudes. If they were to be tested again, the results would probably

be closer to the mean. Therefore, other attitudinal surveys with broader ranges could be used in order to determine if the same high responses occur with a broader range of attitudes.

Recommendations

The formal education of graduate school did not alter the attitudes of those students who were participating in this study. Two possible reasons could be given for this. The attitudes of the graduate students were shaped somewhere else. They were shaped either in undergraduate school, in elementary and secondary school, in the home, in previous experience or a combination of some or all of these factors. It appeared that graduate school had no affect on attitudes; they were formed previously and did not change. Another reason for the lack of change, and tied closely to the first, may be that the students attitudes were so high in the beginning that they could not become higher.

The tool used surveyed the attitudes of handicapped persons as a group. No consideration was given to the vast differences of the conditions. Also, the tool tested attitudes, not action. No part of the study included observations of how the students interacted and related to handicapped individuals. Sometimes persons may write how they wish they would act, but that may not be how a person behaves in real life situations. On the basis of these conclusions, certain recommendations could be pursued.

If attitudes are perceived as important, and research appears to substantiate that they are important, further studies examining the

development and change of attitudes should be conducted. These studies could include: (1) undergraduate education majors, (2) larger groups of graduate students, and (3) longer periods of time.

Also included in future studies should be different types of attitudinal surveys. This composite grouped handicapped persons together. Other studies could be more specific about attitudes toward particular handicapping conditions. Future studies should include action as well as attitude. Possibly one reason the students scored so high was because of their good intent. Observations of interaction could be a part of future studies, in order to test how good intent and/or attitude translate into interpersonal actions.

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APPENDICES

APPENDIX A

FORM 11-A

Last 4 Social Security digits _ _ _ _

Put an X on top of the response which most accurately represents your current opinion about the statement. There are no correct answers.

	strongly disagree	disagree	no opinion	agree	strongly agree
1. I believe that placing a handicapped student in a typical classroom would damage the student's self concept.	SD	D	N	A	SA
2. A handicapped child will be motivated to learn in a regular classroom.	SD	D	N	A	SA
3. A handicapped child will likely form positive social relationships with other children in a regular classroom.	SD	D	N	A	SA
4. I think that the integration of handicapped students into the regular classroom will harm the educational achievement of average students.	SD	D	N	A	SA
5. The experience of being in a regular classroom will increase the chances of a handicapped child attaining a more productive and independent place in society.	SD	D	N	A	SA
6. Having to teach handicapped pupils places an unfair burden on the majority of classroom teachers.	SD	D	N	A	SA
7. Given my current understanding, I believe that "mainstreaming" will benefit me as a teacher, as well as all children.	SD	D	N	A	SA
8. Assignment of a handicapped child to a regular classroom is a wise administrative decision.	SD	D	N	A	SA

APPENDIX B

FORM 11-B

Last 4 Social Security digits_ _ _ _

Circle the response which most accurately represents your current opinion about the statement. There are no correct answers.

		strongly disagree	disagree	No opinion	agree	strongly agree
1.	A handicapped child will develop a more positive self-concept as a result of being placed in a regular classroom.	SD	D	N	A	SA
2.	As a result of placement in a regular classroom, a handicapped child will develop a more positive attitude toward school.	SD	D	N	A	SA
3.	Placement of a handicapped child in a regular classroom will likely result in his becoming socially withdrawn.	SD	D	N	A	SA
4.	I believe that average students need the experience of being in contact with handicapped students in an academic setting.	SD	D	N	A	SA
5.	A handicapped child will be disruptive in a regular classroom.	SD	D	N	A	SA
6.	There is not enough time in a teacher's day to deal satisfactorily with the different needs of both average and handicapped pupils.	SD	D	N	A	SA
7.	If I were the parent of a child who had a learning problem, I would want him to be in a regular classroom for most of the school day.	SD	D	N	A	SA
8.	I think that the full time special education class is the best placement for handicapped students.	SD	D	N	A	SA

APPENDIX C

Please read the following statements and respond on the blank opposite each one.

1. Sex: _____

2. Age: _____

3. Major: _____

4. Number of years experience teaching in the public schools: _____

5. Number of years experience teaching handicapped students in the public schools: _____

Please answer the following questions:

1. Do you have handicapped relatives? Yes ____ No ____

2. Do you have handicapped friends? Yes ____ No ____

3. How many courses, if any, have you taken during the 1980-1981 school year relating to the education of the handicapped? _____

   List them: _____

   _____

   _____

4. Have you taken courses relating to the education of the handicapped prior to the 1980-1981 school year? Yes ____ No ____

   If yes, list them _____

   _____

   _____

5. During the school year, 1980-1981, what types of experiences, if any, have you had working and interacting with handicapped children? _____

   _____

   handicapped university students _____

   handicapped adults _____

   _____

6. Approximately how many hours have you worked or interacted with handicapped persons from September 1980 through May 1981? _____

APPENDIX D

MSU PHYSICAL EDUCATION TRAINING PROJECT FOR THE EXCEPTIONAL INDIVIDUAL
DEPARTMENT OF HEALTH PHYSICAL EDUCATION AND RECREATION
CRAIG STEWART ED D PROJECT DIRECTOR

BEH TRAINING PROJECT
541 AH 70181

MONTANA STATE UNIVERSITY, BOZEMAN, MONTANA 59717

November, 1980

To Whom It May Concern,

These eight multiple choice questions will help indicate your feelings about the mainstreaming of handicapped children. Please answer them to the best of your ability. This survey is part of a study of graduate students' attitudes toward teaching handicapped individuals.

Thank you for your cooperation.

Martha Gilthvedt
Martha Gilthvedt
Teaching Assistant

MG/spw

TELEPHONE (406) 994 2260

APPENDIX E

June 8, 1981

Dear

Last fall you answered eight multiple choice questions on mainstreaming handicapped children. The questionnaire was for a graduate study of mine. Now I would appreciate it if you would answer a similar questionnaire and also another questionnaire that will give me personal information about you and your experiences with handicapped persons. All of the information received will be confidential.

If you have any questions about the questionnaires, please ask me. You may return them by using the self-addressed envelope, or by putting them in my mailbox in the PE complex.

Thank you.

Sincerely,

Martha Gilthvedt

APPENDIX F

Table 6

Individual *Scores of the Pre- and Post-Test (22)
Physical Education Graduate Students

Subject	Item	Pre-test Score	Post-test Score	Demographic Survey
#1 (5200)	1.	4	5	1. no, relatives
M	2.	3	5	2. yes, friends
26	3.	4	5	3. 3 courses
2	4.	4	5	6. 50 hours
	5.	4	4	
	6.	4	4	
	7.	4	5	
	8.	3	5	
	Total	30	Total 38	
#2 (7402)	1.	2	2	1. no, relatives
M	2.	2	3	2. no, friends
26	3.	3	2	3. 0 courses
2	4.	4	4	6. 0 hours
	5.	3	4	
	6.	2	2	
	7.	2	2	
	8.	2	4	
	Total	20	Total 23	

*The scores have all been reversed to the positive. The scale is from 1 to 5. 5 is the most positive score. 1 is the most negative. 40 is the highest possible score.

*1, 2, 3, and 6 are the numbers of the questions on the demographic survey (Appendix C). Next to the number is the response that each individual gave to the question.

*M stands for male. F stands for female. The number immediately under the M or F is the participant's age. The next number is the participants' years of teaching experience.

Table 6. Continued

Subject	Item	Pre-test Score	Post-test Score	Demographic Survey
#3 (1400)	1.	4	4	1. no, relatives
M	2.	4	4	2. yes, friends
25	3.	4	4	3. 0 courses
1	4.	4	4	6. 4 hours
	5.	4	3	
	6.	4	4	
	7.	4	3	
	8.	4	3	
	Total	32	Total 29	
#4 (4416)	1.	3	4	1. no, relatives
M	2.	4	4	2. no, friends
27	3.	4	4	3. 0 courses
6	4.	1	5	6. 0 hours
	5.	4	4	
	6.	3	4	
	7.	4	5	
	8.	4	4	
	Total	27	Total 34	
#5 (9927)	1.	4	2	1. no, relatives
F	2.	4	2	2. yes, friends
29	3.	4	4	3. 0 courses
3	4.	4	5	6. 0 hours
	5.	5	4	
	6.	2	1	
	7.	4	2	
	8.	4	5	
	Total	31	Total 25	

Table 6. Continued

Subject	Item	Pre-test Score	Post-test Score	Demographic Survey
#6 (6662)	1.	4	3	1. no, relatives
F	2.	4	3	2. no, friends
29	3.	4	3	3. 0 courses
6	4.	4	4	6. 0 hours
	5.	4	4	
	6.	3	2	
	7.	3	3	
	8.	3	2	
	Total	29	24	
#7 (2573)	1.	4	3	1. no, relatives
F	2.	4	4	2. no, friends
28	3.	4	3	3. 0 courses
4	4.	1	4	6. 0 hours
	5.	4	4	
	6.	2	1	
	7.	4	4	
	8.	4	4	
	Total	27	27	
#8 (5807)	1.	4	3	1. yes, relatives
M	2.	3	3	2. yes, friends
25	3.	4	3	3. 0 courses
2	4.	3	3	6. 0 hours
	5.	4	3	
	6.	3	3	
	7.	2	3	
	8.	3	3	
	Total	26	24	

Table 6. Continued

Subject	Item	Pre-test Score	Post-test Score	Demographic Survey
#9 (8001)	1.	2	4	1. no, relatives
F	2.	2	4	2. yes, friends
23	3.	2	4	3. 1 course
0	4.	4	4	6. 200 hours
	5.	4	4	
	6.	2	4	
	7.	2	4	
	8.	2	1	
	Total	20	29	
#10 (3025)	1.	4	4	1. no, relatives
F	2.	4	4	2. yes, friends
28	3.	5	4	3. 3 courses
5	4.	4	5	6. 50 hours
	5.	5	5	
	6.	4	2	
	7.	5	4	
	8.	4	5	
	Total	35	33	
#11 (0774)	1.	3	2	1. no, relatives
F	2.	4	3	2. no, friends
24	3.	4	4	3. 0 courses
1	4.	5	4	6. 3 hours
	5.	4	4	
	6.	2	2	
	7.	3	4	
	8.	3	4	
	Total	28	27	

Table 6. Continued

Subject	Item	Pre-test Score	Post-test Score	Demographic Survey
#12 (7068)	1.	5	4	1. no, relatives
F	2.	4	4	2. yes, friends
23	3.	1	4	3. 1 course
1	4.	4	5	6. 20 hours
	5.	5	4	
	6.	3	3	
	7.	5	5	
	8.	4	4	
	Total	31	33	
#13 (6478)	1.	2	4	1. no, relatives
F	2.	2	4	2. no, friends
24	3.	2	4	3. 0 courses
0	4.	5	4	6. 0 hours
	5.	4	4	
	6.	2	2	
	7.	2	4	
	8.	2	3	
	Total	21	29	
#14 (8633)	1.	4	4	1. no, relatives
F	2.	4	4	2. yes, friends
28	3.	4	4	3. 0 courses
4	4.	5	5	6. 50 hours
	5.	3	5	
	6.	4	2	
	7.	4	5	
	8.	4	5	
	Total	32	34	

Table 6. Continued

Subject	Item	Pre-test Score	Post-test Score	Demographic Survey
#15 (5434)	1.	3	4	1. no, relatives
M	2.	4	3	2. no, friends
30	3.	4	4	3. 0 courses
1	4.	2	2	6. 0 hours
	5.	2	2	
	6.	2	2	
	7.	2	3	
	8.	2	2	
	Total	21	Total 22	
#16 (2868)	1.	4	4	1. yes, relatives
F	2.	4	3	2. yes, friends
30	3.	4	4	3. 0 courses
6	4.	5	3	6. 0 hours
	5.	4	4	
	6.	4	4	
	7.	4	2	
	8.	3	4	
	Total	32	Total 28	
#17 (4706)	1.	4	4	1. no, relatives
M	2.	4	3	2. yes, friends
25	3.	4	5	3. 0 courses
0	4.	5	5	6 3 hours
	5.	4	5	
	6.	3	4	
	7.	4	4	
	8.	4	4	
	Total	32	Total 34	

Table 6. Continued

Subject	Item	Pre-test Score	Post-test Score	Demographic Survey
#18 (7229)	1.	4	5	1. no, relatives
M	2.	4	5	2. yes, friends
26	3.	4	4	3. 2 courses
4	4.	3	5	6. 80 hours
	5.	5	2	
	6.	1	4	
	7.	5	4	
	8.	4	5	
	Total	30	Total 34	
#19 (9491)	1.	4	4	1. no, relatives
M	2.	4	4	2. yes, friends
26	3.	4	4	3. 2 courses
0	4.	4	5	6. 30 hours
	5.	5	4	
	6.	4	4	
	7.	4	4	
	8.	4	4	
	Total	33	Total 33	
#20 (8400)	1.	4	4	1. yes, relatives
M	2.	4	2	2. yes, friends
26	3.	5	2	3. 1 course
3	4.	4	5	6. 10 hours
	5.	4	5	
	6.	2	4	
	7.	2	4	
	8.	4	2	
	Total	29	Total 28	

Table 6. Continued

Subject	Item	Pre-test Score	Post-test Score	Demographic Survey
#21 (7205)	1.	4	4	1. no, relatives
F	2.	4	3	2. no, friends
24	3.	4	4	3. 0 courses
2	4.	4	4	6. 0 hours
	5.	4	4	
	6.	1	4	
	7.	4	4	
	8.	4	2	
	Total	29	29	
#22 (6621)	1.	2	2	1. no, relatives
M	2.	2	4	2. no, friends
23	3.	1	4	3. 1 course
0	4.	4	2	6. 26 hours
	5.	2	2	
	6.	2	1	
	7.	1	2	
	8.	1	1	
	Total	15	18	

Individual Scores of the Pre- and Post-test (16)
Education Graduate Students

Table 6. Continued

Subject	Item	Pre-test Score	Post-test Score	Demographic Survey
#1 (4326)	1.	4	4	1. yes, relatives
M	2.	4	4	2. no, friends
38	3.	4	4	3. 1 course
0	4.	4	4	6. 90 hours
	5.	4	4	
	6.	3	4	
	7.	4	4	
	8.	3	4	
	Total	30	32	
#2 (9525)	1.	4	5	1. no, relatives
F	2.	4	5	2. no, friends
49	3.	4	4	3. 0 courses
8	4.	5	5	6. 0 hours
	5.	4	4	
	6.	2	4	
	7.	4	4	
	8.	4	4	
	Total	31	35	
#3 (7793)	1.	4	4	1. no, relatives
F	2.	4	4	2. no, friends
34	3.	4	5	3. 0 courses
1	4.	5	5	6. 4 hours
	5.	5	4	
	6.	3	2	
	7.	4	4	
	8.	4	4	
	Total	33	32	

Table 6. Continued

Subject	Item	Pre-test Score	Post-test Score	Demographic Survey
#4 (1205)	1.	5	5	1. no, relatives
M	2.	5	5	2. yes, friends
42	3.	4	4	3. 0 courses
17	4.	5	5	6. 45 hours
	5.	5	5	
	6.	5	5	
	7.	5	5	
	8.	5	5	
	Total	39	Total 39	
#5 (6703)	1.	4	5	1. no, relatives
F	2.	4	5	2. no, friends
38	3.	4	4	3. 2 courses
12	4.	4	5	6. 900 hours
	5.	5	3	
	6.	4	4	
	7.	4	5	
	8.	4	5	
	Total	33	Total 36	
#6 (3188)	1.	4	4	1. no, relatives
F	2.	3	4	2. yes, friends
28	3.	5	4	3. 0 courses
5	4.	4	5	6. 24 hours
	5.	4	4	
	6.	2	2	
	7.	4	4	
	8.	4	4	
	Total	30	Total 31	

Table 6. Continued

Subject	Item	Pre-test Score	Post-test Score	Demographic Survey
#7 (5155)	1.	5	5	1. yes, relatives
M	2.	5	5	2. yes, friends
37	3.	5	5	3. 0 courses
3	4.	5	5	6. 30 hours
	5.	5	5	
	6.	5	5	
	7.	5	5	
	8.	5	5	
	Total	40	Total 40	
#8 (3565)	1.	5	4	1. yes, relatives
F	2.	4	3	2. no, friends
31	3.	4	4	3. 0 courses
6	4.	4	5	6. 100 hours
	5.	4	4	
	6.	4	3	
	7.	4	4	
	8.	4	4	
	Total	33	Total 31	
#9 (9641)	1.	4	4	1. no, relatives
M	2.	4	4	2. yes, friends
30	3.	4	4	3. 0 courses
7	4.	5	4	6. 30 hours
	5.	4	4	
	6.	4	4	
	7.	4	4	
	8.	4	4	
	Total	33	Total 32	

Table 6. Continued

Subject	Item	Pre-test Score	Post-test Score	Demographic Survey
#10 (8975)	1.	2	2	1. no, relatives
M	2.	2	2	2. no, friends
33	3.	4	3	3. 0 courses
5	4.	5	2	6. 0 hours
	5.	2	4	
	6.	1	1	
	7.	4	2	
	8.	1	1	
	Total	21	17	
#11 (6825)	1.	4	4	1. no, relatives
M	2.	4	4	2. yes, friends
33	3.	4	4	3. 0 courses
5	4.	4	4	6. 40 hours
	5.	4	3	
	6.	4	2	
	7.	4	3	
	8.	4	4	
	Total	32	28	
#12 (0227)	1.	4	3	1. no, relatives
M	2.	3	3	2. no, friends
36	3.	4	3	3. 0 courses
4	4.	4	3	6. 3 hours
	5.	4	4	
	6.	3	4	
	7.	3	3	
	8.	3	3	
	Total	28	26	

Table 6. Continued

Subject	Item	Pre-test Score	Post-test Score	Demographic Survey
#13 (9832)	1.	4	2	1. yes, relatives
M	2.	3	2	2. no, friends
41	3.	2	2	3. 0 courses
14	4.	2	2	6. 0 hours
	5.	4	3	
	6.	2	1	
	7.	2	2	
	8.	2	2	
	Total	21	16	
#14 (7775)	1.	4	2	1. yes, relatives
M	2.	3	2	2. no, friends
37	3.	4	2	3. 0 courses
14	4.	4	3	6. 0 hours
	5.	3	4	
	6.	4	2	
	7.	4	2	
	8.	3	2	
	Total	29	19	
#15 (0522)	1.	4	4	1. yes, relatives
M	2.	4	4	2. yes, friends
39	3.	4	4	3. 0 courses
16	4.	4	4	6. 5 hours
	5.	4	3	
	6.	2	2	
	7.	4	4	
	8.	3	4	
	Total	29	29	

Table 6. Continued

Subject	Item	Pre-test Score	Post-test Score	Demographic Survey
#16 (1033)	1.	5	4	1. no, relatives
F	2.	4	4	2. yes, friends
36	3.	4	5	3. 0 courses
2	4.	5	5	6. 2 hours
	5.	4	4	
	6.	5	4	
	7.	5	5	
	8.	5	5	
	Total	37	36	

APPENDIX G

PE Graduate Students

	1	2	3	4	5	6	7	8	Sex	Age	Maj	Yrex	Hrho	HDR	HOF	CRS	CRS PR	CH	St	AD	HRS	22	23	24	25	26	27	28	29
1																													
2	-.79																												
3	-.45	.64																											
4	-.01	.17	.15																										
5	-.56	.39	.23	-.09																									
6	.38	-.23	-.22	.22	-.15																								
7	-.74	.69	.34	.04	.69	-.35																							
8	-.81	.81	.58	.12	.68	-.25	.81																						
Sex	.11	-.12	.13	.28	-.27	-.05	-.24	-.10																					
Age	-.28	.49	.51	.25	-.05	-.28	.23	.21	-.10																				
Maj	.99	.99	.99	.99	.99	.99	.99	.99	.99	.99																			
YREJ	-.35	.46	.51	.30	.20	-.20	.40	.38	-.24	.69	.99																		
YRH(	-.33	.25	.50	.17	.33	-.18	.27	.36	.04	.22	.99	.40																	
HDR	.17	.02	-.12	.06	-.02	.27	.10	.09	.00	-.20	.99	-.25																	
HDF	.48	-.17	-.08	.30	-.50	.55	-.53	-.37	.00	-.01	.99	.04	-.15	.29															
CRS	-.19	-.04	.07	-.05	.37	-.26	.32	.11	.18	-.10	.99	-.02	.52	.20	-.41														
CRSJ	.27	-.04	.02	.01	-.07	.04	-.07	-.12	.00	-.09	.99	.13	-.12	.24	.45	.09													
CH	.29	-.18	-.31	.11	-.29	.29	-.49	-.31	-.32	.03	.99	.00	-.45	-.17	.49	-.53	.18												
ST	-.10	.28	.09	.20	.14	.27	.01	.12	.13	.08	.99	.08	.12	-.12	.36	-.28	.30	.10											
AO	.32	-.23	-.04	.36	-.27	.14	-.32	-.30	-.09	.14	.99	.16	-.21	-.32	.36	-.56	.00	.32	.13										
HRS	.15	-.23	-.17	-.01	.21	.19	.11	-.07	-.02	-.24	.99	-.07	.16	.17	-.41	.50	-.21	-.29	-.53	-.18									
22	-.36	.26	.21	.05	.28	-.27	.46	.36	.15	.03	.99	.09	.28	.03	-.40	.46	-.40	-.49	-.33	-.05	.41								
23	.04	-.19	-.27	.17	.11	-.23	.33	-.02	.12	-.26	.99	-.05	.09	.22	-.29	.55	-.04	-.45	-.40	-.12	.52	.52							
24	.13	-.14	.12	.21	-.13	.28	-.42	-.09	.06	.12	.99	.24	.26	-.12	.46	-.26	.15	.46	.30	.31	-.20	-.41	-.45						
25	-.45	.36	.30	-.12	.72	-.21	.66	.74	-.10	-.03	.99	.20	.23	.40	-.37	.37	-.04	-.36	-.20	-.48	.20	.36	.17	-.13					
26	.26	-.21	-.30	.37	-.36	.35	-.29	-.45	.41	-.08	.99	-.22	-.17	-.11	.12	-.03	-.05	-.01	.23	.20	.18	-.08	.25	-.06	-.64				
27	.27	-.18	-.21	.08	-.33	.21	-.28	-.34	-.36	.23	.99	-.03	-.07	.18	.37	-.24	.16	.35	.16	-.04	.30	-.71	-.18	.23	-.32	.11			
28	-.30	.26	.07	.12	.32	-.16	.44	.47	-.09	-.25	.99	.01	.10	.37	-.13	.34	-.10	-.20	-.42	-.28	.25	.61	.50	-.33	.62	-.39	-.36		
29	.45	-.39	-.37	.04	-.50	.37	-.73	-.56	.07	-.34	.99	-.35	-.23	.01	.47	-.28	.12	.40	.07	.43	.02	-.16	-.25	.26	-.62	.31	-.02	-.28	

N = 22 r = .40 (p = .05)

(Education) Graduate Students

	1	2	3	4	5	6	7	8	Sex	Age	Maj	Yrex	Hrho	HDR	HOF	CRS	CRS PR	CH	St	AD	HRS	22	23	24	25	26	27	28	29
1																													
2	-.78																												
3	-.15	.27																											
4	.04	-.35	-.66																										
5	-.70	.81	.14	-.07																									
6	.77	-.70	-.25	.30	-.53																								
7	-.38	.59	.72	-.80	.24	-.58																							
8	-.83	.83	.48	-.45	.74	-.78	.67																						
Sex	.23	-.09	-.21	.19	-.28	.01	-.18	-.40																					
Age	-.13	.28	-.35	.05	.20	.06	-.05	.03	.06																				
Maj	.01	-.37	-.29	.25	-.38	-.11	-.15	-.12	.10	-.29																			
YREX	-.11	.12	-.31	.30	.08	-.04	-.10	-.05	.30	.43	.36																		
YRHO	-.22	.28	.37	-.12	.19	-.21	.29	.27	.25	-.15	.26	.44																	
HDR	.23	-.09	.21	-.48	.06	.01	.18	.21	-.33	-.12	-.05	-.27	-.22																
HDF	.36	-.33	-.41	.24	-.08	.46	-.53	-.47	-.26	.27	-.46	-.28	-.70	.00															
CRS	.06	.12	.00	.14	.29	-.10	.00	.01	-.21	.12	-.35	.02	-.07	.03	.36														
CRSPR	-.31	.07	.00	-.24	-.04	-.35	.36	.32	-.34	-.02	.29	-.30	-.08	.21	-.24	-.11													
CH	-.14	.08	-.21	-.15	-.29	-.20	.18	-.03	.20	.27	.17	.08	-.08	-.33	.00	-.21	.20												
ST	.46	-.40	-.22	.08	-.12	.27	-.38	-.24	.03	.02	.25	.19	-.20	.59	.13	-.02	-.37	-.24											
AO	.31	-.58	-.23	.33	-.34	.57	-.41	-.48	-.45	.10	.02	-.15	-.35	-.15	.58	.20	.16	-.15	-.08										
HRS	-.00	.14	.02	.11	.35	-.19	.03	.12	-.33	.05	-.20	.18	.01	.15	.27	.92	-.11	-.30	.11	.12									
22	-.56	.84	.50	-.48	.76	-.45	.61	.81	-.40	.21	-.56	-.03	.22	.24	-.18	.30	.03	-.14	-.26	-.39	.34								
23	-.48	.81	.49	-.49	.75	-.41	.60	.78	-.31	.27	-.55	-.01	.27	.31	-.24	.32	.04	-.19	-.16	-.42	.33	.97							
24	.44	-.68	-.58	.64	-.59	.41	-.70	-.73	.46	.13	.48	.44	-.15	-.27	.21	-.07	-.34	.16	.45	.29	-.09	-.80	-.77						
25	-.66	.75	.58	-.49	.70	-.51	.67	.89	-.64	.01	-.34	-.15	.17	.21	-.24	.18	.20	-.15	-.30	-.20	.26	.90	.83	-.83					
26	.34	-.35	-.51	.53	-.16	.40	-.59	-.42	-.05	-.01	.17	.15	-.12	-.05	.21	.32	-.05	-.48	.14	.36	.35	-.27	-.25	.31	-.32				
27	.61	-.72	-.39	.48	-.58	.66	-.54	-.70	.06	-.29	.41	.05	-.20	-.14	.14	-.26	-.17	-.24	.28	.42	-.22	-.72	-.71	.50	.59	.57			
28	-.65	.81	.49	-.49	.75	-.56	.69	.83	-.44	.09	-.41	-.07	.31	.19	-.24	.32	.29	-.06	-.42	-.28	.35	.91	.88	-.84	.89	-.35	-.76		
29	.74	-.87	-.44	.37	-.82	.64	-.62	-.91	.39	-.08	.37	.06	-.28	-.17	.33	-.28	-26	.17	.38	.38	-.33	-.92	-.90	.82	-.91	.23	.72	-.95	

N=16 r = .47 (p = .05)

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