8-1979

Knowledge and Attitudes Expressed Toward the Mainstreaming Process by Preservice and Certified Elementary Teachers

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KNOWLEDGE AND ATTITUDES EXPRESSED TOWARD THE MAINSTREAMING PROCESS BY PRESERVICE AND CERTIFIED ELEMENTARY TEACHERS

by

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A Dissertation
Submitted to the
Faculty of The Graduate College
in partial fulfillment
of the
Degree of Doctor of Education

Western Michigan University
Kalamazoo, Michigan
August, 1979

To:

Jenni and Krisi,

May they, and all the children of the world find peace, happiness and love.

ACKNOWLEDGEMENTS

Many people deserve my expression of appreciation, including friends, associates and colleagues. All have contributed to the completion of this dissertation through their cooperation, support, interest and encouragement. Special appreciation is extended to the Battle Creek Public Schools, who made my doctoral residency financially possible.

Recognition and special thanks must be given to nine individuals who have shared significant parts of their lives with me, each helping to ensure my present and future success. Dr. Galen Alessi has lent his unique expertise and valuable time serving as a member of my committee. Dr. Carol Sheffer assisted throughout my doctoral studies by serving as my very able advisor, supporter and friend. Dr. Sheffer's advice and assistance during the preparation of this manuscript was especially appreciated.

Ms. Nellie Stell has served as a special friend, advisor and confidant. Her charm and intellect made my residency a meaningful and memorable experience.

Dr. Richard Munsterman, my committee chairman, has given me extensive support, encouragement and time. His guidance as a mentor and a friend will always be remembered. His professional expertise made this dissertation possible, his personal friendship made it worthwhile.

Through their love and example, my parents, George and Mary Buletza, gave me the personal strength and character which enabled me to pursue a doctoral degree. My father's assistance in many phases of this dissertation is deeply appreciated. In many ways, this dissertation is for them.

Finally, the love and encouragement of my immediate family deserve special recognition. My daughters, Jennifer and Kristin, continued to share their love and exuberance for life with me despite my frequent absences and long working hours. My wife, Mary, has kept our family together, often assuming my personal responsibilities so I could give my complete attention to the tasks at hand. Their commitment to this work was as enduring as my own. This dissertation and my loving gratitude belong to them.

R. Wayne Buletza

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CHAPTER I

THE PROBLEM AND ITS BACKGROUND

Introduction

Until recent years accommodation of handicapped individuals has been historically unattractive. The handicapped person was the object of ridicule and discrimination, often being segregated from the mainstream of society. Generally excluded from normal educational opportunities, the handicapped child was traditionally thought to be too difficult to teach within a general education program. The public school created specialized classrooms to instruct those students who demonstrated limitations of a physical, intellectual, emotional and/or communicative nature. Universities responded by developing programs to train specialists to teach the exceptional child. Society, often fearful of what it does not understand, encouraged the practice of educating the handicapped child separately from the non-handicapped child.

The climate for social change in the 1960's fostered the growth of special interest organizations. The advent of mass communications and the return of many handicapped veterans from Korea and Viet Nam, helped to increase social awareness of handicapping conditions. Legal and legislative precedent for future change was established by the civil rights movement on behalf of racial minorities. During the 1970's organizations concerned with the civil and educational rights of the handicapped successfully pursued similar protection from dis-

crimination in housing, employment and education as was guaranteed by the Fourteenth Amendment of the United States Constitution.

Among the social institutions most affected by this legislation have been the public schools. Having created an exclusive system to educate exceptional students by special educators, the public school must now find methods to meet the legislative mandate known as the least restrictive environment. A popular response has been the development of mainstreaming, a process of integrating handicapped students into the mainstream of public education. This process has created a sense of anxiety, apprehension and resentment on the part of many general educators who have been led to believe that they do not possess the necessary skills to effectively educate the handicapped child.

To assist in the clarification of the mainstreaming issue, this investigation examined the relationship between the demonstrated knowledge of mainstreaming and the expressed attitudes toward mainstreaming. The population investigated was preservice and certified general and special education teachers at the elementary grade level. If educators are to successfully design and implement an effective mainstreaming program, the teachers involved should understand the process and feel capable of implementing it. Preservice and inservice programs have attempted to meet this need. Such training programs are based upon the assumption that increased knowledge of mainstreaming will lead to positive attitudinal and subsequent behavioral changes among instructional personnel. There is, however, little empirical information to support such a belief in the area of teacher training.

This investigation attempted to support the assumed relationship between knowledge and attitudes as it relates to mainstreaming. Verification of this assumption provides empirical support for the revision of existing preservice and inservice training programs to reflect greater emphasis upon knowledge of the mainstreaming process.

Statement of the Problem

Problem. Concerns about general education's ability to meet the needs of mainstreamed students has prompted increased attention on the development of preservice and inservice training programs on the topic of mainstreaming. At the time of this investigation, the relationship between teacher knowledge of the mainstreaming process and consequent teacher attitude toward mainstreaming was not empirically demonstrated. Therefore, the justification for mandating such training programs was questioned. The purpose of this investigation was to provide empirical support for revising preservice and inservice training programs to increase teacher knowledge of the mainstreaming process.

Discussion. The issue of how to educate exceptional children has been essentially political for the past twenty years. In response to major lobbying by organizations concerned with the educational rights of exceptional children, the state of Michigan has become a leader in the attempt to provide equal education opportunities for all its handicapped students. Through successful legislative campaigns, these organizations continued to press for civil and educational rights and services for the handicapped on a national basis. As a result of federal legislation (ie., PL-94-142 and PL-93-112, Section 504), school

districts across the country were asked to integrate handicapped students into the education program(s) which most appropriately met the educational needs of each student. This concept was referred to as the least restrictive environment. The concept of the least restrictive environment was often mistakenly interpreted as meaning all handicapped students must be integrated for some portion of the academic day into the general education program (see definitions for legal interpretation).

Of interest to this investigation was a plan proposed by a special education ad hoc task force. The purpose of this task force was to revise the existing Michigan Special Education Code to reflect the changes mandated by federal special education legislation. One of the elements of this plan was to change the Michigan Teacher Certification Code to reflect the beliefs of special educators. The proposed additions to Rule 23 (professional preparation) are underlined in the following passage.

Teacher Certification Code, R390,1123 Professional Education Rule 23.

(1) An applicant shall present evidence of completion of 20 semester hours of theoretical and practical knowledge in the following fields:

   (a) How human beings grow and how they learn.
   (b) The structure, function and purposes of educational institutions in our society.
   (c) The methods and materials of instruction appropriate to elementary or secondary level.
   (d) Characteristics of the handicapped.
   (e) The methods and techniques of teaching such persons and sources of referral and assistance for such persons.

(2) The applicant shall present evidence of participation under institutional supervision for a minimum of 6 semester hours (of the 20) in direct teaching at the level for which the certificate is granted (Special Education Ad Hoc Task Force for Code Revision, 1978).

Letters (d) and (e) were based on the assumption that knowledge of handicapping conditions and the process for integration of exceptional students into regular education programs would improve teacher attitudes toward mainstreaming, thus making the process more successful. This assumption was unverified in terms of teacher preparation programs at the time of this investigation. It was believed by the investigator that changes in the Michigan Teacher Certification Code could not be easily accepted in the absence of empirical data to justify its adoption. Therefore, one aspect of the problem investigated in this study, was a cross-sectional analysis of the knowledge and attitudes expressed toward the mainstreaming process by second and fourth year preservice general and special education teachers.

Another aspect of this investigation involved certified teachers. If the assumption stated above was true, we would expect to find, through data analysis, that teachers who had high knowledge of the mainstreaming process would demonstrate more positive attitudes toward mainstreaming than did those teachers who had low knowledge of the process. Support for the assumption was crucial for this population since the proposed changes in the certification code would not affect certified teachers. If the assumption could not be supported, then some other method of improving the attitude of certified teachers toward the mainstreaming process would become necessary.

The final aspect of this investigation concerned special education teachers. Since it was assumed that knowledge increases with exposure to, and experience with mainstreamed students, it appeared that the population which should demonstrate the highest level of knowledge

would be special educators. Following the assumed relationship between knowledge and attitude, it seemed logical to expect that special educators would demonstrate higher attitudes toward mainstreaming than would general educators. Verification of the assumption for this population was of equal importance since most inservice and preservice courses concerning mainstreaming are designed according to a special education model (Reynolds & Birch, 1977).

Rationale for the Study

As a result of personal experience it was anticipated that a schism had occurred over the issue of mainstreaming between those who teach and are responsible for general education programs and those who teach and are responsible for special education programs. More information was sought through interviews of individuals who were representative of various positions related to general and special education. Viewpoints from both populations are examined in the following sections.

General Education. The greatest concern expressed by two administrators of state colleges of education and a special assistant to the Deputy Superintendent for Public Instruction, was the pending recommendation to change the teacher certification code. The interviewees perceived the individuals and organizations who supported the recommendation as constituting a special interest group similar to other groups which had previously attempted to change the professional preparation requirements. Cited as examples were those groups supporting reproductive education, substance abuse education, humanistic educa-

tion, vocational education, metric education, and most recently, bilingual education. According to these administrators, the recommendation was viewed as particularly insidious in its attempt to change the certification code indirectly through the special education code. Concern was expressed that unlike other special interest groups, special education in the state of Michigan was supported by a powerful public and private lobby which could strongly influence the State Board of Education in its decision. Should the recommendation be accepted, the interviewees believed that a precedent would be set which would make future efforts to change the certification code by other special interest groups difficult to refute.

The State College of Education Administrators voiced additional objections. Changes in certification were viewed as being inappropriate at that time since the State Board of Education had initiated a task force to study the need for a complete revision of the state teacher certification code (November, 1978). Additionally, exposure to and knowledge of appropriate teaching techniques for mainstreamed students were seen as already being covered under the existing teacher certification code (letters [a] and [c], Michigan Teacher Certification Code).

Finally, both college administrators criticized the State Board of Education for not having an overview of the teacher education process. Changes in Michigan school law were perceived as occurring most often on an ad hoc basis. Such a process was viewed as frequently resulting in conflicting and/or overlapping recommendations. The administrators stated the opinion that state colleges of education were

held accountable for implementation of certification changes without concurrent pressure upon the university to permit more than 34 hours of preservice preparation. Without a credit hour increase, other courses would have to be eliminated from the curriculum which would result in strong objections from faculty and other departments within the College of Education.

The college administrators did agree that providing an appropriate education to a mainstreamed student in general education was seen as a problem by many certified teachers. They could not agree, however, that mandating preservice courses in handicapping conditions would improve educational experiences for mainstreamed students.

Teacher education instructors who were interviewed held the general opinion that the issue of mandated preservice coursework in mainstreaming was essentially political and financial. The instructors consensually agreed that existing teacher education courses could incorporate units on the handicapped without difficulty. Several indicated that a unit was included whenever they taught the Human Growth and Development course. Only one of the instructors interviewed saw a need for a preservice course on the topic of mainstreaming to be offered by the Special Education Department. Most felt, however, that such a course would be helpful at the graduate level. Such a course would serve certified teachers who indicated a need for specific methodology and techniques of teaching mainstreamed students.

Interviews, discussions and inservice programs presented to general education instructional and administrative personnel by this author during the past three years has yielded generally negative perceptions

of the mainstreaming process. Many general educators expressed the opinion that they had been taught by the university to teach the average student, not the exception. This might be rephrased to say that general education teachers perceived their role as meeting group needs as opposed to the special education role of meeting individual needs.

Confusion often was expressed by general educators concerning the appropriate educational placement for a handicapped student. Most teachers voiced the opinion that they had been given the impression that handicapped students required a specialized learning environment which could only be provided in a self-contained special education classroom. With the advent of mainstreaming, the teachers interviewed perceived that an expectation was being placed upon them to re-create this specialized environment within the general education program. This was an expectation which most teachers rejected on the basis of time or lack of competency. The most outspoken of those interviewed expressed the feeling that as professionals, they were frequently abused by the federal special education law and state special education code. Many understood mainstreaming to mean all handicapped children must be placed for at least part of the school day in general education classrooms, regardless of student ability or availability of supplementary service or support from the special education program.

Special Education. In addition to personnel involved in general education, special education instructional and administrative personnel were informally interviewed. Those interviewed expressed opinions

that general educators required specific coursework in handicapping conditions on the basis of the following perceptions. General educators often were perceived by those interviewed as: (1) resistive to integration of handicapped students; (2) noncommunicative with special education personnel; (3) ill-equipped to teach handicapped students; (4) actively obstructing the mainstreaming process; and (5) stating negative attitudes toward sharing the instructional responsibility for handicapped students. Similar to statements made by general educators, a major problem appeared to be related to the perceived roles of meeting group needs versus meeting individualized student needs.

Interviews conducted with state college special education administrators and a representative of the State Department of Education, Division of Special Education, yielded similar opinions, although less severe in nature. It was their opinion that special education teaching methodology and philosophy would: (1) be beneficial to improving the quality of general educators; and (2) offer improved educational experiences to mainstreamed handicapped students, as well as, to nonhandicapped students. State college special education instructors interviewed generally viewed the mandate of coursework as political, although they, too, saw an opportunity to influence the philosophy of preservice general education teachers.

Interviews conducted with two members of the special education code revision task force yielded no empirical support for the recommended change in the certification code. No attempt was made by the task force to demonstrate an empirical need for preservice coursework

concerning the handicapped. The final report of the task force failed to substantiate or provide support for the implied assumption that increased knowledge concerning the handicapped would have a positive effect upon teacher attitude and behavior during the mainstreaming process.

Summary. The issue of mainstreaming has continued to be controversial. Within the educational community perception of the problem varied greatly and was often dependent upon the professional position of the opinion holder. A conflict between the philosophy of meeting group needs and the philosophy of meeting individual needs seemed apparent. It appeared that the controversy over mainstreaming was not whether the integration of capable handicapped students was desirable, but rather through what process should such an integration take place. Certain special interest groups recommended that the way to overcome many of the problems previously discussed was to provide preservice teachers with academic exposure to the topic area. Such a controversy prompted many questions concerning the mainstreaming process which were worthy of professional consideration. These are the specific questions which were addressed in this investigation.

1. What is the difference in the level of perceived knowledge of the mainstreaming process as demonstrated by preservice and certified elementary special and general education teachers?

2. What is the difference in the expressed attitude of preservice and certified elementary special and general education teachers toward the mainstreaming process?

3. What is the degree of relationship between perceived knowledge

of and attitude toward the mainstreaming process as expressed by preservice and certified elementary special and general education teachers?

4. What factors, such as sex, age, level of education, number of years teaching experience, number of years mainstreaming experience, grade level taught, and school district size, influence perceived knowledge and attitudes of the mainstreaming process of preservice and certified elementary special and general education teachers?

Significance of the Study

To a large extent, the relevancy of research related to the mainstreaming process was demonstrated by the increased controversy of the mainstreaming topic as discussed in such popular media as newspapers, radio, television, and a wide selection of professional journals and publications. Previous research on this topic focused on mainstreaming in terms of variables related to specific, or generic handicapping conditions. No specific research was located which clearly examined variables directly related to the mainstreaming process.

Within southwest Michigan, teacher rated needs assessments (Region XII Professional Development Center, Needs Analysis, 1978) consistently ranked mainstreaming as one of the top five concerns of area educators. Intermediate school districts and local school districts responded with increased inservice programs on this topic. Most programs surveyed, presented techniques and methods of teaching mainstreamed students, yet participant evaluation of these programs had been generally unsatisfactory (G. Giek, Director, Region XII Professional Development Center, 1979). The controversy continued unabated. One might logi-

cally have concluded that remedies for the ailment were being prescribed prior to careful diagnosis of the problem. Such may have been the case for the proposed change in the Michigan teacher certification code, and for existing inservice programs for certified personnel.

The significance of this investigation was in its identification of some of the specific variables which contributed to the controversy between general and special education. In addition, specific areas of meaningful content for coursework and inservice training were identified through examination of the current level of understanding of the mainstreaming process by preservice and practicing certified elementary teachers. This information can prove helpful to local school districts and professional development centers engaged in teacher inservice work. It also should be of interest to state colleges of education in considering the design of coursework in this area. Examination of attitudes toward mainstreaming can assist local districts in assessing the magnitude of the emotional component of this problem. Finally, an analysis of the relationship between knowledge and attitude can provide state college of education personnel with empirical data from which to base initial conclusions as to the validity of the underlying assumption suggested by those who sought changes in the teacher certification code.

Limitations of the Study

This investigation did not consider that a relationship exists between knowledge, attitude and consequent behavior. The complete examination of these variables are beyond the scope of this study. Nor

did this examination presume to define the complete parameters of the mainstreaming issue. Instead, it was designed to identify the current level of understanding and attitudes toward the mainstreaming process by preservice and certified teachers. The sample drawn for the investigation was representative of the elementary preservice teacher population at Western Michigan University, and certified elementary teachers within Region XII during 1979. Caution is advised in generalizing these samples to larger populations without further validation. Public and parental perceptions of mainstreaming are not considered in this study. Therefore, the fear and prejudices of society toward the handicapped, although important, are beyond the scope of this investigation.

Theoretical-Operational Definitions

To clarify the use of terminology in this investigation, the following definitions are provided.

Attitude. As defined by Allport (1935): "A mental or neutral state of readiness, organized through experience, exerting a directive or dynamic influence upon the individual" (p. 798). For purposes of this investigation, the Attitude Toward Mainstreaming Questionaire, a measurement instrument designed to gauge the attitude of teachers toward the mainstreaming process.

Certified Teachers. Individuals who meet the criteria established by the Michigan General School Laws (1976), Administrative Rules, R390.1101 - R390.1199 for elementary certification.

General Education. Public school education other than special education programs and services as defined by the Michigan Special Education Code, R340.1701, part 10.

Handicapped Person. A handicapped person is defined by Section 504, of PL-93-112: "Any person who (1) has physical or mental impairment which substantially limits one or more major life activities; (2) has a record of such impairment; (3) is regarded as having such an impairment; and (4) is a drug addict or an alcoholic."

Handicapped Student. Any person between the ages of birth and 25, who meet the state and federal criteria for special education services (Michigan Special Education Code, R340.1702).

Knowledge. The result or product of knowing; information or understanding acquired through experience, skill, learning or practical ability (Funk and Wagnall, p. 741). For purposes of this investigation the Mainstreaming Self-Assessment Competency Scale, a measurement instrument designed to assess a teacher's perceived competency to successfully implement the mainstreaming process.

Least Restrictive Environment. This term is defined by PL-93-112, Section 504, The Rehabilitation Act of 1973. Sub-section 121a550 provides that: (1) to the maximum extent appropriate, handicapped children... are educated with non-handicapped children, and (2) that special classes, separate schooling or other removal of handicapped children from the regular educational environment occurs only when the nature or severity of the handicap is such that education in regular classes with the use of supplementary aids and services cannot be achieved satisfactorily.

Mainstreaming. A process for providing the least restrictive environment for a handicapped student. As appropriate to an individual student's abilities, skills and needs, alternative educational placement is designed which will permit the student to experience part or all of the academic day in an environment which offers less restriction from interaction with non-handicapped peers than would normally be provided for the specific handicapping condition. Mainstreaming may occur from special education programs to general education programs, or within a continuum of self-contained special education programs (Reynolds & Birch, 1977).

PA 198 of 1971 - Michigan Special Education Code. PA 198 requires educational service for handicapped individuals from birth through 25 years of age, or high school graduation. Services mandated by this law include instruction, diagnosis, and support services. The law further requires due process procedures and a complaint process for non-compliance.

U.S. PL-93-112 - Rehabilitation Act of 1973, Section 504. PL-93-112 has become known as the civil rights bill for the handicapped. This law prohibits discrimination on the basis of handicap in a federally assisted program and requires program accessibility for the handicapped to all extra-curricular activities, as well as, physical access to all facilities. The law requires a least restrictive environment which permits participation in activities in the most integrated setting appropriate.

U.S. PL-94-142 - Education of All Handicapped Children Act of 1975. This federal law requires among others: (1) an individualized

education program for every handicapped child; (2) appropriate physical education programs; (3) a system for due process; (4) forbids comingling or supplanting of funds; and, (5) requires non-discriminatory assessment and evaluation procedures. Public Law 94-142 also reinforces the concept of the least restrictive environment.

Preservice Teachers. For the purposes of this investigation, preservice teachers are second and fourth year students enrolled in a state approved program for the preparation of teachers which will result in the granting of a degree and state elementary provisional certification. Specifically, students enrolled in the School of Education at Western Michigan University during the Winter semester, 1979.

Special Education. Special education is defined by the Michigan General School Laws (1976), parts 380.1701 - 380.1703, 380.1711 - 380.1743, and 380.1751 - 380.1766. "Special education programs and services designed to develop the maximum potential of each handicapped person..."

Special Interest Groups. For the purpose of this investigation, special interest groups refer to any organized effort on the part of individuals and/or organizations to alter the existing Michigan Teacher Certification Code to reflect a special interest topic area.

Teacher Certification. Teacher certification is defined by the Michigan General School Laws (1976), Article 2, Part 22, rules 380.1531-380.1533, and the Administrative Rules, R390.1101 - R390.1199.

Overview of Dissertation

The remaining chapters of this dissertation cover the following areas. Presented in Chapter II is a review of pertinent literature related to the topic of mainstreaming. This review leads to the logical development of the three major research hypotheses. The methodology utilized to develop instruments, the method of sampling, the research design and the statistical tests which were used to test the operational null hypotheses are presented in Chapter III. Sample characteristics, evidence of generalizability and statistical analysis of data related to the developed instruments are presented in Chapter IV. Reported in Chapter V are the results of hypothesis testing. Chapter VI concludes the body of the dissertation with conclusions based on the findings of the hypothesis testing, possible implications to public education and recommendations for further investigation. Appendices are included, in which pertinent documents and appropriate statistical information are presented.

CHAPTER II

REVIEW OF SELECTED RELATED LITERATURE

Gaining Perspective on the State of the Art

The issue of mainstreaming is topical at this time. The literature abounds with commentary concerning techniques, process and opinion. The predominant theme of these commentaries are favorable to the mainstreaming process. Recent literature, however, has begun to suggest words of caution to professionals who might institute mainstreaming without appropriate consideration of the barriers to be overcome (Martin, 1974). Gickling and Theobald (1975) stated that "mainstreaming is cited so frequently that one might mistakenly think it a magical elixir rather than a particular orientation toward supplying special education services...to mildly handicapped students". More recently, Cruickshank (1975, 1977) stated that mainstreaming is "impregnated at the most with the reality of failures; at the least with dangers to the children purported to be served". (p. 449, 1975).

Gickling and Theobald (1975) expressed concern that the most quoted articles advocating the mainstreaming process (Christoplis & Renz, 1969; Dunn, 1968; & Lilly, 1970) were philosophically, rather than research based. These authors state that such literature contributed little original data to the field, a belief shared by Thorndyke (1968). However, since philosophical work predominates the current literature, discussion of the views offered by the more prominent authors in the

field are reviewed in this chapter, along with research pertinent to the variables under investigation.

Historical Perspective

Perspective must be established for previous research on the topic under investigation. Authors of contemporary mainstreaming literature are predominantly special educators, or professionals from directly related fields. Few commentaries were located from professionals having a general education background. As such, these commentators and investigators appear to be influenced by their historical predecessors.

In a 1976 article, Prehm traced the history of special education research to such pioneers as Howe, Itard, Montessori, Gallaudet and Sequin. Basically uncontrolled, single case studies, these efforts were attempts to discover effective methods of educating handicapped children. Research to obtain greater knowledge of specific handicapping conditions, its etiology and effects upon the cognative, physical and affective development of the handicapped individual was contributed by such later pioneers as Baller (1936), Cruickshank (1949), Kirk (1958), Orton (1937), and Strauss (1947). Coming from such disciplines as medicine, psychology, measurement and sociology, these researchers established an extensive body of knowledge concerning specific categorical handicapping conditions, often based upon single and small case samples. Although supported by more sophisticated research in later years, these pioneers established the precedence of examining variables related to special education in terms of specific categorical conditions (Mann & Phillips, 1967).

Prehm (1976), and Reynolds and Birch (1977) concluded that special education research is still in its infancy. Therefore, contemporary research in this field most often emulates the primary model of examining related variables in relation to specific handicapping conditions. This investigation was unique in that variables (knowledge and attitude) related to a broad conceptual process (mainstreaming) were examined without definition of specific categorical handicaps.

Mainstreaming

Definition. There is a wide range of research topics which are relevant to the mainstreaming issue. Among the areas investigated have been attitudes, knowledge, behavior, labeling, sociological and psychological effects, civil rights, environmental management, fiscal impact and teacher training. With few exceptions, these investigations have defined mainstreaming indirectly in terms of categorical conditions. Limited research was located which directly examined teacher knowledge or attitude toward the mainstreaming process.

In an article discussing preschool mainstreaming, Blacher-Dixon and Turnbull (1979) indirectly suggested a possible explanation for the failure of investigators to examine mainstreaming as a process. The authors, as does Overline (1977), point out that there are various legal, professional and educational definitions and interpretations of mainstreaming.

A legal definition is found in Public Law 94-142 (1975) which defines mainstreaming in terms of "the least restrictive environment". In this context, mainstreaming is a legislative and judicial preference

in balancing the interests of children and institutions (Turnbull, 1977).

The Council for Exceptional Children, a professional organization, defined mainstreaming in 1976 as a "belief which involves an educational placement procedure and process for exceptional children, based upon the conviction that each such child should be educated in the least restrictive environment in which his education and related needs can be satisfactorily provided. . ." Blacher-Dixon and Turnbull (1979) question the meaning of mainstreaming as a "belief". The available literature does not provide information on whose belief is most important: children's, teachers', parents', or administrators'.

Educational interpretations of mainstreaming occurred frequently in the literature. For example, a definition offered by Birch (1974) included a temporal component (Where, and for how long is the student integrated?) and an instructional component (What is the child doing?). Another interpretation given by Kaufman, Gottlieb, Agard and Kukic (1975) suggested temporal, instructional and social components (With whom is the child interacting?). Unfortunately, if all three of these elements must be present to constitute mainstreaming, it is the opinion of MacMillan and Semmel (1977) that "no program to date constitutes mainstreaming" (p. 3).

The inability of authorities to agree on an acceptable definition of mainstreaming may have contributed to the lack of direct investigation of this topic as a process.

Litigation. According to the literature reviewed, it appeared that the issue of mainstreaming did not directly result from planned educational programming designed to meet student needs. Rather,

mainstreaming was developed as a response to a series of related court cases focusing on the rights of the individual (Hallahan and Kauffman, 1978). Prior to discussion of current commentary on the advisability of court intervention in educational programming, a brief review of the most pertinent court decisions is necessary.

Four court cases are most often cited by the literature as having direct bearing upon the mainstreaming topic (eg., Birch, 1974; Casey, 1973; Gilhool, 1976; Reynolds, 1977; Ross, DeYoung & Cohen, 1971; Turnbull, 1975). They are: (1) Brown v. Board of Education of Topeka (1952-54); (2) Hobson v. Hansen (1967); (3) Mills v. District of Columbia Board of Education (1972); and (4) Pennsylvania Association for Retarded Citizens (PARC) v. Commonwealth of Pennsylvania (1972).

Bricker (1978) condensed the basic thrust and implications of these court cases in an article providing rationale for the integration of handicapped students. The Brown (1954) and Hobson (1967) decisions were seen as setting precedent for more recent judicial decisions. In the Brown case, the U.S. Supreme Court held the opinion that". . .in the field of public education, the doctrine of 'separate but equal' has no place" (347, U.S.483, 494-5). Although directly referring to the civil rights of black minority citizens, the ruling of the Court has been successfully interpreted as precedent for providing handicapped students with integrated educational opportunities (Gilhool, 1976).

In Hobson v. Hansen (1967), Judge Skelly Wright held that the "tracking" system of educational placement of students within the District of Columbia school system "irrationally separate(d) students

on the basis of race and socio-economic background and thereby violate(d) their right to equal educational opportunity" (Ross, DeYoung & Cohen, 1971, p. 6). On appeal, the District Court of Appeals supported the lower court's mandate to abolish the tracking system (Smuck v. Hobson, 1969).

Bricker (1978) stated that a series of more recent suits have direct relevancy to mainstreaming. The case of Pennsylvania Association for Retarded Citizens (PARC) v. Commonwealth of Pennsylvania (1972) ensured the right to a free public education for a group of previously excluded retarded students. In a consent decree the state: (1) Acknowledged the right of all children to receive a free public education; (2) agreed to provide this education in the least restrictive environment; and (3) guaranteed procedures for due process of any disputed placement decision. The result of Mills v. District of Columbia Board of Education (1972) was similar to that of the PARC decision. However, the court also rules that a lack of funds could not be an acceptable reason for excluding handicapped students from a public school program.

The literature, therefore, demonstrates that litigation has occurred on the basis of inclusion (providing educational opportunities for handicapped students excluded from school) as in the PARC and Mills decisions; and on the basis of exclusion (mandating appropriate placement within school programs) as in the Hobson and Brown decisions (Kaufman, Semmel & Agard, 1977). Through the process of judicial decree, educational practice and policy has been drastically altered (Bricker, 1978).

Among the strongest proponents of the advisability of court intervention on behalf of the handicapped student has been Thomas Gilhool, author and civil liberties lawyer. Gilhool (1976) stated that "We are approaching the day when for each child, handicapped or not, the law will require that the schooling fits the child, his needs, his capacities and his wishes; not that the child fit the school. That I believe is the purport of the so called special education cases" (p. 11). This view is supported by other contributors to the literature including Dunn (1968), Lilly (1970), and Turnbull and Turnbull (1979), and to a lesser extent by Bricker (1978) and Hallahan and Kaufman (1978).

Clifford (1976), Frein (1977) and Lortie (1976) all take issue with Gilhool's viewpoint. All view intervention of the judicial system as being counter-productive to measures which should have been the providence of education. Although stating a belief that the ultimate decisions of the courts have been appropriate, these authors indicated opinions that such action: (1) increased the hostility between general and special educators: (2) mandated changes in educational programming without understanding the educational significance of such mandates; (3) mandated educational changes without appropriate consideration of the school's ability to meet such mandates; and (4) reinforced the misconception that change is linear by raising the expectation of the public to believe that change can be expediently accomplished as the result of action by a single institution (ie., the courts). To this issue Clifford (1977) states ". . . the provision of schooling that can be convincingly portrayed by a lawyer as being an

inferior education or an unnecessarily limiting education or inherently unequal education is arguable as fraud visited on the consumer" (p. 13).

Some empirical support for these views is offered by an extensive analysis of the actual impact of the Mills and PARC decisions conducted by Kirp, Kuriloff and Buss (1975). The analysis revealed that despite the decision of the courts and the good intentions of the state of Pennsylvania and the District of Columbia, it would take many years before the minimal mandate of the court could be implemented. Kirp, et al., concluded that any court action which encourages sound educational practice for a handicapped population has the potential of improving the entire school system. However, actual implementation of such decisions are limited by the resources available to a given state or district (1975).

Ross, DeYoung and Cohen (1971) raised the question of who will direct educational reform; judges or educators? To this issue Judge Skelly Wright stated:

> "It is regretable, of course, that in directing this case this court must act in an area so alien to its expertise. It would be far better indeed for these great social and political problems to be resolved in the political arena by other branches of government. But these are social and political problems which seem at times to defy such resolution. In such situations, under our system, the judiciary must bear a hand and accept its responsibility to assist in the solution where constitutional rights hang in the balance" (p. 517).

In summation, Ross, et al., (1971) state "Educators have a final opportunity to lead in the change... Each individual must examine his own role and contribution in a system which is frequently repressive to the needs of children... Each educator must decide whether he will continue dealing with the symptoms or start working on the

cause" (p. 12).

It can be concluded by the preceding literature that the roots of the mainstreaming issue are deeply ingrained in the political and social issues of contemporary society. The efforts of one institution to alter the course of these issues, including that of mainstreaming will not likely be successful without the concurrent assistance of other institutions within American society.

Legislation. Litigation and legislation concerning the handicapped have been inter-dependent on one another, thus it is difficult to discuss cases separately. Although litigation has had an impact upon the development of the mainstreaming process, the implementation of that process is seen as a direct consequence of federal legislation (Melcher, 1976).

Review of the historical literature pertaining to legislation for the handicapped attributed public support in the form of law and fiscal appropriations to the effort of individuals and groups who were advocates for the handicapped (Burke, 1976; Martin, 1976; Melcher, 1976). Hallahan and Kauffman (1978) suggest that legislation concerning handicapped children has been either permissive or manditory. Permissive legislation was viewed as stating that school may provide special education services. Manditory legislation was seen as directing that special education services must be provided.

At the federal level, legislation has traditionally been permissive. It was the prevailing opinion that it was the right of the states to mandate educational policy and control. Federal funds were provided as an incentive to states to develop special education programs

(Hallahan and Kauffman, 1978). However, as of 1971, only thirteen states had mandatory special education laws (Bricker, 1978).

An example of permissive legislation is provided by Burke (1976). Public Law 85-926 (1956) provided funding to state education agencies and institutions of higher learning for the purpose of training professional personnel who would in turn train teachers of the mentally retarded. According to Burke (1976), at the time of this legislation, there were only twenty-eight full-time, and sixty-four part-time special education instructors teaching at forty colleges or universities in the entire nation. Public Law 88-164 (1963), an amendment to PL 85-926, extended fiscal support to train personnel in other areas of exceptionality, such as, visually impaired, emotionally impaired, hearing impaired, speech impaired and physically or otherwise health impaired. Hallahan and Kaufman (1978) and Hall (1970) point out that it was the funding of identifiable categories of special disabilities which eventually contributed to the practice of labeling students. This practice has been widely criticized in the literature (eg., Deno, 1970: Dunn, 1968; Franks, 1971; Hobbs, 1975; Lilly, 1970; Rubin, Krus & Balow, 1973; Smith & Greenburg, 1975).

An example of mandated legislation dealing with the education of handicapped children is Public Law 94-142, Education for All Handicapped Children Act (1975). Its provisions are detailed in Chapter I. Such contributors to the literature as Bricker (1978), Gilhool (1977), Martin (1976), and Reynolds and Birch (1977) view this legislation as among the most significant laws ever enacted dealing with education. It is seen as being beneficial to both the handicapped and non-

handicapped student.

The most significant aspect of PL-94-142 in relation to mainstreaming is its provision dealing with the least restrictive environment. One of the implications of this bill to local school districts has been the extensive attempt to implement the mainstreaming process in an effort to remain in compliance with the federal law. In a discussion of mainstreaming, Hallahan and Kaufman (1978) state that a major problem with mainstreaming is that it has largely occurred as a result of legislation, rather than because educators recognized a need for it. This view is supported by MacMillan and Becker (1977), and MacMillan, Jones and Aloia (1974).

Thus, it can be seen that legislation, when combined with the effects of litigation concerning the handicapped has had a profound impact upon education. The process of mainstreaming has been the result of legislation and court mandates which according to the literature, has resulted in: (1) the assumption that increasing the number of knowledgeable specialists in the field would reduce the problems presented by handicapped students; (2) the assumption that with increased personnel and local services, states would pursue the education of handicapped children in an active manner; and (3) that local districts would have the desire and resources to implement mandated programs (Trippe, 1972).

The Efficacy Studies. A primary impetus for questioning the appropriateness of self-contained special education classrooms resulted

from a series of studies conducted during the past twenty years. (eg., Bacher, 1965; Baldwin, 1958; Blatt, 1958; Carrol, 1967; Cassidy & Stanton, 1959; Diggs, 1964; Goldstein, Moss & Jordan, 1964; Johnson, 1950; Jordan, 1959; Kern & Pfaiffle, 1962; Kirk, 1964; Mayer, 1966; Thurston, 1959). Known popularly in the literature as the efficacy studies, the investigations attempted to examine the effectiveness of special class placement as compared to regular class placement of handicapped students.

After reviewing a number of these investigations, Johnson (1962) concluded that although special class placement did not appear to harm the social adjustment of handicapped students, such placements were of little value in improving academic performance. Dunn (1968) was more successful in advancing a similar argument in an article which presented rational for integrating mildly mentally handicapped students into regular classes (mainstreaming). The efficacy studies were quoted as justification for mainstreaming for many years until research authorities (eg., Kaufman, Semmel & Agard, 1977; Keogh & Levitt, 1976; MacMillan & Becker, 1977; Robinson & Robinson, 1976) began to criticize the designs of these studies. The major criticism was that the subjects were not randomly assigned to program placements. Thus, those students in special classes could have been significantly more handicapped than those in regular classes. The conclusions made by Johnson (1962) and Dunn (1968) were also criticized for being based on the perceived assumptions that: (1) special class teachers were better trained than regular teachers; (2) special class teachers spent significantly longer periods of time working one-to-one with their

students; and (4) the primary purpose of special classes were to improve academic performance (Hallahan & Kauffman, 1978; Kaufman, et al., 1977).

Although considered to be scientifically questionable by most contemporary researchers, the efficacy studies were among the first investigative efforts to question the propriety of segregated classes for handicapped students. The studies sparked new interest in the examination of other administrative alternatives, and at a minimum, cautioned that special education programming might be ineffective in meeting the needs of handicapped students. When viewed in relation to recent litigation and legislation concerning handicapped students, the controversy and need for additional research becomes even more apparent.

Knowledge

The relationship between knowledge and experience is a topic of debate within the field of psychology. Skinner (1953) advanced the theory that learning is the result of repetitive contact with specific types of contingencies involving responses and stimuli. Empirical investigations (primarily experimental in nature) are well documented within the literature. Piaget (1950) postulated that cognitive learning is governed by principles which define specific stages of knowledge and experiential development. Such a view is documented by case studies and correlational investigations. Hanlyn (1978) states that the relationship between knowledge and experience is a philosophical issue which remains largely unprovable within the realm of science. Gagne' (1968) and Bruner (1966) attempted to differentiate

knowledge from intellectual skills which can be obtained through experience.

Although the theorists appear to be in disagreement as to what constitutes knowledge (learning) and the manner in which it is obtained, there does appear to be agreement upon the types of conditions under which knowledge and/or skills can best be acquired. Hilgard (1975) and Watson (1961) have provided a list of psychological principles related to learning which are commonly accepted by most learning theorists. The following thirteen principles appear to be directly related to the variables under investigation (knowledge and attitude) and the issue of how teachers should be trained to work with mainstreamed students.

1. Information about the nature of good performance, knowledge of one's mistakes, and knowledge of successful results assist the learner.

2. Transfer to new tasks will occur more rapidly if in learning, the learner has experience in applying principles of relationship within a variety of tasks.

3. Meaningful material and tasks are learned more readily than material or tasks which have no relevancy to the learner.

4. Active participation by learners is preferable to passive reception of the content to be learned.

5. Individuals need practice in setting goals for themselves. Realistic goal setting leads to more satisfactory improvement than unrealistic goal setting.

6. Tolerance of failure is best taught through providing a backlog of success.

7. A motivated learner acquires what is learned more rapidly than one who is not motivated. The relevant motives include desire to learn, need for achievement, desire for reward and avoidance of perceived stressful situations.

8. Speed or distributed recalls are advantageous in fixing material or skills that are to be retained over a long time period.

9. A learner progresses in any area of learning only, as far as, they need to in order to achieve their purpose.

10. Learners engage in an activity most willingly if they have helped select and plan the activity.

11. Concepts should be presented to learners in varied and specific situations. The learner should then try the concepts in situations different from those in which they were originally learned.

12. Learners remember new material which conforms with their previous attitudes better than they remember new material that opposes their previous attitude.

13. Learning is aided by formulating and asking questions that stimulate thinking and imagination.

Implication for Teacher Training. These accepted principles of learning suggest several components for an effective preservice and inservice training program which would assist acquisition of skills and knowledge necessary to teach mainstreamed students. Such a program would: (1) be offered as a result of self-perceived teacher need; (2) not be manditory; (3) be designed with teacher assistance;

(4) be activity oriented with the opportunity of working directly with mildly handicapped students: (5) encourage discovery, inquiry and the implementation of success oriented plans; and (6) take place over a long period of time which would permit the opportunity to implement new ideas in the classroom followed by discussion of the results.

A design, such as suggested, has support from the literature. Rucker (1972) suggested that effective integration of handicapped students into regular education (mainstreaming) would not be achieved without additional training of general education teachers. This position is supported extensively in the literature (eg., Bertness, 1972; Birch, 1974; Blatt, 1972; Deno, 1972; Lord, 1972; Morse, 1972; and Reynolds, 1972). Most contributors to the literature reviewed concerning teacher training of mainstreaming skills offered suggestions on what should be included in such efforts. Among the components most mentioned were: (1) observation and active involvement with handicapped children; (2) process awareness; (3) need awareness; (4) development of sensitivity; (5) identification of needs; (6) use of resources; (7) individualization; and (8) attitudinal change.

Following a California decertification program which placed more than 20,000 mildly mentally impaired students into general education classrooms, Keogh (1976) performed a post hoc investigation of the transition programs utilized by some 250 California school districts. Keogh recommended that the first priority for any mainstreaming effort was the training of general education personnel to deal effectively with exceptional children. Keogh also concluded that a variety of training models must be employed and that there was an urgent need for good

record keeping and additional research.

Concerning the training needs of special versus general educators, Deno (1972) stated that "whatever distinctions can be made between regular education and special education are mainly organizational and not substansive" (p. 12). Deno concluded that general education has been traditionally organized along subject-matter lines according to age-grade expectations. Special education has been organized according to medically-based, handicap-category lines in which subject-matter has been often subordinate to the achievement of humanistic goals. Many contributors to the literature (eg., Anderson, 1972; & Corrigan, 1976) viewed teacher training programs as a process which would bring the philosophies of general and special education closer together. Trippe (1972), however, cautioned that much special education training is related to certification. "The relation of certificate requirements to competencies and skills is based on deduction and expert opinion, not on empirical data. Thus, the selection of elements of special education training for application to regular school personnel requires that careful distinction be made between training that increases competence and training that serves credentialing" (p. 38).

Sherron (1974) concluded after an investigation of inservice programming, that the involvement of teachers in the design of in-service programs is crucial. The first step of this involvement is accomplished through a needs assessment. However, in a technical report concerning mainstreaming inservice needs, McGinty and Keogh (1975) concluded that current needs assessment methodology is limited

and inadequate.

Gable and Gillung (1977) noted that a prerequisite for developing a valid needs assessment device was the identification of specific competencies and skills related to the topic area. In the process of developing a needs assessment model, Gable and Gillung (1977) validated teacher competencies for mainstreaming based upon the work of Strauch (1974) and Ingersoll, Jackson and Walden (1975). Through a testing of forty-five teachers, Gable and Gillung demonstrated validity for teacher self-assessment of personal teaching competency.

In a 1978 investigation, Pecheone and Gable demonstrated further evidence concerning the validity of teacher self-assessment of professional skills. A needs assessment device was designed to measure teacher ability to effectively teach mainstreamed students. The instrument was field tested on sixty-five special educators to establish content and construct validity. It was then administered to 1045 general education teachers. The results of the investigation indicated that the variables of attitude and knowledge were the best indicators (predictors) of inservice training needs.

It can be seen from the literature thus far reviewed, that there is disagreement on the actual relationship between knowledge and experience. However, based on theory or opinion, authors and investigators in the field chose to accept the assumption that specialized training (experience) would have an effect upon knowledge. This led to the tentative research hypothesis that special educators would demonstrate more knowledge concerning the mainstreaming process than general educators would. The accepted principles of learning, although

not all empirically demonstrated, can be used to formulate a structure for providing preservice and inservice teacher training concerning mainstreaming. Finally, the literature supports a body of identified competencies necessary to effectively teach mainstreamed students and provides evidence of the validity of teacher self-assessment as a means of identifying subject knowledge.

Attitude

Perspective. Triandis (1971) postulates four reasons which may reinforce the existence of attitudes in an individual. First, attitudes assist the individual to understand his environment, by organizing and then simplifying the very complex imputs which are constantly sent to him by tradition, media, personal communications, et cetera. Second, attitudes assist the individual in protecting his sense of self-worth and esteem by avoidance of the recognition of unpleasant self-truths. Third, attitudes assist the individual to adjust to a complex environment by increasing the likelihood of reacting to stimuli in such a way which maximizes the probable rewards from the environment. Fourth, attitudes permit the individual to express fundamental values in a socially acceptable manner.

In an investigation of teacher attitudes toward mainstreaming following an inservice practicum experience, Schorn (1976) defined teacher attitude toward mainstreaming as a relatively enduring organization of beliefs concerning children with various types and degrees of handicaps. According to Schorn, these beliefs predispose a teacher to either accept or reject handicapped children into the educational

mainstream.

Overline (1977), after an investigation of teacher attitudes toward mainstreaming concluded that "by rejecting responsibility for the education of handicapped children in the regular classroom, the teacher is able to protect personal self-esteem by minimizing the opportunity for (potential) failure". By displaying negative behavior, stated Overline, the teacher can maintain reinforcement of commonly held public attitudes toward the handicapped (p. 13).

Research of teacher attitudes in relation to many different variables is well documented in the literature (eg., Manske, 1936; Mason, 1942; Moffitt, 1832). Within the field of special education, research on teacher attitude has been extensive. Teacher attitude toward categorical handicapping conditions has been the primary area of investigation. (eg., Baldwin 1958; Brophy & Good, 1970; Bryson, Groff & Bardo, 1974; Cassidy & Stanton, 1959; Fleming & Anttonen, 1971; Goldberg, 1972; Good & Brophy, 1972; Haring, Stern & Cruickshank, 1958; Kester & Lectchworth, 1972; Lippman, 1972; Murphy, Dickstein & Dripps, 1960; Panda & Bartel, 1972; Silberman, 1969: Smith & Greenburg, 1975).

Attitude Toward Mainstreaming. A variety of investigations have also been carried out examining teacher attitude toward mainstreaming (eg., Birch, 1974, 1976; Budoff & Gottlieb, 1976; Gickling & Theobald, 1974; Goodman, Gootlieb & Harrison, 1972; Gottlieb & Barker, 1975; Haring & Cruickshank, 1954; Johnson, 1961; Lilly, 1971; MacMillan & Becker, 1977; Overline, 1977; Payne & Murray, 1974; Redden, 1976; Shotel, Iano & McGattigan, 1972; Towne, Joiner & Schurr, 1967). As a

whole, these and similar investigations chose to define mainstreaming in terms of specific categorical conditions (eg., integration of mildly mentally handicapped, mainstreaming the physically handicapped) indirectly through the choice of study design or instrumentation. Investigation of teacher attitude toward mainstreaming as a process is limited. To develop a needed perspective, the most pertinent efforts are briefly reviewed.

In a 1967 study of the effects of labeling on the attitudes of educators toward handicapped children, Combs and Harper demonstrated that general education teachers did not possess positive attitudes toward mentally impaired students in regular classes, and were even less accepting of children with psychotic disorders. Conversely, Shotel, Iano and McGettigan (1972) found the mentally retarded to be the least preferred. Other studies of the effects of labeling have indicated a variety of "most preferred" types of students to have in a regular classroom. After a comprehensive review of these investigations, Kaufman, Semmel and Agard (1977) concluded that since handicapped students were generally placed in special classes because regular education found it too difficult to meet the student's educational needs within that environment, there would be little reason to assume that handicapped students would be welcomed back to the regular class without teacher reservation (p. 22, Section 6).

In a study conducted in Tennessee, Gickling and Theobald (1975) found that 49% of the 230 general education teachers surveyed felt imposed upon to help special education students. Of this population, 61% of the teachers indicated the opinion that special classes were

the most appropriate placement for mildly handicapped students. In a study of teacher attitudes toward the mainstreaming of mentally impaired students following one year of mainstreaming experience, Shotel, Iano and McGettigan (1972) found that the teacher's attitudes had become more negative than the year prior to mainstreaming.

Contrary to the findings of Shotel, Iano and McGettigan (1972), Overline, (1977) found in an investigation of 264 California educators that positive attitudes expressed toward mainstreaming increased following a minimum of one year of mainstreaming experience. Overline also concluded that teachers from rural areas demonstrated more positive attitudes toward mainstreaming (categorically labeled students) than did teachers from suburban or urban areas.

In a major study of mainstreaming in districts throughout Texas, Kaufman, Semmel and Agard (1977) found that as a group, teacher attitude toward mainstreaming of mentally impaired students was "somewhat" positive following experience with the process, although variations were identified among teacher sub-groups. Kaufman, et al, also found little difference in the overall attitudes as expressed by general and special educators. The investigation found that teachers with large classes (forty or more students) had a more negative attitude than teachers who had smaller classes. It also was shown that teachers who placed importance on a structured, controlled environment, or who supported more traditional authority tended to be least enthusiastic about mainstreaming.

Concerning the attitudes expressed by special education teachers and general education teachers, Lane (1976), and Moore and Fine (1978)

report different findings than those given by Kaufman et al. In an investigation of preservice special and general education teachers, Lane concluded that an academic background in special education could reduce negative attitudes toward categorical labels and stereotypes. Similar findings were reported by Payne and Murray (1974) and Kraft (1973). Moore and Fine (1978) administered the Leary Interpersonal Checklist and a fifteen item multiple choice instrument measuring attitude toward mainstreaming to sixty-one special and general education teachers. Moore and Fine found the attitudes of special education teachers to be significantly higher than those expressed by general education teachers. It should be noted that the authors did not offer evidence of validity or reliability for the attitudinal instrument for mainstreaming.

Warren and Turner (1966) found significant correlations between the attitudes expressed toward categorical disabilities by professionals and college students, and their educational background and work experience. Distinct differences in the effect of these variables were also reported by Condell and Tonn (1965). These investigators found that special education teachers held the most positive attitudes, followed by experienced general education teachers. The least positive attitudes were expressed by inexperienced college students.

It should be pointed out that the literature suggests an additional variable which may increase a negative perception of the mainstreaming process among some general education teachers. As has already been discussed, the federal government initiated funding of specialized teacher training programs to increase the availability of categorical

programs for handicapped students. The assumption was made that only highly specialized professionals could teach exceptional children. Standard (1976) stated "Too many teachers have been instructed, have been taught and convinced that one of their professional duties is to identify, locate and assist in the placement of exceptional children in special classes. We have been trained to exclude rather than to include and accept" ((p. 143). One could logically conclude that the equilibrium of past regular teacher beliefs and new educational expectations has been disrupted.

From a review of the literature concerning teacher attitudes toward mainstreaming, several conclusions can be made: (1) Teacher attitude is an important consideration when viewing the mainstreaming process. (2) Attitudes are perpetuated primarily to enable the individual (ie., the teacher) to remain in a state of internal and external harmony with the environment. (3) There is some disagreement as to the extent to which teachers perceive the mainstreaming process as being negative or positive. (4) The evidence tends to support the belief that special education teachers hold more positive attitudes toward mainstreaming than do general education teachers. (5) The literature suggests that attitude toward mainstreaming increases with experience and specialized training. (6) The majority of investigations of teacher attitude toward mainstreaming have centered on categorical conditions rather than mainstreaming as a process. (7) Formation of general education teacher attitude toward mainstreaming is in part, the result of conditioning by government, universities and special educators. Based upon these conclusions, a second

tentative research hypothesis was generated which stated that special educators would demonstrate a more positive attitude toward the mainstreaming process than general educators would.

Knowledge and Attitude

The field of social psychology provides ample evidence of a relationship between knowledge and attitude. Early investigators (eg., Cantril, 1940; Hovland, 1951; Janis & Kelly, 1953; Janis, 1954; Janis & Feshbach, 1953; and Siegel & Siegel, 1957) examined knowledge (information) as it related to attitudinal change in such areas as communication, persuasion, propaganda, motivation and brainwashing. These, and subsequent investigators, found that subject attitude could be successfully manipulated by the introduction of selected information. Krech and Crutchfield (1965) concluded that "the effectiveness of new information in changing the person's attitude is dependent upon the way the source of information is perceived (credibility), the manner in which the information is presented, and the characteristics of the perceiver" (p. 667).

Relationship to Teacher Training. Lewis (1972) in speaking of teacher training stated, "Whether or not increased knowledge leads to greater acceptance depends upon the knowledge transmitted, how it is transmitted, and the attitudes of those doing the transmitting" (p. 48). It is logical to conclude that the principles of learning, as outlined earlier, have a significant influence on the relationship between knowledge and attitude.

Horne (1979) stated after an extensive review of the related

literature, that the significance of the effect teacher attitudes have on disabled students has prompted researchers to explore the relationship between information (knowledge) about handicapping conditions and attitude. Thus, known studies examining the relationship between knowledge and attitudes have been limited to knowledge of categorical conditions. However, there are implications of such studies which have bearing upon this investigation and the issue of teacher training.

Methodology. Among the most widely used methods for attempting to modify teacher attitude have been the use of films, video tapes, cassettes, lectures, discussions, observations, contact experiences, reading materials and combinations of these. Lewis (1972) concluded that one method was not necessarily better than another, and that the method employed was often dependent upon the availability of resource materials and the characteristics of the audience.

Anthony (1972), following a review of several attitudinal studies, concluded that providing either information, or contact experiences alone would not have an affect upon attitudes. If the goal of a program is to change attitudes, Anthony stated, then both elements must be present in the program. His contention is supported by investigations concerning rehabilitation counselors (Anthony, 1969; Anthony & Carkoff, 1970).

In a discussion of preservice training, Lewis (1972) stated:

> "Rather than assuming that additional knowledge will result in improved attitudes, some deliberate planning for achieving this goal is needed. Attitude tests should be administered prior to and following learning experiences. Field trips should be arranged to enable prospective teachers to view handicapped

> children who are learning in regular schools. If no good illustrations are readily available, a film or a video tape may be used. Prospective teachers should be encourage, through group sessions, to explore their own and other people's attitudes toward handicapped children. Finally, prospective teachers should have an opportunity to work directly with a few handicapped children under supvervision to assure that the learning experience is good for the children, as well as, the prospective teacher" (p. 48).

Such a plan has application to inservice programming. Where both information and contact experience have been provided the efforts have been reported as being successful.

An example of such an effort is a program conducted by Glass and Meckler (1972). The purpose of the workshop was to improve the ability of general education teachers to work more effectively with mildly handicapped students in the regular classroom. The participants were involved in planning, given instructional sessions, taught handicapped students, and attended parent group meetings. The findings of the post workshop investigation indicated that the teachers felt more competent to teach mildly handicapped students in their classrooms and demonstrated significantly improved attitudes toward the mainstreaming process (students with handicaps). Similar efforts by Brooks and Bransford (1971), Harasymiw and Horne (1976) and Haring (1957) also have been reported to be effective.

Based on a review of the literature pertaining to teacher knowledge and attitudes related to the mainstreaming process, Horne (1979) concluded that:

> "Training programs designed for professionals, peers and parents should be both knowledge and experienced based. Training approaches designed for classroom teachers thus, should provide an interface between their own classroom experiences with students and

> their introduction to new knowledge. Positive attitudinal shifts that in turn facilitate new behavior can occur only if teachers are presented with training experiences that are relevant and that upon implementation, yield observable success."

It appears, that based on the literature concerning the relationship of knowledge and attitude, that the theoretically assumed relationship has some empirical basis depending upon the type of training (knowledge) offered. Disappointing results of some programs are noted when training techniques exclude direct experience with handicapped children. However, a relationship seemed to have been demonstrated in training efforts which combined both information and contact experiences, as increased knowledge appeared to have a positive impact upon teacher attitudes toward the handicapped student. This led to the generation of the third tentative research hypothesis which examined the relationship between knowledge of the mainstreaming process and attitudes expressed toward that process.

Conclusions

Based upon this review of the literature pertaining to the historical and current status of the mainstreaming issue, the following conclusions can be made: (1) Mainstreaming is a controversial issue which is directly related to contemporary problems in American society. (2) Research on the topic area is limited and based upon the historical precedent of categorical examination. (3) There are accepted principles of learning from which training programs can be designed to increase teacher knowledge of the mainstreaming process. (4) Authorities assume that specialized training will increase usable

knowledge in the field. (5) The efficacy of self-assessment of professional competencies can be accepted. (6) Positive attitudes toward mainstreaming can be expected to increase with experience and specialized training. (7) There is disagreement as to the actual attitudinal position of general education teachers toward mainstreaming. (8) There appears to be agreement that specialized training (knowledge) can have a positive effect upon attitude if the structure of the training program reflects certain elements which are based upon known principles of learning.

These conclusions, when viewed together with information obtained through field interviews of professional educators provide the rationale for the research hypotheses presented at the beginning of Chapter III.

CHAPTER III

METHODOLOGY

Research Design

This investigation was designed to obtain information on the current status of specified variables related to the concept of mainstreaming. The relationship between these variables were then examined. The descriptive research design was deemed the most appropriate approach for this study. Information was gathered by on-site survey techniques. Two separate instruments were designed and administered to measure the variables under investigation. A modified sample methodology was utilized to identify representative respondents. Relationships and differences were examined through cross-sectional analysis and analysis of variance techniques.

Major Research Hypotheses

Based upon personal experience, field interviews of professionals at the local, state and university levels, and the review of related research and literature, the following major directional research hypotheses were derived from the questions posed in Chapter I.

(1) The current level of self-perceived knowledge of the mainstreaming process, as demonstrated by preservice and certified special education teachers, will be higher than that demonstrated by preservice and certified general education teachers.

(2) Preservice and certified special education teachers will express more positive attitudes toward the mainstreaming process than will preservice and certified general education teachers.

(3) Teachers who demonstrate high self-perceived knowledge of the mainstreaming process will express a more positive attitude toward the mainstreaming process than those teachers who demonstrate a low level of knowledge.

Sub-hypotheses were generated for each of the major hypotheses. These are stated in null form in the discussion of statistical procedures.

Ancillary research questions and hypotheses were analyzed which related the factors of age, sex, level of education, number of years teaching experience, number of years mainstreaming experience, grade level taught and school district size, to the variables of knowledge and attitude. Only findings significant at the .05 level are discussed in Chapter V. All other descriptive statistics concerning these variables are reported in Appendix E.

The remainder of this chapter describes the sample population, sampling procedures, development and testing of instruments, procedures utilized for data collection, and the methods which were used to analyze the data obtained.

Sample-Population Characteristics

The certified teacher sample was drawn from the population of K - 6 grade teachers within the Michigan Region XII area. Region XII is a geographic area designated by the State Board of Education as a center for professional development. The regional center also provides supplementary materials and resources for constituent intermediate and local school districts. Region XII services approximately 4500 elementary special and general education teachers in Barry, Branch, Calhoun, Kalamazoo, and St. Joseph counties. School districts within this region are representative of rural-agricultural, suburban-light industrial, and urban-medium industrial geographic areas. School district student enrollments range from a low of 282 students (Mar Lee School District), to a high of 15,120 students (Kalamazoo Public School District). Two major universities, and three small private colleges provide the region with many of its teaching personnel.

The preservice teacher sample was drawn from the accessible population of second and fourth year teacher education students enrolled in the Professional Development Program at Western Michigan University (WMU) during the winter semester of 1979. Western Michigan University (WMU) has a fulltime equivalent (FTE) undergraduate enrollment of 13,153 students, and a FTE graduate school enrollment of 1,787 students. Michigan residents comprise 89.1% of the total university enrollment. The remainder of the student body is comprised of out-of-state and foreign students. Of the 89.1%, 53.6% of the students

are residents of the southwest Michigan area. The College of Education has a FTE of 1,931 undergraduate students.

Sampling Design

A modified cluster sampling design was utilized to collect research data. Because of the available resources, and the limited scope of this investigation, a cluster design was determined to be the most appropriate (Sudman, 1976). Cluster sampling techniques examine subjects or units which occur in natural groups, rather than individuals at random. Procedural requirements include; (1) that the clusters chosen for study be picked at random, and (2) that once a cluster is chosen, all members of the cluster must be included in the sample. The major problem of this technique is the requirement that each cluster be treated as a single observation. For the purposes of this study, cluster members were treated as independent observations, recognizing the potential bias such a procedure might introduce. In an effort to control this bias, representation was demonstrated through comparison of demographic data between the sample and the population (see Chapter IV).

Preservice teacher samples were drawn from the population as they occurred in naturally formed groups at Western Michigan University. The second year preservice population was defined as occurring in fourteen sections of TEED 250 (Human Growth and Learning). The fourth year preservice population was defined as occurring within nine sections of TEED 450 (School and Society). Selection of preservice

clusters was dependent upon the accessibility of sections where instruments could be administered during scheduled class periods. Three TEED 250 sections (N=29) and four TEED 450 sections (N=84) were sampled.

The certified teacher population was defined as occurring in the 143 elementary public school buildings located within the five county Region XII area. Using a random selection process, twenty elementary buildings were identified. The staffs of these buildings numbered 337. The buildings were located in eleven school districts which, upon visual inspection, appeared to be proportionally and geographically representative of Region XII. A breakdown of this data is included in Chapter IV.

To meet university requirements to assure the rights of human subjects, approval for methodology was obtained from the Human Subjects Approval Committee of the Educational Leadership Department at Western Michigan University in March, 1979. The anonymity of the respondents was protected as no identifying codes for individual responses were used.

Demographic data collected in this investigation included: (1) age; (2) sex; (3) level of education; (4) number of years teaching experience; (5) number of years mainstreaming experience; (6) grade level taught; and (7) district size. The demographic data request form is included in Appendix C.

A potential source of sample bias involved non-responding districts and buildings. It was possible that the districts and buildings which permitted the collection of data on the subject of mainstreaming, may have had a more positive attitude toward this topic than those who

might not have permitted the gathering of data. If the non-sampled districts were sensitive to the mainstreaming issue, an important segment of the population would not have been included in the investigation. Similar bias could have occurred in the preservice sample. Other sources of potential bias concerned situational factors of instrument administration including time of year, time of day, and respondent physical and emotional states during the time of administration.

Instrumentation

Two measurement instruments were designed for use in this investigation. One instrument measured the respondent's perceived knowledge of the mainstreaming process. The second instrument measured the respondent's attitude toward the mainstreaming process. Instrument construction, validation and pilot testing are discussed below.

Rationale for Designing Instruments. During the course of designing this investigation, appropriate instrumentation directly related to the mainstreaming process could not be located. All previous instruments reviewed measured teacher knowledge and/or attitude toward categorical handicapping conditions (emotionally impaired, mentally impaired, visually impaired, etc.), or toward the handicapped generally. These instruments often were used by investigators as an indicator of teacher knowledge and/or attitude toward mainstreaming. It was the opinion of the investigator that the available instruments failed to directly measure the two major variables under investigation. Therefore, it was considered necessary to design and adapt valid and

reliable instruments which would directly measure teacher knowledge and attitude toward the mainstreaming process.

Attitude Toward Mainstreaming Questionnaire (ATMQ)

A six stage process was utilized to develop the Attitude Toward Mainstreaming Questionnaire (ATMQ). These steps were: (1) Identification and validation of categories for item generation; (2) Item generation; (3) Item validation; (4) Instrument construction; (5) Pilot testing; and (6) Statistical analysis. Each of these stages are discussed in the following sections.

Stage I - Identification and Validation of Item Categories. The purpose of this stage was to identify valid categories from which attitudinal statements could be generated. The first step in developing a valid instrument involves an extensive review of the related literature pertaining to the topic under investigation. (Gable & Gillung, 1977). As a result of such a review, thirteen major categories were identified which appeared to adequately describe the mainstreaming concept. This identification procedure was confounded by the absence of an agreed upon definition of mainstreaming among recognized authorities in the literature (Reynolds, 1978; Blacher-Dixon & Turnbull, 1979).

A panel of seventeen experts were requested to consensually validate the thirteen categories. An expert was identified as a professional educator who had demonstrated expertise by either: (1) teaching mainstreaming methodology and concepts at the college level; or (2) had conducted a minimum of four inservice programs on mainstreaming

during the preceding year. Members of the panel included university instructors from the departments of special education, teacher education, and psychology, school psychologists, special education teachers, general education teachers, special education consultants, and school social workers.

The panel was asked to rate each category on a three point Likert scale according to the degree of relevance to the mainstreaming process. A cutoff score of 2.0 or better was established for the panel's rating of relevancy on each category. Inspection of item means identified six primary categories which were judged most relevant to the mainstreaming process. These categories included attitude toward: (1) the mainstreamed student; (2) individualization; (3) mainstreaming philosophy; (4) teacher competency; (5) organization of instruction, materials and instruction; and (6) the relationship between general education and special education.

Stage II - Item Generation. The review of current literature and informal discussions with certified teachers generated an initial list of 210 positive and negative statements concerning the mainstreaming concept. Each item was reviewed for redundancy and clarity, reducing the list to 145 statements. Items were then judgementally clustered into homogeneous categories identified in Stage I.

Five panel members were asked to review the items for; (1) clarity, (2) redundancy, and (3) appropriateness of category placement. Items which were judged either unclear or redundant by two or more panelists were eliminated, reducing the list to 84 items. Twenty-two items were judged to be clear, but inappropriately placed by two or

more panelists. These items were later sorted according to the concensus opinion of four experienced special educators.

A group of fourteen general educators were asked to review the list of attitude statements. On the criteria of clarity, the list was further reduced to 54 items.

Stage III - Item Validation. Fourteen authorities were requested to validate each of the 54 proposed attitudinal statements. Eight of the experts returned the completed validation forms in time for analysis. Two additional forms were returned at later dates, but were not included in the item analysis.

The authorities were asked to rate each item on: (1) content validity; (2) face validity; (3) representativeness; (4) favorableness (positive or negative); (5) inclusion of item in the instrument; and (6) importance of the item (1, 2, or 3). Instructions provided to panel members are located in Appendix A. To remain on the list, an item required 75% acceptance on the first five criteria. A mean score of 1.5 or higher was required for item retention on criteria six. Eight items were eliminated through this process. Two items were added at the suggestion of the authorities.

Stage IV - Instrument Construction. To control the possibility of bias, resulting from order of statement presentation. each item was placed on a card. Respondents were requested to sort each statement into one of five piles which best indicated their feelings concerning that item. The piles ranged from strongly agree (pile 1) to strongly disagree (pile 5). The center pile (3) indicated neutral feelings. Positive statements concerning the mainstreaming process

were scored +2, +1, 0, -1, -2, depending upon the respondent's item placement. Negative statements concerning the mainstreaming process were scored -2, -1, 0, +1, +2.

Twenty-seven negative statements and twenty-seven positive statements comprised the pilot instrument. The instrument was designed for on-site administration to: (1) assist in reducing situational bias; and (2) control rate of participant response.

Stage V - Pilot Test. A pilot test of the attitudinal instrument was conducted in three graduate level education leadership classes at Western Michigan University. The purpose of this test was to: (1) establish administration procedures; (2) determine instrument reliability; and (3) determine the ability of the instruments to discriminate among respondents. This population was chosen on the basis of its accessibility and anticipated representation of Region XII certified teachers. Table 3.1 presents the demographic information on this population.

Examination of Table 3.1 indicates that representation of upper grade teachers is higher than would ordinarily be expected in a normal elementary teacher population. Also, the pilot sample had a higher percentage of respondents who reported post masters graduate work than would be expected in a normal elementary teacher population. Of the 59 original respondents, 13 were not utilized in the analysis as they were either foreign students or professionals who were in fields outside of public K - 12 education.

Table 3.1

Demographic Presentation of Pilot Test Population N = 46

Variable	Frequency	Mean	SD
Sex			
Male	37 %		
Female	63 %		
Position			
Special Education	87 %		
General Education	13 %		
Grade Taught			
K - 2	6.5 %		
3 - 4	4.3 %		
5 - 6	32.6 %		
7 - 8	56.5 %		
Years Teaching		8.1	4.7
Age		33.7	6.5
Years Mainstreaming Experience		3.3	2.9
Level of Education			
B.A.	31.8 %		
M.A.	20.5 %		
M.A. +	47.7 %		

Stage VI - Statistical Analysis Procedures. Analysis for Stages I - IV was confined to consensual agreement, visual inspection of data, and computation of item means and standard deviations. Statistical procedures utilized in Stage V included: (1) computation of item and test scores; (2) frequencies; (3) means; (4) standard deviations; (5) variance; and (6) estimation of alpha reliability (Cronbach's general alpha reliability coefficient and the standardized item alpha coefficient). To ensure that the ATMQ measured a single variable, a factor analysis was performed from data obtained from

the actual investigation sample. Results of this analysis are discussed in Chapter IV. Statistical procedures for Stage V were performed with the Statistical Package for the Social Science (SPSS) at the Western Michigan University Computer Center.

Results of ATMQ Pilot Test. Frequency tables on item responses demonstrated an acceptable range of variability among the pilot population. The spread of scores indicated that the instrument discriminated among respondents.

Item analysis of frequency responses reduced the number of test items from 54 to 40. Any item which demonstrated an absolute frequency of 20% or greater in the neutral category was deleted. Pertinent descriptive statistics for each of the finalized items are presented in Appendix A.1.

Statistical analysis yielded a general alpha reliability coefficient of .90 and a standardized item alpha coefficient of .90. Inter-item covariance had a mean of .22, a range of 1.60, and a variance of .05. Inter-item correlations had a mean of .17, with an item range of 1.30 and a variance of .04. These correlations demonstrate item independence.

Mainstreaming Self-Assessment Competency Scale (MSACS)

Since the concept of mainstreaming is still in the process of being defined and consensually agreed upon, it was difficult to identify valid questions which would reliably measure teacher knowledge concerning the mainstreaming topic. Recent research (Ingersoll, Jackson & Walden, 1975; Laven, 1974; Pecheone & Gable, 1978; and

Strauch, 1974) identified major competencies related to teaching mainstreamed students. Much of this research was directed toward identifying teacher inservice needs.

The most appropriate of the needs assessment instruments reviewed for this investigation was one developed by Pecheone and Gable (1978). The Survey for Identifying Inservice Training Needs was used as the basis of the MSACS. This instrument was originally developed by Strauch (1976) to identify skills needed by special education teachers to work effectively with mildly handicapped students. Pecheone and Gable adapted this instrument to assess the teacher competencies needed by general education teachers to work effectively with mildly handicapped (mainstreamed) students. The investigators employed a two-step content validation process utilizing 84 special education teachers and 18 special education experts. This process reduced the original 110 items to 65 items.

Pecheone and Gable established construct validity through factor analysis following administration of the instrument to 1,045 general education teachers. Results of factor analysis reduced the instrument from 65 items to 51, and increased the original five factors to eight factors. These categories were: (1) Record Keeping and Evaluation; (2) Developing Goals and Objectives; (3) Selection and Use of Assessment Instruments; (4) Curriculum Development; (5) General Knowledge; (6) Communication; (7) Individualizing Instruction; and (8) Utilization of Primary Resources. Alpha reliabilities obtained by Pecheone and Gable ranged from .90 to .91.

Content validity for the Mainstreaming Self-Assessment Competency

Scale (MSACS) was re-established for use in this investigation. A panel of five mainstreaming authorities were asked to rate the instrument on a five point Likert scale with the assumption that the instrument would be utilized as a self-assessment device to measure perceived mainstreaming competency (knowledge). To be retained, each item required a mean score of 3.0. The original 51 items were subsequently reduced to 48. At the suggestion of the panel, six competencies were rewritten.

Three pilot tests were performed with this instrument utilizing the same pilot groups as described earlier for the Attitude Toward Mainstreaming Questionnaire. Item analysis indicated acceptable discrimination among respondents. Item alpha reliabilities ranged from .91 to .95. Construct validity was re-established through factor analysis of a random sample from the population under investigation. Results of this process are reported in Chapter IV.

It should be noted that the validity of this instrument was directly related to the honest self-assessment of the respondents. Respondent honesty was encouraged by: (1) ensuring anonymity, and (2) explanation of the importance of honest responses prior to administration. Based upon observation of the respondents during administration and visual inspection of the coded data, the investigator considered the respondents to be cooperative in the attempt to control this bias. The self-assessment scale, item categorization and factor loadings are included in Appendix B.

General Procedures

Permission to survey preservice teachers was obtained from the Chairman of the Department of Professional Development at Western Michigan University and from the Director of the Directed Teaching Office. Accessibility to available sections was accomplished by personal contact with each of the instructors for the TEED 250 and 450 classes.

Accessibility to identified certified teacher clusters was accomplished through personal contact with each of the eleven superintendents of school districts containing an identified building(s). Each superintendent was provided with: (1) a short description of the proposed investigation; (2) copies of the proposed instruments; and (3) a description of the information which would be provided to each participating district upon completion of the investigation. A copy of this document is included in Appendix D.

Once the support of the superintendent was obtained, personal contact was made with the principals of the identified buildings. Each principal was provided with the identical document which was given to the district superintendent. When permission from the building principal was obtained, a date for instrument administration was scheduled.

Administration of the measurement instruments to preservice teachers took place during the last week of March and the first week of April, 1979. The time of instrument administration was dependent upon class schedule. Certified teachers were surveyed during the

months of April and May, 1979. Administration of the instruments took place during regularly scheduled staff meetings held either in the morning prior to the start of the instructional day, or in the afternoon at the conclusion of the instructional day.

Raw data was hand coded from the data collection packet to a Fortran coding form. Each respondent packet included: (1) the demographic data sheet; (2) five envelopes containing the sorted attitude statements (ATMQ); (3) the MSACS; and (4) free response answers to the question "What concerns do you have related to mainstreaming?".

Coding on the two instruments consisted of recording actual responses. The attitude instrument was forced choice so there were no non-responses. Item non-responses on the MSACS were coded as (1), indicating low knowledge of that item. The open ended responses were categorized into clusters of similar statements.

Statistical Procedures

The research hypotheses were tested inferentially in the null form. The research hypotheses were either supported or found to be inconclusive based upon descriptive statistics. The statistical procedure utilized to test the null form hypotheses 1-7 was the two-way analysis of variance (ANOVA). The Pearson product moment correlation coefficient was used to test hypothesis 7. Ancillary factors were analyzed with the one-way analysis of variance. The .05 level of significance was used to test all null hypotheses. All statistical procedures were computed with the Statistical Package for the Social Sciences (SPSS)

at Western Michigan University.

Statements of the major research hypotheses and corresponding null hypotheses comprise the remainder of this chapter.

First Research Hypothesis. The current level of self-perceived knowledge of the mainstreaming process, as demonstrated by preservice and certified special education teachers will be higher than that demonstrated by preservice and certified general education teachers. The belief underlying this hypothesis was that knowledge of the mainstreaming process will increase with experience and specialized training.

Hypothesis 1. There will be no difference in demonstrated self-perceived knowledge of the mainstreaming process between second year preservice teachers, fourth year preservice teachers and certified teachers. The alternate hypothesis states that the demonstrated knowledge between the three sub-groups will not be equal. The statistical test used to test this hypothesis was the ANOVA.

Hypothesis 2. There will be no difference in the self-perceived knowledge of the mainstreaming process between special education teachers and general education teachers. The alternate hypothesis states that the level of knowledge demonstrated by special education teachers will differ from that demonstrated by general education teachers. An ANOVA was utilized to test this hypothesis.

Hypothesis 3. There will be no interaction effect related to self-perceived knowledge of the mainstreaming process between investigated sub-groups according to experience, as determined by level of education, and specialized training, as determined by either general education or special education training. The alternate hypothesis

states that an interaction effect may occur between at least one pair of sub-groups under investigation as the result of experiences and/or specialized training. The statistical test used to test this hypothesis was the ANOVA.

Second Research Hypothesis. Preservice and certified special education teachers will express more positive attitudes toward the mainstreaming process than will preservice and certified general education teachers. This hypothesis was based on the belief that experience and increased specialized training would result in a more positive attitude toward the mainstreaming process.

Hypothesis 4. There will be no difference in the expressed attitude toward the mainstreaming process between second year preservice teachers, fourth year preservice teachers and certified teachers. The alternate hypothesis states that the expressed attitudes of the three sub-groups will not be equal. An ANOVA was used to test this hypothesis.

Hypothesis 5. There will be no difference in the expressed attitudes toward the mainstreaming process between special education teachers and general education teachers. The alternate hypothesis states that attitudes expressed toward mainstreaming by special education teachers will differ from those expressed by general education teachers. The statistical test utilized to test this hypothesis was the ANOVA.

Hypothesis 6. There will be no interaction effect related to expressed attitudes toward the mainstreaming process between investigated sub-groups according to experience, as determined by level of

education, and specialized training, as determined by either general education or special education training. The alternate hypothesis states that an interaction effect may occur between at least one pair of sub-groups under investigation as the result of experience and/or specialized training.

Third Research Hypothesis. Teachers who demonstrate high self-perceived knowledge of the mainstreaming process will express a more positive attitude toward the mainstreaming process than those teachers who demonstrate a low level of mainstreaming knowledge. The belief which underlies this hypothesis was that if an individual is knowledgeable of a specific topic, it is expected that the individual will hold a positive attitude toward that topic.

Hypothesis 7. There will be no significant relationship between teachers who demonstrate high self-perceived knowledge concerning the mainstreaming process and teachers who express positive attitudes toward the mainstreaming process. The alternate hypothesis states that there will be a positive relationship between the level of knowledge demonstrated about the mainstreaming process and the expressed attitude toward that topic. The statistical test used to test this hypothesis was the Pearson product moment correlation coefficient.

Ancillary Hypotheses. The one-way analysis of variance was used to study the differences between the following factors: (1) age; (2) sex; (3) district size; (4) grade taught; (5) level of education; (6) years teaching experience; and (7) years mainstreaming experience.

CHAPTER IV

SAMPLE REPRESENTATION AND INSTRUMENT ANALYSIS

Introduction

Chapter IV continues the sequential presentation of information pertinent to the organization of this investigation. Presented in Chapter III were rationale for utilizing a modified cluster sampling methodology. Concerns about potential bias resulting from this technique were discussed. Therefore, a detailed examination of the actual sample and its representation of a larger population was appropriate. This discussion comprises the first major section of this chapter.

A rationale for developing instruments was also discussed in Chapter III. The second section of this chapter presents the results of the statistical analysis employed to demonstrate reliability and validity of the AMSQ and the MSACS. Results of hypothesis testing are presented in Chapter V, while conclusions, implications and recommendations are discussed in Chapter VI.

Characteristics of Sample Population

Obtained Sample. One major concern expressed in Chapter III was the potential bias presented by participating buildings in the investigation. Summarized in Table 4.1 are the demographic characteristics of the identified sample buildings and of the buildings actually sampled.

Table 4.1

Sample Building Demographics

Building	County	District Size	Geographic Designation	Level of Mainstreaming	Assigned Staff	Staff Sampled	Percent Sampled	Percent of Sample
A	Barry	4000-8999	Urban	1*	26	23	88.5	6.8
B	Branch	0-3999	Rural	1	28	27	96.4	8.0
C	Calhoun	9000+	Urban	1	20	17	85.0	5.0
D	Calhoun	9000+	Urban	1	12	11	91.7	3.3
E	Calhoun	9000+	Urban	1	17	16	94.1	4.8
F	Calhoun	0-3999	Rural	3	14	10	71.4	3.0
G	Calhoun	0-3999	Rural	3	12	10	83.3	3.0
H	Calhoun	4000-8999	Suburban	1	14	0	0	(4.2)
I	Calhoun	4000-8999	Suburban	2	13	0	0	(3.9)
J	Calhoun	0-3999	Suburban	1	16	12	75.0	3.6
K	Kalamazoo	9000+	Urban	2	12	10	83.3	3.0
L	Kalamazoo	9000+	Urban	2	13	0	0	(4.2)
M	Kalamazoo	9000+	Urban	3	5	4	80.0	1.2
N	Kalamazoo	9000+	Suburban	1	28	20	71.4	5.9
O	Kalamazoo	9000+	Suburban	1	28	21	75.0	6.2
P	Kalamazoo	0-3999	Rural	1	25	14	56.0	4.2
Q	St Joseph	0-3999	Suburban	1	15	15	100.0	4.5
R	St Joseph	0-3999	Suburban	1	19	19	100.0	5.6
S	St Joseph	0-3999	Suburban	1	13	8	61.5	2.4
T	St Joseph	0-3999	Suburban	2	7	7	100.0	2.1

* Note: Level of Mainstreaming; (1) actively involved; (2) moderate involvement; (3) minimal involvement

Identified in Table 4.1 are twenty elementary public school buildings which were randomly selected from the Region XII area. Five counties are represented by districts of varying sizes and geographic designations. Thirteen of the twenty buildings actively mainstream students assigned to special education classrooms within those buildings. Four of the remaining seven buildings have students who are assigned to general education classrooms, but receive supportive services from itinerent special education personnel. The remaining three buildings have minimal or no experience with the mainstreaming process, as one is a residential treatment center, and two have handicapped students serviced at other buildings within the county.

Examination of Table 4.1 indicates that 337 certified personnel were identified as potential respondents. Of this figure, 72.6% (n=245) actually participated in the investigation. Building L (4.2%, n=13) had been scheduled for instrument administration, but was cancelled due to an unanticipated building emergency. A lack of time prior to the conclusion of the academic year prevented the rescheduling of this building. The building administrator offered to have the staff complete the instruments individually. This offer was not accepted due to the administration procedures outlined in Chapter III.

Buildings H and I (8.1%, n=27) were both located in a single district. The request for access to certified personnel was rejected by the Superintendent. The Superintendent indicated an interest in the investigation, but stated that the district was encountering financial difficulties. These difficulties had necessitated the

notification of many teachers that their employment with the district might be terminated. It was his opinion that asking the staff to participate in an investigation, at that time, would be inappropriate.

An additional 16% (n=54) of the identified population did not complete the instruments. A variety of reasons were identified including illness, prior appointments and conflicting meetings within a district. Three of these potential respondents refused to complete the instruments because administration was not held on a scheduled faculty meeting day. Because of limitations imposed by time, no effort was made to reschedule administration for individual staff members who did not complete the instruments.

It would appear from the preceding discussion concerning non-respondents, that sample bias did not occur as the result of predisposed attitudes toward the topic under investigation. However, it should be indicated that since all units within the identified clusters were not sampled, an assumption of this sampling methodology was violated.

Generalizability of Sample

Another concern expressed in Chapter III was the representativeness of the sample to the populations being investigated. Tables 4.2 and 4.3 present comparable demographic data for preservice and certified teachers. Each sub-group is examined separately in the following discussion.

Preservice Teachers. Demographic information on the second and fourth year preservice population was limited to: (1) level of

education; (2) sex; and (3) curricular placement. These three demographic variables were collected from the preservice sample and are presented for comparison in Table 4.2

Table 4.2

Comparison of WMU Preservice Elementary Teacher Population with the Obtained Sample

WMU Population (N=885)			Sample (n=115)		
Sophomore (N-306)			Sophomore (n-29)		
General Education	N	%	General Education	n	%
Male	46	15.0	Male	6	20.7
Female	188	61.4	Female	21	72.4
Special Education			Special Education		
Male	7	2.3	Male	0	0
Female	65	21.3	Female	2	6.9
Total	306	100.	Total	29	100.
Senior (N=579)			Senior (n=86)		
General Education	N	%	General Education	n	%
Male	131	22.6	Male	15	17.4
Female	315	54.4	Female	46	53.5
Special Education			Special Education		
Male	7	1.4	Male	1	1.2
Female	125	21.6	Female	24	27.9
Total	579	100.	Total	86	100.

Population data obtained from the WMU Registrar's Office, Winter Semester, 1979.

Inspection of Table 4.2 yields the following information. Sample representation of sophomores enrolled in a general education curriculum exceeded the actual population for both males and females (sample = 93.1%, population = 76.4%). Conversely, sophomore representation of special education enrollment was significantly lower than the population studies (sample = 6.3%, population = 23.6%). This variance may be explained by the low number of sophomores accessible for sampling (9.5%).

Almost 15% of the fourth year preservice (senior) population was sampled. Acceptable sample representation of the senior population is demonstrated in Table 4.2.

Combining second and fourth year preservice teachers into one group resulted in a 76.8% general education enrollment for the population, and 76.5% for the sample. Similarly, the percentage of males in the preservice population was 21.7, as compared to 19.1 in the sample. Therefore, it is concluded that the preservice sample is representative of the preservice population.

The average age for the preservice sample was 22.3, with a range from 19 to 50 years of age. No age data was available for the preservice population.

Certified Teachers. Demographic information for the Region XII certified elementary teacher population was not available. Therefore, demographic comparisons were based on data obtained from the Michigan State Department of Education, Division of Teacher Certification for all elementary teachers in the state of Michigan. Demographic information available for comparison included: (1) level of education;

(2) sex; (3) average age; and (4) average years teaching experience. These variables are presented in Table 4.3.

Table 4.3

Comparison of Demographic Information
For Elementary Teachers in the State of Michigan
with Region XII Elementary Teacher Sample

Michigan Elementary Teachers (N=36,339)			Region XII Teacher Sample (n=245)		
Level of Education	N	%	Level of Education	n	%
BS	21,684	59.7	BS	132	53.8
MA	14,405	39.6	MA	69	28.2
MA +	250	0.7	MA +	44	17.6
Sex	N	%	Sex	n	%
Male	6,129	16.9	Male	34	13.9
Female	30,210	83.1	Female	211	86.1
Average Age:	40		Average Age:	37.1	
Average Years Teaching Experience:	12		Average Years Teaching Experience:		11.8

State data obtained from the Michigan Department of Education, Division of Teacher Certification, April, 1979.

Data presented in Table 4.3 indicates a high level of similarity between the state population and the regional sample. It should be noted that the percentages reported for level of education, MA +, are misleading. The state figures reflect "last degree earned", while the sample respondents were asked to report college hours earned over the MA degree. The majority of sample respondents did not hold degrees past the MA level, although many had taken additional college courses once that degree had been obtained.

Additional demographic information collected on the regional certified teacher sample is presented in Table 4.4. No similiar data was available from the State Department of Education.

It is demonstrated in Table 4.4 that the highest percentage of teachers sampled came from districts smaller than 3999 students, and larger than 9000 students. Less than ten percent of the sample was obtained from medium sized districts. This sample compares favorably with the actual building distribution within Region XII. Fifty-one percent of the elementary buildings are actually located in districts with enrollments of less than 3999 students. Twelve percent of the building population are found in medium sized districts, while 37% are located in districts with enrollments which exceed 9000 students. The sample shows representation from grades K - 6, with a slightly higher response from K - 2 teachers. The percentage of special education teachers sampled appears proportional to the percentage of special educators within Region XII. The majority of teachers sampled (65.3%) indicated that they had had a maximum of five years experience with the mainstreaming process.

Table 4.4

Supplementary Demographic
Data Collected From Region XII
Elementary Certified Teacher Sample (n=245)

Category	n	%	n	%	n	%	n	%
District Size:	0-3999		4000-8999		9000+			
	122	49.8	23	9.4	100	40.8		
Grade Teaching:	K-2		3-4		5-6		other [a]	
	80	32.7	54	22.0	66	26.9	45	18.4
Classification:	Sped.[b]		Gened.[c]					
Years Mainstreaming Experience	0		1-5		6-10		10 +	
	46	18.8	114	46.5	58	23.7	27	11.0

a=other: Includes school social workers, counselors, consultants, special teachers and psychologists.
b=Sped: Special Education
c=Gened: General Education

Statistical Analysis of Instruments

Attitude Toward Mainstreaming Questionnaire (ATMQ). A factor analysis was performed with the responses obtained from the sample under investigation. Iterations were completed for two to nine factors. Results of this process demonstrated consistently high loading on the first factor with high factorial complexity on most items. Few items were identified as being factorially pure. It can be concluded from this procedure that the ATMQ measures a single dimension

rather than two or more independent dimensions or factors. A single factor, attitude toward the mainstreaming process, was measured.

A reliability analysis for the ATMQ was also performed with the investigated sample data. This procedure yielded a general alpha reliability coefficient (Cronbach's) of .93 and a standardized item alpha coeffecient of .93. Item means, standard deviations and item reliability scores are presented in Appendix A.3. Inspection of this table indicates variability among the items.

Mainstreaming Self-Assessment Competency Scale (MSACS). The MSACS was based on constructs validated by Pecheone and Gable (1978) in their instrument Survey for Inservice Training Needs. The SITN was developed to assess the inservice training needs of teachers as it pertained to mainstreaming. In the present investigation, the items generated by Pecheone and Gable were used to measure self-perceived knowledge of the mainstreaming process. Because the intent of the instrument had been altered and several items had been changed and added, it was appropriate to reestablish construct validity. Data obtained from the sample group was utilized to perform a factor analysis procedure.

Appendix B.3 contains the entries from the primary pattern matrix for each of the six factors identified for the MSACS. Items were assigned to a factor according to the following criteria: (1) a loading of .35 or higher; and (2) items loading higher than .35 on more than one factor were assigned to the factor on which they loaded highest. The loading distribution presented in Table B.3 identifies nine items with shared communality and 39 items which demonstrated

low communality with other factors.

Appendix B.4 provides a listing of the item stems which contributed to the naming of each factor. The factor derived categories are briefly described in the following paragraphs.

Factor I was labeled Teacher Instructional Behavior. Items defining this category reflect teacher behaviors which would contribute to the development of a flexible and responsive learning environment. Teachers who rated themselves high on this factor would tend to view themselves as being competent in establishing an instructional program which was responsive to the needs of all students.

Factor II was named Selection and Use of Assessment Instruments. The items defining this factor describe procedures for selecting, developing and utilizing test data for student evaluation. A high score in this category indicates that the teachers perceive themselves as being capable of using these assessment procedures on a regular basis.

Factor III was given the label of Instructional Design and Development. The items within this category are associated with curriculum development and individualized instruction. Teachers who rate themselves high in this area believe that they have the ability to provide an instructional program that is challenging, interesting and appropriate to the individual needs of the mainstreamed student.

Factor IV was entitled Communication and Use of Human Resources. The items comprising this factor are related to communication of information as it pertains to the performance of the mainstreamed student and the utilization of available human resources to assist in

providing educational opportunities to the mainstreamed student. A high score in this category indicates teacher belief that they can effectively communicate about the performance of a mainstreamed student to parents, colleagues and other students, and are capable of utilizing such people as instructional resources both in and out of the classroom environment.

Factor V was labeled Understanding of Special Education Rules and Administrative Procedures. The items in this factor are concerned with rules and procedures related to federal, state and district special education policies. A high score on this factor represents teacher perception of personal knowledge concerning these administrative arrangements.

The final category, Factor VI, was given the label of Design and Use of Individualized Goals and Objectives. The items in this factor relate to the development and implementation of appropriate goals and objectives for the mainstreamed student. Teachers who score high in this category believe that they have the skills necessary to design and implement individualized student goals and objectives.

The six factors described in the preceding paragraphs compare favorably to the five constructs originally postulated by Pecheone and Gable (1978). Those five original constructs were: (1) Planning Instruction for Mildly Handicapped Children; (2) Conducting Instruction for Mildly Handicapped Children; (3) Evaluating and Assessing the Performance of Mildly Handicapped Children; (4) Communication Pertaining to Mildly Handicapped Children; and (5) Professional Development and Information. Table 4.5 visually compares the factor derived

categories and item placement for the MSACS and the eight factor derived categories and item placement as assigned by Pecheone and Gable on the Survey for Inservice Training Needs (see Chapter III for a description of this instrument).

The similarities of the factor derived scales and the item placement between the SITN and the MSACS are demonstrated in Table 4.5. Several factors are identical. Visual analysis suggests that Factors VII and VIII on the SITN could be collapsed into Factors I and IV of the MSACS. Expansion of Factors I and IV on the MSACS could not be achieved through the factor solution procedure as such an attempt resulted in a significant increase in multi-factor communality.

An analysis of reliability was performed on the MSACS utilizing the investigated sample. This procedure yielded a general alpha reliability coefficient (Cronbach's) of .97, and a standardized item alpha coefficient of .97. Item means, standard deviations and item reliability scores are presented in Appendix A.3. Total test statistics are presented in Appendix A.4.

Table 4.5

Factor Derived Scales and Category Placement from the Survey for Inservice Training Needs and the Mainstreaming Self-Assessment Competency Scale*

Survey for Inservice Training Needs			Mainstreaming Self-Assessment Competency Scale		
	Factor Derived Scales	Item Numbers		Factor Derived Scales	Item Numbers
I	Record Keeping and Evaluation	1, 2, 3, 4, 5, 6, 32	I	Teacher Instructional Behavior	1, 32, 34, 40, 41, 42, 43, 47
II	Developing Goals and Objectives	8, 9, 10, 11, 12	II	Selection and Use of Assessment Instruments	2, 3, 4, 5, 13, 14, 15, 16, 18
III	Selection and Use of Assessment Instruments	13, 14, 15, 16, 18, 39	III	Instructional Design and Development	6, 7, 19, 20, 21, 22, 23, 24, 25, 26
IV	Curriculum Development	19, 20, 21, 22, 23 24, 25, 26	IV	Communication and Use of Human Resources	33, 35, 36, 37, 38 39, 44, 45, 46, 48
V	General Knowledge	7, 27, 28, 29, 30 31, 33	V	Understanding of Sped. Rules/Admin. Procedures	27, 28, 29, 30, 31
VI	Parent Communication	34, 35, 36, 37 38, 39	VI	Design and Use of Individualized Goals and Objectives	8, 9, 10, 11, 12
VII	Individualizing Instruction	40, 41, 42, 43			
IIX	Utilization of Primary Resources	33, 44, 45, 46			

* Items eliminated from the SITN by expert opinion are not included in this table.

CHAPTER V

STATISTICAL ANALYSIS

Introduction

The results of the statistical analysis for hypotheses 1-7 and the ancillary hypotheses are presented in Chapter V. The first six hypotheses were tested with the two-way analysis of variance (ANOVA). Hypothesis seven was tested with the Pearson product moment correlation coefficient. All ancillary hypotheses were tested with the one-way analysis of variance. All hypotheses were tested at the .05 level of significance.

Presentation of Results

Hypothesis One stated that there would be no difference in the demonstrated knowledge of the mainstreaming process between second year preservice teachers (sophomores), fourth year preservice teachers (seniors) and certified teachers. Based on the results of the ANOVA presented in Table 5.1, this null hypothesis was rejected at the .05 level of significance. The demonstrated knowledge of the mainstreaming process is not equal between the three sub-groups who responded to the MSACS.

The descriptive statistics for hypothesis one are presented in Table 5.2. This information indicates that the sophomores perceived their knowledge of the mainstreaming process as being the lowest among the three sub-groups with a mean MSACS score of 105.8.

Table 5.1

Two-Way Analysis of Variance Knowledge by Level of Education and Type of Teacher Training (General Education or Special Education)

Source of Variation	Sum of Squares	Degrees of Freedom	Mean Square	F Value	Level of Significance
Main Effects	77150.3	3	25716.8	52.943	< 0.001 *
Level of Education	12338.3	2	6169.1	12.700	<0.001 *
Type of Teacher Training	57888.7	1	57888.7	119.176	<0.001 *
2-Way Interactions	8735.9	2	4367.9	8.992	<0.001 *
Level by Type	8735.9	2	4367.9	8.992	<0.001 *
Explained	85886.2	5	17177.2	35.363	<0.001 *
Residual	171952.1	354	485.7		
Total	257838.9	359	718.2		
Valid Cases	360				
Missing Cases	0				

* Significant at the .05 level or below.

The perceived knowledge of seniors and certified teachers were similar, with mean ($\bar{X}$) scores of 135.4 and 129.4 respectively. These statistics are partially supportive of the First Major Research Hypothesis which stated that knowledge will increase with experience. The findings indicate that the growth in knowledge reaches a plateau with increased experience.

Table 5.2

MSACS Descriptive Statistics Breakdown by Level of Education: Sophomores, Seniors and Certified Teachers

Group	Frequency	Mean	Standard Deviation
Sophomores	29	105.8	32.1
Seniors	86	135.4	32.0
Certified Teachers	245	129.5	22.4
Total	360	129.0	26.8

Hypothesis Two stated that there would be no difference in the demonstrated knowledge of the mainstreaming process based on the type of teacher training received, either general education or special education. The analysis presented in Table 5.1 dictated the rejection of the null hypothesis at the .05 level of significance. The perceived knowledge of the mainstreaming process is different between general educators and special educators.

The descriptive statistics for general and special educators who responded to the MSACS are presented in Table 5.3

Table 5.3

MSACS Descriptive Statistics Breakdown by Type of Training: General Education or Special Education

Group	Frequency	Mean	Standard Deviation
General Education	300	123.0	23.3
Special Education	60	159.0	22.7
Total	360	129.0	26.8

Inspection of Table 5.3 indicates that general educators rated their knowledge of the mainstreaming process as being significantly lower ($\overline{X}$ = 123.0) than the perceived knowledge of special educators ($\overline{X}$ = 159.0). These findings support the First Major Research Hypothesis which stated, in part, that special educators would demonstrate a higher level of mainstreaming knowledge than would general educators as a result of their specialized training.

Hypothesis Three stated that an interaction effect would not occur between the investigated sub-groups by the knowledge variable, as a result of either specialized training or experience. The obtained F probability of <0.001 presented in Table 5.1 suggested that this null hypothesis be rejected. It would appear that an interaction effect is present in at least one pair of the sub-groups that responded to the MSACS.

The obtained means and standard deviations for each of the six sub-groups responding to the MSACS are reported in Table 5.4.

Table 5.4

Means and Standard Deviation of the Six Sub-Groups Responding to the MSACS

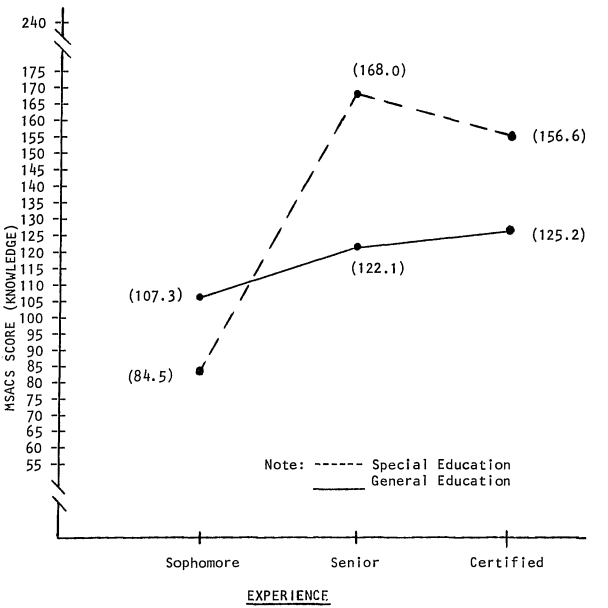
Sub-Group	Number	Mean	Standard Deviation
General Education	300	123.0	26.8
Sophomore	27	107.3	32.8
Senior	61	122.1	26.6
Certified	212	125.2	20.0
Special Education	60	159.0	22.7
Sophomore	2	84.5	0.7
Senior	25	168.0	17.2
Certified	33	156.6	17.6

The six sub-groups investigated were: (1) second year preservice general education teachers; (2) second year preservice special education teachers; (3) fourth year preservice general education teachers; (4) fourth year preservice special education teachers; (5) certified general education teachers; and (6) certified special education teachers. The sub-group means obtained from the MSACS are presented in Figure 5.1 to visually demonstrate the sub-group interaction on the knowledge variable.

Figure 5.1 demonstrates that specialized training, in combination with experience, increases the rate of perceived knowledge of the mainstreaming process. These findings partially support the First Major Research Hypothesis. It appears that experience and specialized training contribute to a higher level of perceived knowledge of the

Figure 5.1

Interaction Effect Between The
Sub-Groups and the Knowledge Variable



Visual Interpretation of the Interaction Effect Between the Type of Training Received (General Education or Special Education) and the Level of Education (Experience) of the Respondents by the MSACS.

mainstreaming process during the preservice training period. This growth in knowledge stabilizes once the teachers become certified.

Hypothesis Four stated that there would be no difference in the expressed attitude toward the mainstreaming process between second year preservice teachers (sophomores), fourth year preservice teachers (seniors) and certified teachers. The results of the ANOVA are presented in Table 5.5. Based on these findings, the null hypothesis was rejected at the .05 level of significance. The expressed attitude of the three sub-groups are not equal.

Descriptive statistics for the three sub-groups are presented in Table 5.6. This table demonstrated that significant differences occur between the three sub-groups responding to the ATMQ. Certified teachers expressed the least positive attitude toward the mainstreaming process ($\overline{X}$ = 9.8). Seniors expressed a slightly higher attitude ($\overline{X}$ = 24.3) than sophomores ($\overline{X}$ = 20.9). These statistics do not support the second research hypothesis which stated that experience as measured by level of education, would contribute to more positive attitudes toward the mainstreaming process.

Hypothesis Five stated that there would be no difference in the expressed attitude toward the mainstreaming process between teachers who received general education training and teachers who received special education training. The findings presented in Table 5.5 called for the rejection of the null hypothesis at the .05 level of significance. The attitudes expressed by the two sub-groups (general educators and special educators) are not equal.

Table 5.5

Two-Way Analysis of Variance Attitude by Level of Education and Type of Teacher Training (General Education or Special Education)

Source of Variation	Sum of Squares	Degrees of Freedom	Mean Square	F Value	Level of Significance
Main Effects	29819.3	3	9939.8	22.948	< 0.001 *
Level of Education	10962.5	2	5481.2	12.655	< 0.001 *
Type of Teacher Training	14922.9	1	14922.9	34.453	< 0.001 *
2-Way Interactions	1436.7	2	718.3	1.658	0.192
Level by Type	1436.7	2	718.3	1.658	0.192
Explained	31255.9	5	6251.2	14.432	< 0.001 *
Residual	153330.1	354	433.1		
Total	184586.0	359	514.2		
Valid Cases	360				
Missing Cases	0				

* Significant at the .05 level or below.

Table 5.6

ATMQ Descriptive Statistics Breakdown by Level of Education: Sophomores, Seniors and Certified Teachers

Group	Frequency	Mean	Standard Deviation
Sophomores	29	20.9	22.5
Seniors	86	24.3	19.9
Certified Teachers	245	9.8	22.4
Total	360	14.2	22.7

The descriptive statistics for general educators and special educators who responded to the ATMQ are presented in Table 5.7.

Table 5.7

ATMQ Descriptive Statistics Breakdown by Type of Training: General Education or Special Education

Group	Frequency	Mean	Standard Deviation
General Education	300	10.9	21.9
Special Education	60	30.4	19.7
Total	360	14.2	22.7

Inspection of Table 5.7 shows a significant difference between the attitude expressed by general educators ($\bar{X}$ = 10.9) toward mainstreaming, and the level of attitude expressed by special educators

($\bar{X}$ = 30.4). These findings support the Second Major Research Hypothesis. This hypothesis stated that teachers who received specialized training would express more positive attitudes toward the mainstreaming process than those teachers who received generalized teacher training.

Hypothesis Six stated that an interaction among sub-groups would not occur on the attitude variable as a result of either experience or specialized training. The findings presented in Table 5.5 appear to support the null hypothesis of no interaction. Therefore, the null hypothesis cannot be rejected at the .05 level of significance. The means and standard deviations for the combination of level of education and type of teacher training are presented in Appendix E.1.

Hypothesis Seven stated that there would be no significant relationship between teachers who demonstrated high perceived knowledge of the mainstreaming process, and teachers who expressed positive attitudes toward the mainstreaming process. A Pearson product moment correlation was performed to test this hypothesis. The resulting correlation coefficient was .41 at the .001 level of significance. Therefore, the null hypothesis was rejected at the .05 level of significance. These findings tend to support the Third Major Research Hypothesis which stated that teachers who demonstrated high perceived knowledge of the mainstreaming process would also express positive attitudes toward mainstreaming.

Ancillary Hypotheses. All ancillary hypotheses were tested with the one-way analysis of variance in an effort to assist the reader in the interpretation of the Major Research Hypotheses. A summary

of the decision rules for each demographic variable tested is presented in Table 5.8. Variables found to be non-significant included: (1) knowledge and attitude with district size; (2) attitude with grade currently teaching; (3) attitude with sex; and (4) knowledge with number of years teaching experience. Analysis of variance tables and descriptive statistics for these variables are included in Appendix E.

Analysis of variance tables, descriptive statistics and brief discussions of the sources of variation for each hypothesis found to be significant at the .05 level are presented in the following paragraphs. Caution is advised in interpreting the degree of significance between sub-groups investigated, as the instruments used were not normed. Therefore, a two point difference may not be highly meaningful. However, a ten point difference between sub-groups may suggest meaningful differences which are worthy of further consideration.

A statistical analysis for knowledge with grade level taught of the respondents is presented in Table 5.9

Inspection of the descriptive statistics presented in Table 5.9 indicate that sub-group labeled Other, obtained the highest score among the four sub-groups. This sub-group included social workers, consultants, counselors and special teachers. The majority of these individuals functioned in a consultant capacity to classroom teachers. Therefore, the perceived knowledge of this sub-group would be expected to exceed that of the classroom teachers. It should be noted that significant differences did not occur between the teachers assigned to specific grade level classrooms.

Table 5.8

Summary Table of One-Way Analysis of Variance
Decision Rules for Ancillary Hypotheses:
Breakdown by Knowledge and Attitude

Category	Obtained F Ratio	F Probability	Decision Rule .05 Level
Knowledge with District Size	0.36	0.70	Accept
Attitude with District Size	1.10	0.34	Accept
Knowledge with Grade Teaching	3.80	0.01	Reject
Attitude with Grade Teaching	1.39	0.25	Accept
Knowledge with Sex	4.18	0.04	Reject
Attitude with Sex	0.09	0.76	Accept
Knowledge with Years Teaching Experience	1.12	0.36	Accept
Attitude with Years Teaching Experience	9.17	< 0.01	Reject
Knowledge with Years Mainstreaming Experience	3.17	0.03	Reject
Attitude with Years Mainstreaming Experience	4.66	< 0.01	Reject
Knowledge with Level of Education	7.94	< 0.01	Reject
Attitude with Level of Education	8.33	< 0.01	Reject
Knowledge with Age	5.94	< 0.01	Reject
Attitude with Age	8.60	< 0.01	Reject

Table 5.9

One-Way Analysis of Variance
MSACS with Grade Level Taught

Sources	Degrees of Freedom	Sum of Squares	Mean Squares	F Ratio	F Prob.
Between Groups	3	5543.4	1847.8	3.003	0.012
Within Groups	241	117091.7	485.9		
Total	244	122635.0			

Descriptive Statistics

Grade Level Taught	Frequency	Mean	Standard Deviation
K - 2	80	127.2	19.6
3 - 4	54	126.7	19.5
5 - 6	66	127.7	23.2
Other	45	139.5	26.8
Total	245	129.5	22.4

The statistical analysis for knowledge with the sex of the respondents to the MSACS are reported in Table 5.10.

The data presented in Table 5.10 indicates that female respondents perceived themselves to be slightly more knowledgeable (+7.92 points) of the mainstreaming process than did male respondents.

Table 5.10

One-Way Analysis of Variance
MSACS with Sex

Sources	Degrees Freedom	Sum of Squares	Mean Squares	F Ratio	F Prob.
Between Groups	1	2972.3	2972.3	4.175	0.042
Within Groups	358	254866.5	711.9		
Total	359	257838.8			

Descriptive Statistics

Sex	Frequency	Mean	Standard Deviation
Male	56	122.3	28.0
Female	304	130.2	26.4
Total	360	129.0	26.8

The statistical analysis concerning attitude and the number of years teaching experience of the respondents is presented in Table 5.11.

Meaningful differences were noted in the descriptive presentation of Table 5.11. It can be seen that as teaching experience increased, positive attitude toward the mainstreaming process decreased. This information supports the findings obtained for hypothesis four, which found that attitude decreased as the level of education increased. Of particular interest was the statistical conclusion reached for hypothesis one where knowledge of the mainstreaming process increased with experience. This demonstrates that high knowledge does not necessarily correlate to positive attitudes. Therefore, support is

weakened for the Third Major Research Hypothesis which stated that positive attitude would be positively correlated with high knowledge.

Table 5.11

One-Way Analysis of Variance
ATMQ with Teaching Experience

Source	Degrees of Freedom	Sum of Squares	Mean Squares	F Ratio	F Prob.
Between Groups	5	20888.6	4177.7	9.169	<0.001
Within Groups	325	148076.5	455.6		
Total	330	168965.1			

Descriptive Statistics

Years Teaching Experience	Frequency	Mean	Standard Deviation
0	84	24.3	20.2
1 - 5	62	18.1	20.0
6 -10	72	9.9	22.1
11 -15	52	9.1	21.1
16 -20	26	4.2	25.5
20 +	35	0.9	21.7
Total	331	13.6	22.6

An examination of knowledge with the number of years mainstreaming experience is presented in Table 5.12.

Table 5.12

One-Way Analysis of Variance
MSACS with Mainstreaming Experience

Source	Degrees of Freedom	Sum of Squares	Mean Squares	F Ratio	F Prob.
Between Groups	3	5990.5	1996.8	3.171	0.025
Within Groups	327	205944.4	629.8		
Total	330	211934.9			

Descriptive Statistics

Years Mainstreaming Experience	Frequency	Mean	Standard Deviation
0	130	133.4	28.7
1 - 5	116	125.4	21.1
6 -10	58	135.7	23.6
10 +	27	133.2	25.0
Total	331	131.0	25.3

This presentation indicates that respondents to the MSACS with one to five years of mainstreaming experience perceived themselves to be less knowledgeable than any other sub-group, including those teachers with less than one year of mainstreaming experience. The mean score difference between these two sub-groups was +8.1 points.

The statistical analysis of attitude with the number of years mainstreaming experience reported by the respondents is presented in Table 5.13.

Table 5.13

One-Way Analysis of Variance
ATMQ with Mainstreaming Experience

Source	Degrees of Freedom	Sum of Squares	Mean Squares	F Ratio	F Prob.
Between Groups	3	6923.1	2307.7	4.657	0.003
Within Groups	327	162041.9	495.5		
Total	330	168965.0			

Descriptive Statistics

Years Mainstreaming Experience	Frequency	Mean	Standard Deviation
0	130	18.5	21.5
1 - 5	116	11.4	22.8
6 -10	58	12.1	21.7
10 +	27	2.8	24.8
Total	331	13.6	22.6

The results of the analysis reported in Table 5.13 are similar to those presented in Table 5.11. The trend which was noted in the descriptive presentation is as mainstreaming experience increased, positive attitude toward that process decreased. As in the examination of attitude with years teaching experience, those teachers with the least mainstreaming experience held the most positive attitude, while those teachers who had the most mainstreaming experience

continued to express the least positive attitude toward the process.

The analysis of knowledge concerning the mainstreaming process with the level of education reported by MSACS respondents is reported in Table 5.14.

Table 5.14

One-Way Analysis of Variance
MSACS with Level of Education

Source	Degrees of Freedom	Sum of Squares	Mean Squares	F Ratio	F Prob.
Between Groups	4	21166.3	5291.6	7.937	<0.001
Within Groups	355	236672.5	666.7		
Total	359	257838.8			

Descriptive Statistics

Level of Education	Frequency	Mean	Standard Deviation
Sophomores	29	105.8	32.1
Seniors	86	135.4	32.0
BA	132	129.1	22.6
MA	69	126.6	20.4
MA +	44	135.0	24.5
Total	360	129.0	26.8

Inspection of the descriptive statistics presented in Table 5.14 yield significant differences among the responding sub-groups. As would be expected, the sophomore sub-group demonstrated the lowest level of knowledge ($\bar{X}$ = 105.8). Seniors assessed their skills

slightly above the MA+ sub-group. There was a slight decrease in the perceived knowledge between the BS and the MA sub-groups.

The presentation of information in Table 5.15 concerns an analysis of attitude with level of education.

Table 5.15

One-Way Analysis of Variance
ATMQ with Level of Education

Source	Degrees of Freedom	Sum of Squares	Mean Squares	F Ratio	F Prob.
Between Groups	4	15844.9	3961.2	8.334	<0.001
Within Groups	355	168741.1	475.3		
Total	359	184586.0			

Descriptive Statistics

Leval of Education	Frequency	Mean	Standard Deviation
Sophomore	29	21.0	22.5
Senior	86	24.3	19.9
BA	132	11.6	21.8
MA	69	7.4	23.1
MA +	44	8.1	23.0
Total	360	14.2	22.7

The data presented in Table 5.15 indicates that the most favorable attitude was expressed by the sophomore and senior sub-groups (means equal to 20.9 and 24.3 respectively). Attitude, as measured by the ATMQ, decreased as the respondents increased in level of education to a low mean score of 7.4 for the MA sub-group.

The analysis of knowledge with age is reported in Table 5.16.

Table 5.16

One-Way Analysis of Variance
MSACS with Age

Source	Degrees of Freedom	Sum of Squares	Mean Squares	F Ratio	F Prob.
Between Groups	4	16171.31	4042.8	5.39	<0.001
Within Groups	355	241667.5	680.8		
Total	359	257838.8			

Descriptive Statistics

Age Sub-Group	Frequency	Mean	Standard Deviation
0 - 20	33	108.0	30.6
21 - 30	163	131.3	29.0
31 - 40	83	131.9	24.2
41 - 50	43	129.1	18.6
50 +	38	131.0	18.5

Review of the descriptive statistics presented in Table 5.16 indicates that the lowest level of knowledge ($\bar{X}$ = 108.0) was demonstrated by the youngest group of respondents to the MSACS. The other four sub-groups earned comparable scores. Therefore, according to these respondents, knowledge increased with age and then leveled off past age twenty. This result is consistent with previous statistical findings.

The analysis presented in Table 5.17 concerns attitude and age.

Table 5.17

One-Way Analysis of Variance
ATMQ with Age

Source	Degrees of Freedom	Sum of Squares	Mean Squares	F Ratio	F Prob.
Between Groups	4	16306.6	4076.6	8.600	<0.001
Within Groups	355	168279.4	474.0		
Total	359	184586.0			

Descriptive Statistics

Age Sub-Group	Frequency	Mean	Standard Deviation
0 - 20	33	20.9	22.9
21 - 30	163	19.8	22.0
31 - 40	83	9.9	20.0
41 - 50	43	7.0	22.0
50 +	38	1.7	23.1

The descriptive statistics reported in Table 5.17 demonstrate that attitude toward the mainstreaming process decreased as the age of the ATMQ respondents increased. The mean ATMQ scores ranged from a high of 20.9 (age 20 and below), to a low of 1.7 (age 51 and above). This statistical conclusion is similar to those reached in the analysis performed for attitude with: (1) teaching experience (Table 5.11); (2) mainstreaming experience (Table 5.13); and (3) level of education (Table 5.15).

Open-Ended Responses

Certified teachers were requested to respond to the question, "What three concerns do you have about mainstreaming?". Eighteen percent (n=46) of the certified teachers sampled responded to the question. Because of this low rate of response, those responses obtained cannot be considered statistically representative of the certified teacher sub-group. Therefore, the open-ended responses are not reported as findings in this chapter. Instead, the responses were arranged into nine categories which reflected the content of the responses obtained. The frequency of responses for each category is reported in Appendix F.

The nine categories generated from the open-ended responses were as follows: (1) There is inadequate preparation and training of teachers to successfully implement mainstreaming; (2) Current class size inhibits teacher ability to meet individual student needs; (3) Supportive services and materials are inadequate; (4) There is inadequate teacher time to meet student needs; (5) Administrative procedures are often ineffective and obstructionist; (6) The normal child suffers as a result of mainstreaming; (7) The special education child suffers as a result of mainstreaming; (8) It is difficult to maintain effective communication with the special education teacher; and (9) Mainstreaming causes excessive work for the general education teacher.

It should be noted that the nine categories generated by the open-ended question all deal in some way with administrative

arrangements for the mainstreaming process. Inspection of item means for the ATMQ presented in Appendix A.3, indicate that the ten items rated most negatively by the total sample also dealt with administrative arrangements. This observation suggests that teachers within Region XII are uncomfortable with procedures related to the implementation process of mainstreaming, as opposed to the concept of mainstreaming.

CHAPTER VI

SUMMARY, CONCLUSIONS AND IMPLICATIONS

Introduction

This concluding chapter is divided into four major sections. Presented in the first section is a brief review of the: (1) problem investigated; (2) the major research hypotheses as generated from the review of the related literature; and (3) methodology utilized to investigate the operational null hypotheses. Research findings are generalized to the identified populations in the second section. The previously stated limitations of the investigation are also reviewed in this section. Presented in the third section are the conclusions based on the findings and limitations. Probable implications to the field of education and recommendations for future study are discussed in the fourth section.

Summary

The concept of mainstreaming, as it related to the integration of mildly handicapped students into general education classrooms, was introduced in Chapter I. Concern about the ability of general education to meet the needs of handicapped students had prompted increased attention on the development of preservice and inservice training programs related to the mainstreaming topic. Designed to increase the knowledge base of general education teachers, these training programs appeared to hold the expectation that increased knowledge would

subsequently improve teacher attitude toward the mainstreaming process. At the time of this investigation, the relationship between self-perceived knowledge of the mainstreaming process, and consequent teacher attitude toward that process was not empirically demonstrated. Therefore, the justification for mandating either preservice or inservice training programs in this area was questioned. The purpose of this investigation was to: (1) provide empirical support for revising current preservice and inservice teacher training programs to increase teacher knowledge of the mainstreaming process; (2) identify factors which might contribute to the controversy between general and special education; and (3) identify specific content areas to be addressed in future preservice and inservice training programs related to the mainstreaming topic.

A review of the literature related to the topic of mainstreaming was completed in Chapter II. It was indicated that the majority of literature on this topic was philosophically, rather than research based. Assumptions were often made without empirical support. The literature which did report empirical findings was most often written by special educators or by professionals in closely related fields other than general education. That research focused on the examination of teacher knowledge and/or attitude toward mainstreaming in terms of categorical handicapping conditions, a tradition established by early pioneers in the field of special education. This investigation departed from tradition in this regard, as mainstreaming was examined as a process, not in terms of specific categorical handicapping conditions.

The review of literature pertaining to knowledge of the mainstreaming process demonstrated that there was disagreement on the actual relationship between knowledge and experience. However, based on theory or opinion, the authors and investigators reviewed, chose to accept the assumption that specialized training (experience) would have an effect upon knowledge. This review, in conjunction with information presented in Chapter I, led to the generation of the first Major Research Hypothesis which stated that special educators, because of their specialized training, would demonstrate a higher level of self-perceived mainstreaming knowledge than general educators would.

Seven conclusions were generated from the review of the literature concerning teacher attitude toward mainstreaming. Among the most critical of the conclusions drawn were that: (1) Positive attitudes toward mainstreaming should increase with experience; (2) Positive attitudes should increase with specialized training; (3) Special educators would hold more positive attitudes than general educators; and (4) There was disagreement as to the extent that teachers view the mainstreaming process as being either negative or positive. Based on these conclusions and information presented in Chapter I, the Second Major Research Hypothesis was formulated. This hypothesis stated that due to experience and specialized training, special educators would express more positive attitudes toward the mainstreaming process than general educators would.

Literature reviewed in the field of social psychology demonstrated an empirical basis for the relationship between knowledge and attitude. Researchers and authors in the area of teacher training and inservicing

failed to demonstrate such a clear relationship, possibly because the experimental controls available to researchers in social-psychology are rarely available within the public school environment. Therefore, within the field of teacher training, the relationship was assumed to be theoretically present. Review of literature in this area demonstrated that the primary interest of researchers has been in investigating specific program components which appear to influence teacher attitude. The literature showed that training efforts which combined both information and contact experiences with handicapped students appeared to have the most positive impact on teacher attitudes toward students with specific handicapping conditions. These conclusions led to the development of the Third Major Research Hypothesis which stated that teachers who demonstrated high knowledge of the mainstreaming process would also express positive attitudes toward that process.

Methods used to investigate the major research hypotheses were presented in Chapter III. The populations investigated included: (1) all certified elementary teachers employed by public school districts within the Region XII area; and (2) preservice education students enrolled in the elementary education curriculum at Western Michigan University. Samples were obtained from these populations using a modified random selection process.

Two instruments were used in this investigation. The ATMQ measured teacher attitude toward the mainstreaming process, while the MSACS assessed perceived teacher knowledge of that process. The efficacy of using a self-assessment instrument to measure perceived knowledge was demonstrated in Chapter II. Described in Chapter III

were the procedures which were used to develop, adapt, validate, and pilot test both instruments. Procedures utilized to gain access to the identified preservice and certified teacher samples, as well as, methods of instrument administration were also discussed in Chapter III.

The third chapter concluded with the presentation of the seven operational null hypotheses, and the ancillary hypotheses. The ANOVA, the Pearson product moment correlation coefficient and the one-way analysis of variance were used to test these hypotheses at the .05 level of significance.

Findings and Discussion

Sample and Population Characteristics. Chapter IV presented the demographic information collected from the sample groups. Visual inspection of the comparison data for the preservice groups indicated acceptable generalizability to the WMU preservice population. The weakest comparison was noted for the sophomore population where the accessible sample was small (3% of the total preservice population). A strong comparison was demonstrated for fourth year preservice teachers. Total preservice sample numbered 115, or 13% of the total population. The sample was determined to be acceptable representative of the preservice population.

Approximately 5% (n=245) of the Region XII certified teacher population was sampled. As demographic information was not available on a regional basis, sample demographics were compared with available data for elementary teachers in the state of Michigan (N=36,339).

Visual comparison of this data demonstrated surprising representation of Michigan teachers by the Region XII sample. The major difference occured in the data obtained for the percentage of teachers at the MA+ level of education. This difference was attributed to methods of data collection rather than misrepresentation of the population. From this analysis, it was concluded that the Region XII sample was representative of all elementary public school teachers in the state of Michigan. Therefore, data obtained from this sample could be generalized to the larger population.

Instrumentation. Analysis of data obtained for the ATMQ indicated that an instrument could be successfully developed which would measure the single variable of teacher attitude toward the mainstreaming process. The validity of this instrument was established through a series of validation procedures utilizing expert opinion. A general alpha reliability coefficient of .93 was obtained on this instrument. If the ATMQ were to be used for further investigation, a norming procedure would be recommended. Although this instrument successfully discriminated between high and low respondents (thus meeting the needs of the investigation), the meaning of an actual score among a series of scores would be difficult to interpret.

Statistical analysis of the MSACS established six factors which identified specific areas of teacher self-perceived knowledge. Both expert opinion and statistical procedures demonstrated the validity of the instrument. A reliability coefficient of .97 was obtained for the MSACS. It can be concluded that the MSACS presents a valid method of obtaining reliable information on teacher self-perceived

knowledge of the mainstreaming process. Similar to the ATMQ, norming would need to be established in order to interpret the specific level of perceived expertise for a given score.

Based upon sample representation and the establishment of valid and reliable instruments, the findings obtained through the use of these instruments permit generalization to the state population of certified teachers. Caution would be advised in generalizing the data to a wider preservice population than that of WMU.

Null and Ancillary Hypotheses. Seven operational null hypotheses related to experience and specialized training were generated from the three major hypotheses. Fourteen ancillary hypotheses examined the effect of such factors as age, sex, and teaching experience with perceived knowledge and expressed attitude toward the mainstreaming process. All hypotheses were tested at the .05 level of significance.

Hypothesis One examined self-perceived knowledge of the mainstreaming process as it related to level of education (experience). Using the ANOVA statistic, the null hypothesis was rejected. It can be concluded that perceived knowledge increases at the preservice level, as the findings indicated a significant increase in knowledge of the mainstreaming process between WMU sophomores and seniors. However, the growth in knowledge levels off following graduation, as the findings indicated a slight decrease in knowledge for certified teachers. Several explanations for this finding are possible. Among these explanations may be: (1) seniors having recently completed four years of coursework, unrealistically perceived their level of knowledge; (2) certified teachers, having had to work directly with

mainstreamed students, assessed their competency realistically; or (3) knowledge increases as the direct result of regular college coursework.

Hypothesis Two tested the effect of specialized training upon perceived knowledge of the mainstreaming process. Specialized training was defined by professional training curriculum, either general education or special education. There were significant differences in perceived knowledge between special educators ($\overline{X}$ = 159) and general educators ($\overline{X}$ = 123). These differences required that the null hypothesis be rejected. It can be concluded that specialized training does have a significant influence upon the perceived knowledge of WMU preservice teachers and on certified teachers in the state of Michigan.

Hypothesis Three investigated the combined effect of experience and specialized training upon perceived knowledge of the mainstreaming process for the six sub-groups investigated. The findings of the ANOVA indicated the presence of an interaction effect among these sub-groups by the dependent variable, knowledge. Therefore, hypothesis three was rejected.

Inspection of Figure 5.1 demonstrates that knowledge for general education teachers increased at a consistent rate from the sophomore through certified teacher level. Special education teachers demonstrated significant growth from the sophomore to the senior level. However, special educator perceived knowledge dropped nearly nine points for certified teachers, although there was still a 26 point difference between the level of knowledge assessed by certified

special education teachers ($\bar{X}$ = 156.6) and that assessed by certified general education teachers ($\bar{X}$ = 125.2). This may help to explain the findings for hypothesis one where the rate of perceived knowledge acquisition leveled off following graduation. In this analysis, certified general educators appeared to continue a slight growth curve, whereas, certified special educators demonstrated a lower level of perceived knowledge than seniors (special education).

It should also be noted that formal special education training does not begin until a student has attained third year (junior) status. Therefore, the perceptions of sophomore level students would be expected to be similar regardless of chosen curricula. The fact that general education sophomores rated themselves 23 points higher than special education sophomores suggests differences between the two sub-groups on variables not investigated. Delay of specialized training also suggests that the training, in combination with experience, increases the rate of perceived knowledge of the mainstreaming process until graduation. At that time, self-estimates of knowledge appear to stabilize, or decrease slightly, depending upon the type of training received.

Hypotheses Four examined level of education (experience) as it related to teacher attitude toward the mainstreaming process. The results of the ANOVA called for the rejection of this hypothesis. Significant differences were noted between preservice teachers and certified teachers. Contrary to what would have been expected according to the literature reviewed earlier, positive attitudes toward the mainstreaming process had a negative correlation with experience.

Inspection of item means for the ATMQ in Appendix A.3, demonstrates that the ten items rated most negatively by teachers all relate in some way to administrative arrangements dealing with the mainstreaming process. This suggests that negative attitudes are directed more toward mainstreaming procedures as opposed to the mainstreaming concept. It can be concluded that positive attitudes expressed by teachers toward the mainstreaming process negatively correlate with experience with mainstreaming procedures.

Hypothesis Five tested the effect of specialized training upon the attitude expressed by teachers toward the mainstreaming process. The null form of this hypothesis was rejected when it was tested with the ANOVA. By inspection of the data presented in Table 5.7, it was seen that special educators held a significantly higher attitude toward mainstreaming than did general educators. Therefore, it can be concluded that specialized training correlated positively with improved attitudes concerning the mainstreaming process.

Hypothesis Six examined the combined effects of experience and specialized training upon the expressed attitude of teachers toward mainstreaming. The findings of the ANOVA test failed to demonstrate measurable interaction among the six sub-groups. Therefore, the null hypothesis could not be rejected. It can be concluded that the combined effect of experience and specialized training does not correlate with differences among any pair of sub-groups which were investigated.

Hypothesis Seven tested the relationship between perceived knowledge of the mainstreaming process with expressed attitudes toward

that process. The null hypothesis was rejected after testing with the Pearson product moment correlation coefficient. This test yielded a correlation coefficient of .41 at the .001 level of significance. It can be concluded that a moderate positive correlation exists between perceived knowledge and attitude toward the mainstreaming process.

Fourteen ancillary hypotheses were tested to assist in the clarification of the findings for the operational hypotheses, and in drawing meaningful conclusions for the three major research hypotheses. All ancillary hypotheses were tested with the one-way analysis of variance.

Table 5.8 presented the decision rule for each of the ancillary hypotheses. Six factors were found to be significant at the .05 level or below when measured with the dependent variable of knowledge or attitude. These significant factors were: (1) grade level taught; (2) sex; (3) number of years teaching experience; (4) number of years mainstreaming experience; (5) level of education; and (6) age.

Grade level taught with knowledge was found to be significant because of the inclusion of consultants, social workers and special teachers within the sub-category labeled "other". No significant differences between grade levels were noted in the descriptive statistics when the sub-category "other" was removed. It can be concluded that one grade level does not perceive itself to be significantly more knowledgeable about mainstreaming than does another.

However, it can also be concluded that instructional personnel not assigned to a specific grade level or classroom will tend to estimate higher self-perceived knowledge concerning mainstreaming than will teachers with assigned classrooms.

Females were found to estimate themselves as slightly more knowledgeable than males. However, the difference is small enough on a non-normed instrument to conclude that the statistical significance is not meaningful.

The conclusion reached for hypothesis four was supported by the findings obtained from the investigation of age, teaching experience, mainstreaming experience and level of education in relation to attitude toward mainstreaming. This is not surprising since these four variables would appear to be highly inter-correlated. Therefore, it can be concluded that as a teacher increases in maturity and experience, expressed attitude toward the mainstreaming process will be negatively correlated. As discussed earlier, these findings are contrary to what would be expected from the literature reviewed.

The same four factors, when tested in relation to perceived knowledge of the mainstreaming process, support the conclusion made for hypothesis one. Self-estimates of knowledge appear to positively correlate with years of preservice training. The self-estimates of knowledge appear to negatively correlate with post graduate experience.

Limitations

Prior to drawing final conclusions for the major research hypotheses it is appropriate to review the limitations presented by this investigation.

The sampling design randomly selected naturally occuring groups (clusters) among the target populations. Unlike the normal cluster sampling procedure, this investigation treated each member of the identified sample group as an individual observation. Additionally, 72% of the identified sample actually responded to the instruments. Information gathered on non-respondents indicated that this group was not biased against the topic being investigated. Non-responses were due to such reasons as illness, time conflicts and time constraints. This was a second violation of the normal cluster design. Even so, based on demographic comparisons, excellent representation was obtained for the Michigan certified teacher population, and acceptable representation was attained for the WMU preservice population. Therefore, the conclusions presented in the following section are generalized to these specific populations. Caution is advised in generalizing to larger populations without further demographic analysis.

The question of interpreting the results of non-normed instruments was raised earlier in this chapter. Generally, a difference of ten or more points was considered to be meaningful for purposes of this investigation. This was an educated estimate based on visual inspection of item descriptive statistics, and not based on statistical

analysis. Interpretation based on actual scores should be minimal.

The reader is reminded that conclusions which are made across time are based on cross-sectional analysis, not longitudinal study. These are correlational, and not cause and effect relationships.

A reminder is also made to the reader that the MSACS measured perceived knowledge of the mainstreaming process. It did not attempt to measure actual knowledge. Therefore, conclusions are based on the self-perceptions of the responding teachers. How well the respondent's perceived knowledge corresponds to actual knowledge of mainstreaming would be the subject of a future investigation.

This investigation did not consider the potential relationship between knowledge, attitude and consequent behavior, although the implications of such a relationship are discussed in the concluding section of this chapter.

Finally, public and parental perceptions related to mainstreaming were not examined in this investigation. Although these variables may have a direct effect upon the development of teacher attitude toward this topic, they were considered beyond the scope of this investigation.

Conclusions

The following section presents the conclusions of each of the three major research hypotheses. These conclusions are based upon the findings previously discussed.

The First Major Hypothesis stated that preservice and certified special education teachers would demonstrate a higher level of

perceived knowledge concerning the mainstreaming process than preservice and certified general education teachers would. This hypothesis was based on the belief that experience and specialized training would result in increased knowledge. Based on the findings discussed earlier, it can be concluded that for preservice teachers, specialized training positively correlates with perceived mainstreaming knowledge. However, this positive correlation decreases or becomes negative once the student has graduated and obtained employment as a classroom teacher.

The findings also indicate a difference in the type of individual who chooses a special education curriculum as opposed to a general education curriculum. These differences prior to specialized training, suggest the presence of other variables which would account for a difference in perceived skills. This investigation does not presume an ability to identify these variables. However, the level of perceived knowledge following the introduction of specialized training might be expected to increase. Therefore, it remains to be seen whether systematic specialized training for general education preservice teachers would positively correlate with perceived knowledge as it does with preservice special education teachers.

The apparent negative correlation between perceived mainstreaming knowledge and post graduate experience suggests that experience and specialized training reach a point of diminishing returns. This is particularly important as special educators appear to have lowered estimates of their skills following graduation. Possible explanations for this phenomenon were suggested in the discussion of the findings

for operational hypothesis one. Additional explanations may include the following: (1) New teachers may have found mainstreamed students, or the mainstreaming process to be more difficult to work with than anticipated; (2) There may be little opportunity to upgrade skills; (3) The consistent opportunity to work with other professionals in solving mainstreaming problems may not be available to the new teachers; (4) Teachers may not perceive a need to increase mainstreaming skills; (5) There may be a decrease in professional enthusiasm; or (6) There may be a lack of administrative support which would enable teachers to increase skills, such as, time constraints, high teacher expectations, and a higher priority placed on other issues.

Based on this discussion, the First Research Hypothesis can be accepted with reservation. The findings indicated that special education status correlated more positively with self-assessments of mainstreaming knowledge than did regular education status. However, the correlations hold only at certain levels. Following graduation, it can be concluded that the correlations will be lower depending upon the type of training received in combination with other variables not investigated.

The Second Major Research Hypothesis stated that special education teachers would express more positive attitudes toward the mainstreaming process than general education teachers would. Similar to the First Major Research Hypothesis, this hypothesis was based on the premise that experience and specialized training would increase positive attitudes toward the mainstreaming process.

The findings indicated that correlations between teacher attitude toward mainstreaming decreased as experience increased, regardless of the type of professional experience received. Similar trends were noted when the factors of age, teaching experience, mainstreaming experience and level of education were examined. These results are consistent with the findings of Shotel, Iano and McGettigan (1972). However, they are contrary to the conclusions reached by Overline (1977) who found positive correlations between attitudes and mainstreaming experience.

The findings indicated that special educators would be expected to express more positive attitudes toward mainstreaming than would general educators. This finding is consistent with the conclusions reported by Lane (1976) who found that specialized training could reduce negative attitudes toward categorical labels. However, the findings are contrary to the conclusion offered by Kaufman, Semmel and Agard (1977) who found no significant differences between the attitudes expressed by general educators and special educators toward mainstreaming mentally impaired students.

It can be concluded that teacher attitudes toward the mainstreaming process negatively correlate with experience, regardless of the type of professional training obtained. A possible explanation for this finding was discussed in the conclusions for operational hypothesis four. By inspection of the ten most negative item means on the ATMQ, it was seen that negative attitudes primarily dealt with administrative arrangements (procedures) for mainstreaming.

Special educators did demonstrate a more positive attitude toward the mainstreaming process than did general educators. However, in view of the findings described, the Second Major Research Hypothesis is accepted with reservation. Experience with the mainstreaming process appears to correlate negatively with teacher attitudes, regardless of the type of specialized training received.

The Third Major Research Hypothesis stated that teachers who demonstrated a high level of perceived knowledge concerning mainstreaming would express a more positive attitude than those teachers who demonstrated low knowledge. The basis of this hypothesis was that amount of knowledge is positively correlated with the expression of positive or negative attitudes.

The review of the findings for operational hypothesis seven indicated that there was some evidence of a relationship between the level of knowledge concerning mainstreaming and the attitude held toward that topic ($r = .41$). The significance of this relationship is diminished by the findings for several of the other operational hypotheses. The most detrimental findings were related to knowledge and attitudes of certified teachers. Even though the level of knowledge for this group correlated positively with experience, the level of attitude correlated negatively with experience for both general and special educators.

Because of this serious contradiction in findings for certified teachers, this hypothesis is accepted with serious reservations. It is concluded that although a correlation between knowledge and attitude

can be obtained with preservice teachers, that same relationship is not obtained with certified teachers. It might be expected that as teachers gain experience with mainstreaming, they will increase their mainstreaming knowledge. However, these self-estimates negatively correlate with attitude toward mainstreaming.

Five general conclusions were generated from the information presented in the previous discussion.

(1) It appears that there is a positive correlation between knowledge and attitude for preservice teachers. Conversely, there is a negative relationship for certified teachers.

(2) Increased perceived knowledge concerning mainstreaming may be negatively correlated with teacher attitude toward that process.

(3) There is evidence that knowledge and positive attitudes might be imparted to people through an organized, ongoing process, such as, preservice teacher education.

(4) Specific needs of certified teachers relative to the mainstreaming process can be identified so future preservice and inservice training in this topic area can be more meaningful and effective. However, the needs of the sub-groups investigated may not necessarily be the same.

(5) Negative attitudes expressed by certified teachers toward the mainstreaming process correlate with items related to administrative arrangements. This suggests that the primary problem concerning mainstreaming may be perceived to be procedural, rather than philosophical.

Implications and Recommendations

These conclusions hold meaningful implications to the field of education and teacher training. It is not enough for teacher training programs to assume that a consequence of increasing the knowledge of teachers in a specific area will result in a positive change in attitude. Such change must be carefully planned for, utilizing all of the technology and principles which have been demonstrated to be effective in changing attitude. In addition, the specific area of mainstreaming is rampant with extraneous variables which may have an equal, if not greater influence on teacher attitude and consequent behavior. Is the teacher being provided with a continuum of services which will help ensure success when working with mainstreamed students? Is the difficulty of providing for the needs of a mainstreamed student seen as a high priority within the district? Is teacher success seen as a high priority among administrators? Are supplementary materials and expert assistance readily available, and is its use freely encouraged? These are just a few of the questions which indicate the presence of external variables which may influence the attitudes of teachers toward the mainstreaming process and perhaps determine the success or failure of the process.

The fact that administrative arrangements appear to be the primary area of discontent among certified teachers suggests that teachers should not necessarily be the primary target of inservice training. Perhaps administrators charged with the responsibility of designing

and implementing mainstreaming procedures should be the target of specialized training in how to design and implement cost effective programs that will meet both teacher and student needs. This is certainly an area worthy of consideration and future study.

The findings of this investigation also suggest that specific sub-groups have different levels of needs concerning the mainstreaming process. For example, inservice programs designed to alter teacher attitudes appear to be more appropriate for teachers with ten or more years of teaching experience. Conversely, knowledge based inservicing would appear to be most appropriate for teachers with five or less years of teaching experience. Therefore, the use of needs assessment techniques to identify appropriate audiences for specific types of training should become a regular procedure utilized by training organizations.

It was also demonstrated that perceived knowledge acquisition concerning mainstreaming correlated most highly with an ongoing specialized training program prior to certification. Such a program includes a knowledge based component, regular contact experiences with handicapped students, and opportunities to discuss and problem solve situations resulting from such experiences. If either preservice or inservice training programs for general educators are to be professionally and financially effective, these three components must be part of the training program on an ongoing basis. This view is supported by the findings of Glass and Meckler (1972), Harasymiw and Horne (1976), and Lewis (1972). Such an effort would take a high level of commitment from not only those receiving the training, but by those

organizations sponsoring the training.

The financial commitment of sponsoring organizations to the training program just described would be significant. A large financial commitment has already been made by the federal government, state legislatures and local school districts to improve the skills of teachers relative to mainstreaming. The majority of existing programs have relied upon either traditional knowledge based college coursework, or single effort awareness sessions. The findings of this investigation indicate that neither method has adequately met the needs of certified teachers. Perhaps it is time to reallocate the financial resources available for professional development to reflect the components of training programs which have already proven to be effective in providing desired knowledge and improved attitudes toward the mainstreaming process. By following this recommendation it is conceivable that the time and money spent in administratively dealing with student, teacher and parent dissatisfaction with mainstreaming may be significantly reduced. As teacher and administrator skills increase, future time and money can be diverted to other issues which will eventually have a higher priority.

Recommendations for Future Investigation. Two recommendations are made for future investigation. A limitation of this investigation involved the measurement of perceived knowledge as opposed to actual knowledge concerning the mainstreaming process. Now that a level of perceived knowledge has been obtained, a comparison with actual knowledge would prove to be relevant and provide additional insight of the findings obtained.

The second recommendation for future study concerns teacher behavior. It is helpful to measure such variables as perceived knowledge, actual knowledge and attitude. However, from the perspective of a behavorial scientist, it is believed that the most important information could be gathered through direct observation and data collection of actual teacher behavior in the classroom. It is through the gathering of information on teacher behavior that the most effective training programs can be developed and tested. Change in teacher behavior is the primary goal of any teacher training program. Yet, empirical data is seriously limited. Thus, the development and evaluation of truly effective teacher training programs are seriously inhibited. Correlational studies will not be sufficient to identify these effective program components. This information will be achieved through experimental research.

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APPENDIX A

Document A.1

Instructions to Validation Panel
Attitude Toward Mainstreaming Questionnaire

The following statements will be used to measure respondent attitudes toward the mainstreaming process. Six major categories were identified by a previous panel of experts from which items were generated. The identified categories were: (1) the relationship between general and special education; (2) the mainstreamed student; (3) organization of materials and instruction; (4) meeting individualized needs; (5) the teacher and mainstreaming; and (6) administrative arrangements for implementing the mainstreaming process. An original list of 210 positive and negative statements were then generated from the literature and from professionals in the field.

The original list was successively reduced to the present 54 statements by professional educators. Attention was given to: (1) relevancy; (2) content; (3) proportion; and (4) construction. Based upon the homogeneity of panelist responses, the current list will be reduced to a maximum of 20 positive, and 20 negative statements. The instrument will then be pilot tested with two groups of 50 professional educators. The forced Q-sort method (5 piles) will be used. An item analysis and a measure of reliability will then be performed.

Please rate each of the enclosed statements on the rating sheets provided. It is understood that your responses are based on personal judgment. Statements should be rated according to the following general criteria.

Content Validity. Is the statement actually representative of the mainstreaming process? Indicate either (yes) or (no).

Face Validity. Is the statement clear and concise? Indicate either (yes) or (no).

Favorableness. Indicate whether this is a positive (+) or negative (-) statement concerning mainstreaming. This is your judgment as to the favorableness or the statement, not your personal attitude toward it.

Include. Do you consider this statement to be valid enough to be included in the attitudinal instrument? Indicate either (yes) or (no).

Importance. If the statement were to be included in the instrument, how highly would you rate its importance? Indicate (1) high, (2) medium, or (3) low.

Please feel free to make marginal comments and suggestions. Thank you for your assistance.

Table A.1

Item Descriptive Statistics
Attitude Toward Mainstreaming Questionnaire
Pilot Test (n=46)

Item Number	Mean	Standard Deviation	Item Number	Mean	Standard Deviation
1	0.09	1.30	21	-1.17	1.04
2	0.70	1.07	22	-0.11	1.06
3	0.91	0.89	23	0.57	1.29
4	0.74	1.29	24	0.50	1.13
5	0.57	1.22	25	0.50	1.07
6	-0.17	1.39	26	0.52	1.09
7	0.48	1.01	27	0.72	1.15
8	0.61	1.27	28	0.70	1.03
9	1.04	0.63	29	0.67	1.10
10	0.70	0.84	30	1.33	0.85
11	0.91	0.92	31	0.13	1.24
12	1.04	0.97	32	0.74	0.86
13	-0.07	1.32	33	1.11	1.08
14	0.24	1.20	34	-0.24	1.30
15	0.83	0.97	35	0.00	1.32
16	-0.20	1.24	36	0.67	0.87
17	0.74	1.00	37	1.11	0.97
18	0.72	1.15	38	1.00	1.05
19	0.39	1.06	39	-0.98	1.06
20	0.07	1.42	40	0.61	1.02

APPENDIX A

Table A.2

Total Test Descriptive Statistics
Attitude Toward Mainstreaming Questionnaire
Pilot Test (n=46)

Mean	19.304	Std. Err.	3.055	Median	19.500
Mode	5.000	Std. Dev.	20.720	Variance	429.328
Kurtosis	.229	Skewness	-0.085	Range	98.000
Minimum	-29.000	Maximum	69.000		
Valid Cases	46	Missing Cases	0		

APPENDIX A

Table A.3

Item Descriptive Statistics
Attitude Toward Mainstreaming Questionnaire
Actual Test (n=360)

Item Number	Mean	Standard Deviation	Item Number	Mean	Standard Deviation
1*	0.03	1.17	21**	-0.91	1.07
2*	0.60	1.02	22*	-0.23	1.16
3*	0.68	0.98	23**	0.39	1.25
4*	0.54	1.19	24*	0.33	1.12
5*	0.40	1.17	25*	0.08	1.13
6*	-0.09	1.35	26*	0.51	1.14
7*	0.19	1.15	27**	0.80	1.01
8*	0.53	1.27	28*	0.85	1.02
9*	0.72	0.98	29*	0.56	1.28
10*	0.43	0.93	30*	1.23	0.80
11*	0.76	0.98	31*	-0.01	1.17
13*	-0.10	1.25	32**	0.58	1.05
14**	0.32	1.26	33**	0.93	1.01
15*	0.76	1.01	34*	-0.39	1.18
16*	-0.25	1.18	35*	0.05	1.30
17*	0.45	1.17	36*	0.98	0.91
18*	0.65	1.05	38*	0.62	0.99
19*	0.32	1.06	40*	0.21	1.19

* Item alpha equals .92
** Item alpha equals .93

Note: The ten most negative items are as follows.
1, 6, 13, 21, 22, 25, 31, 34, 35.

APPENDIX A

Table A.4

Total Test Descriptive Statistics
Attitude Toward Mainstreaming Questionnaire
Actual Test

Mean	14.17	Std. Err.	1.20	Median	15.79
Mode	6.00	Std. Dev.	22.68	Variance	514.17
Kurtosis	-0.53	Skewness	-0.15	Range	119.00
Minimum	-46.00	Maximum	73.00		
Valid Cases	360	Missing	0		

APPENDIX A

Table A.5

Final Instrument
Teacher Attitude Toward Mainstreaming Questionnaire

Respondent Instructions (verbal).

A. Lay out the five white envelopes in numerical order as in the following:

Envelope #1: Strongly Agree
Envelope #2: Agree
Envelope #3: Neutral Feelings
Envelope #4: Disagree
Envelope #5: Strongly Disagree

B. Sort each card into the pile which best describes your personal reaction to, or feelings about the written statement. There are no right or wrong answers. Statements cannot be qualified beyond that which is written on the card. As you progress, feel free to change cards from one pile to another.

C. When you have completed your sorting, place each pile of cards in the corresponding white envelope.

D. Place the five white envelopes into the larger clasp envelope.

A.T.M.Q. Final Instrument

Item Number	Attitudinal Statement	Favorableness to Topic Area Pos. or Neg.
1	Mainstreaming requires an unrealistic amount of teacher preparation time.	Negative
2	Mainstreaming emphasizes the similarities of handicapped students with non-handicapped students	Positive
3	Mainstreaming breaks down the traditional boundaries between general education and special education.	Positive

Continued

Table A.5 (Continued)

Item Number	Attitudinal Statement	Favorableness to Topic Area Pos. or Neg.
4	Mainstreaming is a method of retaining unqualified students in the general education program without effective supportive services or specialized materials.	Negative
5	Students placed into a special education program are often the object of discrimination.	Positive
6	Mainstreaming is an approach which ignores the fact that some students require a more specialized learning program than can be provided in general education.	Negative
7	Mainstreaming provides the most appropriate education for each student in the least restrictive environment.	Positive
8	If I had a choice, I would not participate in mainstreaming.	Negative
9	Mainstreaming unites the skills of general and special educators.	Positive
10	Mainstreaming creates alternatives to assist general education in serving students who demonstrate learning and/or adjustment problems.	Positive
11	Mainstreaming encourages systematic communication between general and special education teachers.	Positive
12	Mainstreaming is a multi-faceted problem which will be resolved by the joint efforts of general and special education teachers.	Positive
13	Teaching in a general education classroom is difficult enough without the additional burden of mainstreamed students.	Negative
14	Mainstreaming will eventually lead to the discontinuation of the self-contained special education classroom.	Negative

Continued

Table A.5 (Continued)

Item Number	Attitudinal Statement	Favorableness to Topic Area Pos. or Neg.
15	Mainstreaming helps to foster positive social attitudes toward the handicapped.	Positive
16	Mainstreaming ensures equal educational opportunities for all handicapped students.	Positive
17	Mainstreaming was designed to save money spent on expensive special education programs by the state and local school districts.	Negative
18	Mainstreaming increases social acceptance of the handicapped student by his/her peers.	Positive
19	Mainstreaming increases social problems among students.	Negative
20	General education teachers should receive a stipend for serving mainstreamed students.	Negative
21	Most general education teachers are not prepared to teach mainstreamed students.	Negative
22	Mainstreaming contributes to excessive teacher stress and anxiety.	Negative
23	It is the sole responsibility of special education to diagnose, prescribe, remediate and evaluate any problems that may be demonstrated by a mainstreamed student.	Negative
24	Integration of handicapped and non-handicapped students is preferable to separate, but equal programs.	Positive
25	Mainstreaming leads to excessive problems in scheduling activities.	Negative
26	General Education teachers should have the ability to design and organize materials for mainstreamed students.	Positive

Continued

Table A.5 (Continued)

Item Number	Attitudinal Statement	Favorableness To Topic Area Pos. or Neg.
27	The focus in serving handicapped students within the school environment should be placed upon educational needs rather than clinical or diagnostic labels.	Positive
28	I am willing to individualize instruction in an effort to meet the needs of handicapped mainstreamed students.	Positive
29	Group needs have higher precedence than individual needs.	Negative
30	Education of the handicapped student should be considered an integral part of the total school program.	Positive
31	It is extremely difficult to adjust the general education curriculum to meet the needs of the mainstreamed student.	Negative
32	Individualized instruction will solve many of the instructional problems presented by mainstreamed students.	Positive
33	Most mainstreamed students are not motivated to learn.	Negative
34	The mainstreamed student requires more support and reinforcement than a general education teacher has time to provide.	Negative
35	Given the present structure of general education, it is not practical to meet the individual needs of the mainstreamed student.	Negative
36	Mainstreaming is beneficial to the personality development of both the handicapped and the non-handicapped student.	Positive
37	Typically, mainstreamed students are returned to general education without adequate attention to the ability of that environment to meet the needs of that student.	Negative

Continued

Table A.5 (Continued)

Item Number	Attitudinal Statement	Favorableness To Topic Area Pos. or Neg.
38	Mainstreamed students are more similar to regular students than they are dissimilar.	Positive
39	Mainstreamed students present no more of a discipline problem than regular students do.	Positive
40.	Mainstreaming forces handicapped students into unfair competition with regular students.	Negative

APPENDIX B

Table B.1

Item Descriptive Statistics
Mainstreaming Self-Assessment Competency Scale:
(Pilot Test (n=46)

Item Number	Mean	Standard Deviation	Item Number	Mean	Standard Deviation
1	3.67	1.01	25	3.80	1.03
2	2.80	1.22	26	3.67	1.28
3	3.28	1.11	27	2.87	1.28
4	3.00	0.16	28	3.46	1.26
5	3.39	1.02	29	3.59	0.93
6	3.11	1.14	30	2.98	1.34
7	3.50	1.01	31	3.57	1.03
8	3.85	1.12	32	4.00	0.76
9	4.04	0.87	33	3.91	0.81
10	3.94	0.95	34	4.22	0.92
11	3.87	1.00	35	3.59	1.13
12	3.83	0.83	36	3.33	1.19
13	2.85	1.26	37	3.48	1.13
14	2.87	1.24	38	3.54	1.19
15	2.67	1.27	39	3.11	1.18
16	2.50	1.26	40	3.46	1.09
17	3.46	1.09	41	3.61	0.98
18	3.22	1.21	42	3.61	0.98
19	3.28	1.19	43	3.57	1.05
20	3.22	1.21	44	3.39	1.22
21	3.17	1.25	45	3.33	1.32
22	3.48	1.21	46	3.48	0.17
23	2.91	1.24	47	3.85	1.05
24	3.22	0.99	48	3.20	1.13

Note: All item alphas equal .95.

APPENDIX B

Table B.2

Total Test Descriptive Statistics
Mainstreaming Self-Assessment Competency Scale:
(Pilot Test (n=46)

Mean	163.72	Std. Err.	4.37	Median	160.00
Mode	160.00	Std. Dev.	29.66	Variance	879.67
Kurtosis	-0.01	Skewness	0.19	Range	140.00
Minimum	100.00	Maximum	240.00		
Valid Cases	46	Missing Cases	0		

APPENDIX B

Table B.3

Varimax Rotated Factor Matrix Loadings
Mainstreaming Self-Assessment Competency
Scale (n = 360)

Item Number	Factor I	Factor II	Factor III	Factor IV	Factor V	Factor VI
1	.35					
2		.50				
3		.44				
4		.47				
5		.36				
6			.42			
7			.48			
8						.67
9						.73
10						.58
11						.54
12						.63
13		.56*			(.36)	
14		.62				
15		.63				
16		.66				
17						.48
18		.40*		(.40)		
19		(.38)	.46*			
20			.45			
21			.57			
22			.63			
23			.63			
24		(.41)	.42*			
25			.41			
26			.57			
27					.67	
28					.66	
29					.54	
30					.62	
31					.52	
32	.50					
33	(.35)			.46*	(.37)	
34	.40*			(.36)		
35				.65		
36				.56		
37				.75		

Continued

Table B.3 (Continued)

Item Number	Factor I	Factor II	Factor III	Factor IV	Factor V	Factor VI
38				.80		
39				.71		
40	.64					
41	.71					
42	.66					
43	.60					
44				.65		
45				.43		
46			(.38)	.42*	(.35)	
47	.55		(.38)			
48			(.35)	.45*		

* Indicates shared communality with another factor at .35 or higher.

APPENDIX B

Table B.4

Item Stems Contributing to the Labeling of Factors I - VI: The Mainstreaming Self-Assessment Competency Scale

Item No.	Item Stem
	Factor I Teacher Instructional Behavior
1	Gathering information on individual differences among students such as interests and attitudes.
32	Communicating effectively with peers in either general or special education.
34	Observing accepted ethical practices (ie., confidentiality) when communicating with others about mainstreamed students.
40	Employing a variety of procedures that increase student attention to instructional activities.
41	Pacing instructional activities to maintain consistent student interest.
42	Designing student activities which accomplish specific instructional goals.
43	Utilizing information about home and community experiences in daily teaching.
47	Modifies teaching behavior as students or situation change.
	Factor II Selection and Use of Assessment Instruments
2	Developing teacher-made tests to assess specific learning or behavior patterns of mainstreamed students.
3	Designing evaluation procedures which identify strengths and weaknesses in the total classroom curriculum.

Continued

Table B.4 (Continued)

Item No.	Item Stem
4	Developing a systematic approach to identifying and resolving curricular problems for mainstreamed students.
5	Assessing the extent to which a curriculum has been changed in general education to accommodate a mainstreamed student.
13	Interpreting diagnostic information in a manner that can be used in developing specific instructional objectives.
14	Selecting tests appropriate for assessment of a mainstreamed student in specific content areas (ie., reading and math).
15	Using diagnostic information to determine the preferred learning style of a mainstreamed student.
16	Developing criterion referenced tests to evaluate the performance of a mainstreamed student.
18	Evaluating the long term performance of the mainstreamed student on the basis of pre-test and post-test measures.
	Factor III Instructional Design and Development
6	Providing mainstreamed students with an ongoing system for charting and evaluating their own progress.
7	Describing various factors within the general education environment that may enhance or depress the performance of a mainstreamed student.
19	Developing instructional materials to meet the individual needs of the mainstreamed student.
20	Formulating specific instructional objectives for mainstreamed students.
21	Utilizing innovative elements of the general education program when planning a program for the mainstreamed student.

Continued

Table B.4 (Continued)

Item No.	Item Stem
22	Designing teaching procedures to improve the motivation of mainstreamed students.
23	Employing procedures that summarize lessons and units for the mainstreamed student.
24	Employing teaching techniques that stimulate convergent and divergent thinking in mainstreamed students.
25	Establishing and maintaining consistent guidelines of acceptable classroom behavior for the mainstreamed student.
26	Providing success producing experiences for the mainstreamed student.
	Factor IV Communication and Use of Human Resources
33	Explaining the positive and negative effects of labeling students as handicapped.
35	Aiding parents in defining realistic goals for mainstreamed students.
36	Participating as a member of an interdisciplinary team in planning an educational program for a mainstreamed student.
37	Communicating outcomes of the instructional process to parents of a mainstreamed student.
38	Advising and consulting with parents of a mainstreamed student.
39	Providing parents of mainstreamed students with strategies, techniques and extensions of school programs which can be used at home.
44	Enlisting parent cooperation and support in developing educational programs for mainstreamed students.
45	Involving the skills of para-professionals or volunteers to maximize individual contact with the mainstreamed student.

Continued

Table B. 4 (Continued)

Item No.	Item Stem
46	Utilizing behavior modification techniques when appropriate with mainstreamed students.
48	Involving mainstreamed students in instructional planning and evaluation.
	Factor V Understanding of Special Education Rules and Administrative Procedures
27	Having an awareness of state and federal laws regarding the education of exceptional children.
28	Understanding the reasons and purposes of various special education administrative arrangements.
29	Identifying the major socio-cultural factors that impede learning and school success for mainstreamed students.
30	Translating information about mainstreamed students assigned various impairment labels into lists of functional attributes.
31	Discussing the concept of mainstreaming with parents and colleagues.
	Factor VI Design and Use of Individualized Goals and Objectives
8	Stating objectives in terms of observable behavior of the learner.
9	Arranging educational objectives into an instructional hierarchy.
10	Planning lessons and units that include specific procedures for measuring the effectiveness of instruction.
11	Identifying goals and objectives which are appropriate to individual students needs.
12	Developing specific sequential instructional objectives from broad educational goals.

APPENDIX B

Table B.5

Item Descriptive Statistics
Mainstreaming Self-Assessment Competency Sale:
Actual Test (n = 360)

Item Number	Mean	Standard Deviation	Item Number	Mean	Standard Deviation
1	3.59	0.82	25	3.73	1.00
2	2.70	1.13	26	3.63	0.98
3	3.23	0.95	27	2.80	1.29
4	2.76	1.00	28	3.29	1.28
5	2.93	0.97	29	3.31	1.11
6	2.90	1.13	30	2.89	1.13
7	3.37	1.00	31	3.16	1.09
8	3.50	1.03	32	3.75	0.90
9	3.29	1.07	33	3.63	0.96
10	3.40	0.97	34	3.88	0.97
11	3.71	0.87	35	3.32	1.09
12	3.41	0.99	36	3.10	1.15
13	2.94	1.08	37	3.27	1.05
14	2.91	1.19	38	3.26	1.10
15	2.86	1.09	39	3.05	1.15
16	2.53	1.03	40	3.43	0.94
17	3.33	0.93	41	3.43	0.90
18	3.20	1.02	42	3.56	0.93
19	3.32	1.03	43	3.59	0.95
20	3.08	1.08	44	3.16	1.09
21	3.13	1.02	45	3.09	1.15
22	3.29	0.96	46	3.25	1.20
23	3.04	0.99	47	3.70	0.92
24	3.06	0.93	48	3.09	1.04

Note: All item alphas equal .97.

APPENDIX B

Table B.6

Total Test Descriptive Statistics
Mainstreaming Self-Assessment Competency Scale
Actual Test

Mean	128.931	Std. Err.	1.412	Median	129.200
Mode	129.000	Std. Dev.	26.000	Variance	718.214
Kurtosis	.278	Skewness	-0.100	Range	157.000
Minimum	41.000	Maximum	198.000		
Valid Cases	360	Missing Cases	0		

APPENDIX B

Document B.1

Final Instrument
Mainstreaming Self-Assessment Competency Scale*

Verbal Explanation

The goal of this instrument is to identify teacher self-assessed skills necessary to effectively teach mildly handicapped students. The term "mildly handicapped" includes children typically referred to as learning disabled, physically handicapped, visually impaired, hearing impaired, emotionally impaired, multiply handicapped, or mentally impaired.

Students who are mildly handicapped are beginning to be placed in regular classrooms. This practice of teaching mildly handicapped students within general education is often referred to as mainstreaming.

The purpose of this questionnaire is to determine how able you feel you are in teaching mainstreamed students. The questionnaire contains 48 competencies which are related to teaching and working with mainstreamed students within general education.

Verbal Instructions

Please read each competency item carefully and rate your perception of your present competency. The skills listed represent a wide spectrum of competencies. Therefore, it is expected that each teacher will have different strengths and weaknesses. The best answer to each competency rating is your own best perception. Please complete all items.

For each statement, indicate your perception of your present ability to perform this skill according to the following scale.

Scale	Very Low 1	Low 2	Medium 3	High 4	Very High 5

Examples:

A. Evaluating Learner outcomes. 1 2 3 4 5

Example A indicates that the respondent feels his/her level of competency in this area is medium.

B. Writing educational goals 1 2 3 4 5

Example B indicates that the respondent feels his/her level of competency in this area is very low.

Document B.1 (Continued)

M.S.A.C.S.

		VL	L	M	H	VH
1.	Gathering information on individual differences among students such as interests and attitudes.	1	2	3	4	5
2.	Developing teacher-made tests to assess specific learning or behavior patterns of mainstreamed students.	1	2	3	4	5
3.	Designing evaluation procedures which identify strengths and weaknesses in the total classroom curriculum.	1	2	3	4	5
4.	Developing a systematic approach to identifying and resolving curricular problems for mainstreamed students.	1	2	3	4	5
5.	Assessing the extent to which a curriculum has been changed in general education to accommodate a mainstreamed student.	1	2	3	4	5
6.	Providing mainstreamed students with an ongoing system for charting and evaluating their own progress.	1	2	3	4	5
7.	Describing various factors within the general education environment that may enhance or depress the performance of a mainstreamed student.	1	2	3	4	5
8.	Stating objectives in terms of observable behavior of the learner.	1	2	3	4	5
9.	Arranging educational objectives into an instructional hierarchy (sequence).	1	2	3	4	5
10.	Planning lessons and units that include specific procedures for measuring the effectiveness of instruction.	1	2	3	4	5
11.	Identifying goals and objectives which are appropriate to individual student needs.	1	2	3	4	5
12.	Developing specific sequential instructional objectives from broad educational goals.	1	2	3	4	5

Document B.1 (Continued)

		VL	L	M	H	VH
13.	Interpreting diagnostic information in a manner that can be used in developing specific instructional objectives for a mainstreamed student.	1	2	3	4	5
14.	Selecting tests appropriate for assessment of a mainstreamed student in specific content areas (e.g., reading and math).	1	2	3	4	5
15.	Using diagnostic information to determine the preferred learning style of a mainstreamed student.	1	2	3	4	5
16.	Developing criterion referenced tests to evaluate the performance of a mainstreamed student.	1	2	3	4	5
17.	Designing informal tests for measuring progress according to specified learner objectives.	1	2	3	4	5
18.	Evaluating the long term performance of the mainstreamed student on the basis of pre/post test measures.	1	2	3	4	5
19.	Developing instructional materials to meet the individual needs of the mainstreamed student.	1	2	3	4	5
20.	Formulating specific instructional objectives for mainstreamed students.	1	2	3	4	5
21.	Utilizing innovative elements of the general education program when planning a program for the mainstreamed student.	1	2	3	4	5
22.	Designing teaching procedures to improve the motivation of mainstreamed students.	1	2	3	4	5
23.	Employing teaching techniques that stimulate convergent and divergent thinking in mainstreamed students.	1	2	3	4	5
24.	Employing procedures that summarize lessons and units for the mainstreamed student.	1	2	3	4	5

Document B.1 (Continued)

		VL	L	M	H	VH
25.	Establishing and maintaining consistent guidelines of acceptable classroom behavior for the mainstreamed student.	1	2	3	4	5
26.	Providing success-producing experiences for the mainstreamed student.	1	2	3	4	5
27.	Having an awareness of state and federal laws regarding the education of exceptional children.	1	2	3	4	5
28.	Understanding the reasons and purposes for various special education administrative arrangements (e.g., EPPC, consultant service, referral systems, parental permission, etc.).	1	2	3	4	5
29.	Identifying the major socio-cultural factors that impede learning and school success for mainstreamed students.	1	2	3	4	5
30.	Translating information about mainstreamed students assigned various impairment labels (e.g., learning disabled, emotionally impaired, etc.) into lists of functional attributes for these students.	1	2	3	4	5
31.	Discussing the concept of mainstreaming with parents and colleagues.	1	2	3	4	5
32.	Communicating effectively with peers in either general or special education.	1	2	3	4	5
33.	Explaining the positive and negative effects of labeling students as handicapped.	1	2	3	4	5
34.	Observing accepted ethical practices (e.g., confidentiality) when communicating with others about mainstreamed students.	1	2	3	4	5
35.	Aiding parents in defining realistic goals for mainstreamed students.	1	2	3	4	5
36.	Participating as a member of interdisciplinary team in planning an educational program for mainstreamed students.	1	2	3	4	5

Document B.1 (Continued)

		VL	L	M	H	VH
37.	Communicating outcomes of the instructional process to parents of a mainstreamed student.	1	2	3	4	5
38.	Advising and consulting with parents of a mainstreamed student.	1	2	3	4	5
39.	Providing parents of mainstreamed students with strategies, techniques, and extensions of school programs which they can use at home.	1	2	3	4	5
40.	Employing a variety of procedures that increase student attention to instructional activities.	1	2	3	4	5
41.	Pacing instructional activities to maintain consistent student interest.	1	2	3	4	5
42.	Designing student activities which accomplish specific instructional goals.	1	2	3	4	5
43.	Utilizing information about home and community experiences in daily teaching.	1	2	3	4	5
44.	Enlisting parent cooperation and support in developing educational programs for mainstreamed students.	1	2	3	4	5
45.	Involving the skills of para-professionals or volunteers to maximize individual contact with mainstreamed students.	1	2	3	4	5
46.	Utilizing behavior modification techniques when appropriate with mainstreamed students.	1	2	3	4	5
47.	Modifies teaching behavior as students or situations change.	1	2	3	4	5
48.	Involving mainstreamed students in instructional planning and evaluation.	1	2	3	4	5

* Adapted from: Survey for Identifying Inservice Training Needs. Developed by Raymond Pecheone, University of Connecticut (1978).

APPENDIX C

Document C.1

Demographic Information Request
All Respondents

Please answer the following demographic information questions.
All responses will remain anonymous.

What grade level are you currently teaching? _____ Other _____
(counselor, SSW, TC, art, etc.)

Please indicate your sex. Male:_____ Female: _____

Please indicate your age. _____

What is your position classification? General Education: _____

Special Education: _____

How many years have you been teaching? _____

How may years have you been involved with mainstreaming? _____

Please indicate your current level of education.

Sophomore: _____

Senior: _____

B.A.: _____

M.A.: _____

M.A.+: _____

APPENDIX D

Document D.1

Information Document Provided to
Superintendents of Identified
Sample Districts

A SURVEY OF EXISTING KNOWLEDGE AND ATTITUDES TOWARD THE MAINSTREAMING PROCESS BY REGION XII ELEMENTARY TEACHERS

A Statement of Information to Participating
Local School Districts

March, 1979

Investigator: R. Wayne Buletza
Department of Educational Leadership
Western Michigan University
616-383-1997

Document D.1 (Continued)

According to the needs assessment completed by the Region XII Professional Development Center (1978), teachers within Branch, Barry, Calhoun, Kalamazoo and St. Joseph counties have consistently ranked mainstreaming as one of their primary educational concerns. Informal surveys of southwest Michigan educators conducted during the past year, continue to reflect this concern, despite increased inservice programming by the PDC and local districts on the topic of mainstreaming. Further evidence of concern is a recommendation currently being considered by the State Board of Education to change the teacher certification code to require preservice courses in the education of exceptional children.

Responses to expressed educator concerns over the efforts to implement the "least restrictive environment" mandate (PL-93-112, Section 504) are based upon the assumption that increased knowledge about handicapping conditions will have a positive effect upon teacher attitudes and behavior during the mainstreaming process. This investigation seeks to validate the assumed relationship between knowledge and attitudes for elementary teachers within the five county Region XII area. If a positive relationship exists, examination should be made of current inservice programming on mainstreaming and its effect upon teacher behavior. If no relationship can be demonstrated, then consideration should be given to other methods of meeting the needs of area teachers as it regards mainstreaming.

To investigate the relationship between mainstreaming knowledge and attitudes, a random sample of twenty school buildings has been drawn from the Region XII population of 143 elementary public school buildings. One or more of the sample buildings are located within your district. Comparison of demographic data will provide evidence of generalizability to districts within the five county area.

Procedures for this investigation include the on-site administration of two instruments to the instructional staff at each of the sample buildings. One instrument measures the respondent's perceived knowledge of mainstreaming competencies. The second instrument measures the respondent's current attitude toward the mainstreaming process. Final instrumentation is included with this report for your examination. Both instruments have been validated by authorities in mainstreaming, and have been pilot tested for reliability. Each will undergo factor analysis to identify categories which would be of interest to local districts.

Administration of the two instruments requires approximately 30 - 40 minutes including explanations by the investigator. A discussion of the mainstreaming process can be held following instrument administration for interested staff members.

Document D.1 (Continued)

The anonymity of individual respondents, sample buildings and participating districts is guaranteed. Results of the survey will be disseminated upon request to local districts and intermediate district offices within the Region XII area. A written report will be provided to participating districts, and the investigator will be available to discuss implications and recommendations resulting from the investigation.

Discussion of this investigation with Dr. George Conti, Superintendent of Portage Public Schools and recognized authority on mainstreaming, identified the following factors as having potential utility to local school districts.

I. The perceived competency level of Region XII teachers concerning the mainstreaming skills of:

   A. Utilizing primary resources
   B. Individualizing instruction
   C. Communications
   D. Curriculum development
   E. Selection and use of assessment instruments
   F. Developing goals and objectives
   G. Record keeping and evaluation
   H. General knowledge concerning the mainstreaming process.

II. The current attitude toward mainstreaming expressed by Region XII teachers as it relates to:

   A. The relationship between general and special education
   B. The mainstreamed student
   C. Organization of materials and instruction
   D. Meeting individualized needs
   E. The teacher and mainstreaming
   F. General attitudes toward mainstreaming.

The investigator is on sabbatical leave from the Battle Creek School District, where he is a program consultant to general education staff. He holds degrees in special education, psychology, and is currently completing the requirements for the degree of Doctor of Education at Western Michigan University. He has conducted over 100 inservice presentations and training programs throughout southern Michigan on such topics as mainstreaming, discipline, responsibility, problem solving and other aspects of program development and organization. The investigator is also a Field Associate of the Educator Training Center, and is an Extension Lecturer for Michigan State University. A complete resume' is available for a more comprehensive examination of the investigator's credentials. The legitimacy of the investigator and his investigation may be confirmed by contacting

Document D.1 (Continued)

either:

Mr. Larry Wile, Assistant Superintendent
Kalamazoo Intermediate School District
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APPENDIX E

Table E.1

Descriptive Statistics for the Six Sub-Groups
Responding to the ATMQ

Level of Education Type of Education	Frequency	Mean	Standard Deviation
General Education	300	10.93	21.86
Sophomore	27	21.30	22.29
Senior	61	20.12	19.31
Certified	212	6.97	21.35
Special Education	60	30.35	19.70
Sophomore	2	16.50	34.65
Senior	25	34.60	17.64
Certified	33	27.97	20.31
Total Population	360	14.17	22.68

APPENDIX E

Table E.2

One-Way Analysis of Variance
MSACS with District Size

Source	Degree of Freedom	Sum of Squares	Mean Squares	F Ratio	F Prob.
Between Groups	2	363.5	181.8	0.360	0.698
Within Groups	242	122271.6	505.3		
Total	244	122635.0			

Descriptive Statistics

District Size	Frequency	Mean	Standard Deviation
0-3999	122	128.6	20.8
4000-8999	23	128.1	22.8
9000 +	100	130.9	24.3
Total	245	129.5	22.4

APPENDIX E

Table E.3

One-Way Analysis of Variance
ATMQ with District Size

Source	Degree of Freedom	Sum of Squares	Mean Squares	F Ratio	F Prob.
Between Groups	2	1094.9	547.4	1.096	0.336
Within Groups	242	120866.9	499.5		
Total	244	121961.8			

Descriptive Statistics

District Size	Frequency	Mean	Standard Deviation
0-3999	122	11.8	20.1
4000-8999	23	5.6	20.6
9000 +	100	8.3	25.2
Total	245	9.8	22.4

APPENDIX E

Table E.4

One-Way Analysis of Variance
ATMQ with Grade Teaching

Source	Degree of Freedom	Sum of Squares	Mean Squares	F Ratio	F Prob.
Between Groups	3	2070.8	690.3	1.388	0.247
Within Groups	241	119891.0	497.5		
Total	244	121961.8			

Descriptive Statistics

Grade Teaching	Frequency	Mean	Standard Deviation
K - 2	80	8.6	22.5
3 - 4	54	7.1	21.8
5 - 6	66	9.4	22.6
Other	45	15.7	22.2
Total	245	9.8	22.4

APPENDIX E

Table E.5

One-Way Analysis of Variance
ATMQ with Sex

Source	Degree of Freedom	Sum of Squares	Mean Squares	F Ratio	F Prob.
Between Groups	1	47.4	47.4	0.092	0.762
Within Groups	358	184538.6	515.5		
Total	359	184586.0			

Descriptive Statistics

Sex	Frequency	Mean	Standard Deviation
Male	56	13.3	21.6
Female	304	14.3	22.9
Total	360	14.2	22.7

APPENDIX E

Table E.6

One-Way Analysis of Variance
MSACS with Teaching Experience

Source	Degree of Freedom	Sum of Squares	Mean Squares	F Ratio	F Prob.
Between Groups	5	3552.7	710.5	1.108	0.356
Within Groups	325	208382.2	641.2		
Total	330	211934.9			

Descriptive Statistics

Years Teaching Experience	Frequency	Mean	Standard Deviation
0	84	135.9	32.0
1 - 5	62	127.8	21.2
6 -10	72	128.4	27.3
11 -15	52	129.7	20.7
16 -20	26	129.1	19.5
20 +	35	133.6	18.6
Total	331	131.0	25.3

APPENDIX F

Table F.1

Frequency Response to Open-Ended Question:
"What three concerns do you have about mainstreaming?".
(n = 46, 18% of sample)

Category of Concern	n	%
Inadequate Teacher Preparation and Training	18	39
Current Class Size too Large to Meet Student Needs	16	35
Inadequate Supportive Services and Materials	14	30
Inadequate Teacher Time to Meet Student Needs	13	28
Ineffective and Obstructionist Administrative Procedures	13	28
Normal Child Suffers as a Result of Mainstreaming	11	23
Special Education Child Suffers as a Result of Mainstreaming	10	21
Difficulty in Communicating with Special Education Teacher	7	15
Results in an Excessive Burden on the General Education Teacher	7	15