CURRENT PRACTICES IN SCHOOL-BASED
OCCUPATIONAL THERAPY REFERRAL
AND EVALUATION

A Thesis

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By

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ABSTRACT

Public Law 94-142, the Education for Handicapped Children Act, made it necessary for increasing numbers of occupational therapists to enter practice in the school setting. Public Law 94-142 brought with it a poorly defined role of occupational therapy in an educational model. Referral and evaluation methods in school-based practice vary greatly with few guidelines and only general directives from legislation to promote best practice. A limited amount of survey research has been completed to identify practices in the evaluation and referral process and to measure attitudes regarding these practices.

Four hundred American Occupational Therapy Association members who indicated schools as their primary place of employment were randomly selected and asked to respond to a mail questionnaire. Two hundred thirty-three usable responses were received for an adjusted response rate of 63.3%

School-based occupational therapist respondents indicated that nearly 90% had specific referral protocols, the majority using a formalized written form. The most common referral source was the classroom teacher followed in frequency by the multi-factored evaluation team. A slightly positive attitude was indicated regarding the process by which referrals were made. A slightly positive attitude was also indicated toward referral outcome. The respondents felt that referrals
promoted team function. The slight positive attitude toward referrals may indicate a level of comfort with the process or may indicate a fear that changing their referral system would increase caseloads.

Standardized tests were used by 93.4% of respondents. The Peabody Developmental Motor Scale and the Bruininks-Oseretsky Test of Motor Proficiency were most commonly used. "Home grown" tests were used by 62.7% of respondents. All of the respondents indicated that more than three steps were used in the evaluation of students referred for assessment. Therapists indicated a neutral attitude regarding the use of standardized tests. Although therapists indicated that standardized tests did not reflect a student's functional level, the majority of respondents agreed that therapists understand of a student's functional ability when the evaluation is completed. Clinical judgement seems key to reaching a comprehensive understanding of the student's functional level.
To Tom and Aaron – my favorite boys
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CHAPTER 1

INTRODUCTION

Background of the Problem

Occupational therapy is first documented in a public school setting, in the United States, in the early 1940’s; for occupational therapists of this time period, a public school was not a typical arena of employment (Regan, 1982). With the passing of half a century we now note that nearly one in every five occupational therapists works in a school setting (Davidson, 1995). Occupational therapists are now more prevalent in public schools than at any other time in history, yet the role and utilization of the occupational therapist to promote optimal educational benefit for a student remains poorly defined.

In 1975, Public Law 94-142, the Education for All Handicapped Children Act, was enacted. This legislation mandated the provision of related services to individuals with disabilities as needed to “assist a child with a disability to benefit from special education”.

In 1990 this law was modified to become the Individuals with Disabilities Education Act (IDEA; Public Law 101-476). These significant pieces of legislation
promote occupational therapy as a related service and mandate the availability of occupational therapy services to students in a special education setting.

As occupational therapists become more prevalent in educational settings, it is necessary to re-evaluate the medical theory and frames of reference under which most occupational therapists have been educated and have practiced. The traditional medical focus of direct treatment to remediate specific disabilities or limitations is not an appropriate focus for therapy in educational settings. Screening, evaluation, determining educational relevance, service delivery and treatment approaches require the occupational therapist to utilize skills and knowledge that are beyond the scope of the medical model. The American Occupational Therapy Association (AOTA, 1987; 1997) has provided guidelines regarding educational services guided by interpretation of public law, yet utilization of these guidelines require therapists to rely on their personal understanding of both the law and the guidelines. In the educational setting an occupational therapist may be required to leave familiar territory and venture into an area of personal interpretation and professional judgment (Carr, 1989).

**Significance of the Problem**

The interpretation of laws and guidelines varies with each occupational therapist based on his or her educational background, demographic profile, personal and professional experiences and theoretical orientation. As understanding and application of the law varies so do the services provided by school-based occupational therapists.
Public law proposes that referrals to a related service professional be generated by a team process. The disciplines of the individuals on this team are unclear and vary from school system to system and from school building to building (Coutinho & Hunter, 1988). It is noted that referrals may be made by single individuals, the parent or by another related service provider, adding confusion to the team concept. Further, no federal guidelines or mandates are in place to govern the process or time line of the referral to related services. States and districts have developed individual protocols that vary greatly. Little information regarding the referral process is noted in a review of literature, leaving the school-based occupational therapist and evaluation team members without models of how to develop an efficient and legal protocol to establish a referral to a related service area.

Following a referral to occupational therapy, an evaluation is indicated to determine if occupational therapy services are needed to help a student to benefit from special education. Evaluation methods vary greatly, but can be categorized into three areas: interview, observation and testing (standardized and non-standardized). The results of the evaluation process must support the intervention recommendations made (Bundy, 1995; Dunn, 1982; Rogers, 1983). As instruments or methods of evaluation are selected, it is necessary for the school-based occupational therapist to make judgments. Evaluation tools must accurately assess the student's function and provide the needed information to complete a true picture of the student's abilities and limitations. In selecting an evaluation tool, the
school-based occupational therapist must consider the student’s age, limitations and characteristics, as well as the instrument’s reliability and validity. Many non-standardized instruments are “homegrown” to meet the needs of the specific population but lack evidence of validity and reliability. Some evaluation tools are commonly used but none are viewed as a standard part of a school-based assessment.

Following evaluation, the occupational therapist, as a member of the assessment team, must make decisions regarding who is to receive occupational therapy services and in what manner these services are to be provided. In some districts, a predetermined score on a specific test is required to qualify for occupational therapy services. It is necessary to evaluate the legality and appropriateness of this practice. Further, the nature of a student’s limitations must be considered to determine if the child is currently functioning at his or her optimal level and whether benefit in educational function will be achieved through occupational therapy services. Much of the decision making regarding what evaluation tools to use, how to interpret them and how to plan services from the interpretation is subjective and relies on the clinical decision making of the occupational therapist. Few studies reflecting common practice have been published (Crowe, 1989).

Caseload composition of the school-based therapist includes students in the 13 disability categories and at risk preschoolers eligible for special education in Part B of IDEA. These diagnostic categories provide labels for conditions but do little to
specify the nature of functional limitations, that challenge special education students.

Enhancing the referral, evaluation and service provision protocols would help to establish an objective decision making process for occupational therapists providing services in the schools. It is hoped that identifying trends will assist in determining best practice protocols.

Objectives

This study used survey research of school-based occupational therapists to identify current practices in referral to related service providers in the educational setting and to determine what evaluation methods and tools are most frequently used by school-based occupational therapists. Attitudes of school-based occupational therapists toward their school system’s referral and evaluation processes were assessed. It is hoped that the results of this study will assist school-based occupational therapists in making more objective decisions regarding referral processes, evaluation and treatment of special education students.

Research Questions

1. What are current practices in the referral process of a special education student for occupational therapy evaluation?

2. What evaluation methods are being utilized to determine the need for school-based occupational therapy services?
3. What are school-based occupational therapists’ attitudes toward their school system’s referral process?

4. What are school-based occupational therapist’s attitudes toward evaluation methods that he or she currently uses?

Assumptions and Limitations

In survey research honest and complete responses from respondents are assumed. When this assumption is not accurate the representative nature for the sample and the statistical results and conclusions are limited.

Those identified as school-based occupational therapists are self-designated. An official definition is not available, this invites some inaccuracy in the sample make-up. Other limitations to survey research are discussed in the methodology section.

Definition of Terms

For the purposes of this paper the following definitions will be used:

Referral Process - Referral is defined in Webster’s 3rd New International Dictionary (1993) as the process of directing to an appropriate specialist or agency for definitive treatment. The same source defines process as a series of acts aimed at a single end. Therefore, referral process will be defined as a series of acts aimed at directing to an appropriate specialist for definitive treatment.
**Evaluation Method** - Evaluation is defined by Stewart (1996) as the act of assessment; the process of gathering information for the purpose of making a decision. Method is defined in Webster’s 3rd New International Dictionary (1993) as a systematic way of doing. Evaluation method may therefore be defined as the systematic way of gathering information for the purpose of making a decision.
CHAPTER 2

REVIEW OF LITERATURE

Introduction

This chapter presents an overview of the history and legal aspects of provision of occupational therapy services in public school systems. Educational legislation and functional definitions of key terms will be discussed. Methods of referring students to occupational therapy services and methods used to initially evaluate these students will be reviewed.

Key Terms

Terms of significance within the educational legislation include “related services”, “children with disabilities”, and “special education”. Each is defined. “Related services” are defined in IDEA as “transportation, and such developmental, corrective, and supportive services (including speech pathology and audiology, psychological services, physical and occupational therapy, recreation and medical and counseling services for diagnostic and evaluation purposes only) as may be required to assist a disabled child to benefit from special education, and includes the early identification and assessment of handicapping conditions in children” [1401 (17)].
IDEA defines “children with disabilities” as those individuals that have a
disability that adversely affects educational performance and that meets the
definition for one of the following disability categories. The categories include:
autism, deaf - blindness, deafness, hearing impairment, mental retardation, multiple
disabilities, orthopedic impairment, other health impairment, serious emotional
disturbance, specific learning disability, speech or language impairment, traumatic
brain injury, visual impairment and developmental delay as defined by each state,
until the age of 9 years.

“Special education” is defined as educational services that are outside the
typical. The vastness of potential services make it difficult to define special
education, but for our purposes we will qualify an educational program as special
education if an Individual Education Program (IEP) is written to enable the student
to participate in the educational program.

**Historical and Legal Background**

The educational system has reflected the views of the general society.
Occupational therapy and special education histories share a common pathway,
traceable to the Moral Treatment Movement in Europe during the nineteenth
century (Schwartz, 1992). The common pathway has continued into the twentieth
century as progressive educators and occupational therapists have shared a
humanistic focus and belief that the best learning and greatest rehabilitation occur
with the engagement in occupation (Schwartz, 1992). During the early twentieth
century the general social awareness appeared to become more sensitive to the needs
of children with disabilities and from 1912 to 1935 the Maternal and Child Health
Agency was active in striving to increase services for these children. Through the
1935 Social Security Act, Title V provided federal funds for those with disability,
and the Maternal and Child Health Agency became instrumental in introducing
occupational therapy services to individuals within their communities.

Regan (1982) cites the first documented evidence of occupational therapy
services in a public school in 1941. This was a non-traditional practice setting for
therapists of the time period. The 1960’s ushered occupational therapy into the
schools in a limited fashion and gradual increases of the number of school-based
therapists were noted into the early 1970’s. The social climate of the 1970’s, which
focused on the rights of the individual, civil rights awareness and concerns for the
education of all children, led to many changes in the public education system
(Coleman, 1988).

Medical models have long held to remediation of the cause of disability while
educational models have focused on outcome with an emphasis on task content and
behavioral based strategies (Ottenbacher, 1982). Noie (1982) and Ottenbacher
(1982) each suggested that differences in interactions between students and their
special education instructors and between students and their occupational therapists
may be a result of educational background and training of each professional. Both
authors promote positive blending of educational and occupational therapy
philosophies as occupational therapists and special educators increase their
awareness of the holistic needs of children in the special education setting and the positive impact that each discipline may have on these students.

Public Law 94-142 (the Education for All Handicapped Children Act) made it necessary for increasing numbers of occupational therapists to enter practice in the public school system. Public Law 94-142, passed in 1975, brought with it a poorly defined role of occupational therapy in an educational model; practice methods and philosophies were moving away from the medical reference previously used to guide occupational therapy practice (McEwen & Sheldon, 1995). This piece of legislation includes occupational therapy in a list of related services that may be needed “to assist a child with a disability to benefit from special education.”

This legislation worked to end discrimination against children with disabilities and to guarantee them a free and appropriate public education (Gallegos, 1989). Public Law 94-142 included provisions of necessary special education and related services to support educational achievement and the development of an Individualized Education Plan (IEP) for qualified children. The rights of parents or guardians to participate in this process are stated and protected.

The Education of the Handicapped Act Amendments of 1986 (Public Law 99-457) allowed for continued funding of programming mandated by Public Law 94-142 and expanded special education and related services to eligible children ages 3 to 5 and their families. This act has served to enhance the awareness of government responsibility in education beyond that of the traditional student and has incorporated students with potential difficulties into early programming.
(Coleman, 1989). Part H, of Public Law 99-457, applies to children ages birth to 36 months who have a disability, have or are at risk for developmental delay and to the families of these children. Part H allows occupational therapy to be a primary service during this period of early intervention.

Further modifications of the principles and standards of Public Law 94-142 and Public Law 99-457 were established in Public Law 101-476, the Individuals with Disabilities Education Act (IDEA, 1990). This statute continues to require the provision of free, appropriate and public education to all children with disabilities. Part B has a primary impact on school-based occupational therapy practice by virtue of the age ranges of children protected by this statute (Rapport, 1995).

Civil rights legislation also has an impact on the provision of occupational therapy in the education setting. While special education legislation addresses disabilities that adversely affect educational performance, Section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act address a mental or physical impairment that substantially limits one or more major life activities. Education may be considered a major life activity (Rapport, 1995). Children who meet the criteria of having a disability under Section 504 of the Rehabilitation Act of 1973, but do not meet the criteria for special education under IDEA are provided with legal rights for accommodation in the educational setting as a basic civil liberty (Rapport, 1995). These accommodations are generally provided on a consultative basis with no Individual Education Program, as the student has not qualified for special education. The Americans with Disabilities Act (ADA) mirrors the Section
504 definition of disability. The scope of the ADA is broader than previous legislation and serves to protect both public and private entities (Rapport, 1995). Determining the educational relevance of the student’s disability and the most appropriate plan for school-based therapy are challenges for all school-based occupational therapists.

The numbers of occupational therapists practicing in a school setting is increasing rapidly. The 1990 Member Data Survey conducted by AOTA reported that approximately 18% of all practicing occupational therapists are employed in the school system. Further, 10% of all practicing therapists are estimated to be working with children ages three to five years (Davidson, 1995). By the year 2000, it is projected that 8,100 occupational therapists will be working in the public school system (Crowe & Kanny, 1990).

The Referral Process

A review of literature provides little information regarding the process of referring a child with a disability to a related service provider for evaluation to determine if the specific related service is essential for the child to gain benefit from educational programming. IDEA infers the use of an educational team assessment to generate a referral to a related service. No indication of who is to be a part of the team is noted and policies and procedures for generating referrals vary greatly from state to state and district to district. The team process is felt to promote the maximum usage of available resources and to develop strategies best suited for the individual student (Ohio Department of Special Education, 1990). It is unclear how
the occupational therapist or related service provider is to be apprised of the child’s needs and the team’s recommendations.

Litton, Veron and Griffin (1982) use the phrase “may invite into his or her classroom” when describing a teacher’s initial contacting of a related service provider. Their writings imply that the teacher holds the responsibility of identifying student needs and coordinating related services. The building of an appropriate supportive team to maximize educational benefit for a special education student may be a large part of the classroom teacher’s role in the educational process. The era of classroom teachers working by themselves to educate a disabled child has ended and each teacher must learn to make referrals and seek consultative instruction as barriers to the educational process arise (Litton et al., 1982; Niehues, Bundy, Mattingly & Lawlor, 1991). Though classroom teachers generate most referrals for occupational therapy assessment, referrals to related services might also be generated by parents or any school personnel. Students that meet the criteria required to qualify for special education as stated in Public Law 94-142 are eligible for assessment and related service interventions if required to benefit from special education. Students referred for occupational therapy evaluation who are not eligible for special education are to be assessed to determine if the students are appropriate for accommodation interventions by related service providers as specified in Section 504 of the Rehabilitation Act of 1973 (Hall, Robertson & Turner, 1992). Related service providers are frequent referral sources to other
disciplines as these professionals may possess greater knowledge of the educational relevance of specific interventions available to students (Agrin, 1987).

The referral of a student to occupational therapy is often a plea of a classroom teacher or other staff member for help with a frustrating issue and may not be of specific educational relevance. "Fix-it" mentality, the belief that a related service can solve a specific problem, can create unrealistic expectations and results in poor communication among team members. Referrals to professionals who are not specialists in the designated problem area and those referrals for which objectives are not educationally related may interfere with developing educational programs with appropriate support services (Coleman, 1988; Giangreco, 1995).

Specific reasons that students are referred to occupational therapy vary greatly depending on the nature of the student's disability and the needs in the educational setting. The American Occupational Therapy Association's 1993 School-Based Practice Survey (Chandler, 1994) lists handwriting and general motor delays as the top referral reasons. Noted in the analysis of this survey is that the write in section was most often filled with medical conditions rather than an occupational dysfunction that indicates a barrier to benefit from special education (has feeding tube, CVA etc.). With little available literature regarding referral sources, it is difficult to speculate the scope and adequacy of referrals in the development of evaluation tools and the determination of appropriate services.
The Evaluation Process

The process of evaluation has multiple phases and must be approached with educational objectives in mind. Evaluation involves the assessment of function and the interpretation of the information gathered (Bundy, 1995; Hall, et al. 1992). Interpretation of findings is crucial to support the parents and other team members in the understanding of how the occupational therapist’s findings relate to the child’s specific areas of difficulty. The evaluation phase is the primary focus of this review.

Evaluation results must provide the rationale behind service recommendations (Bundy, 1993; Magrun, 1988). An eclectic approach to evaluation is necessary to assess all components of dysfunction, which may contribute to a behavior or difficulty that may lead to referral to occupational therapy. The occupational therapist must remember that the evaluation process is only one step in providing services that are necessary for a student to achieve academic success. Therapists must keep in mind that evaluation gives direction for the step of choosing methods to eliminate or minimize effects of a functional limitation (Bundy, 1995).

A multi-faceted occupational therapy evaluation process is supported by most of the literature focusing on school-based occupational therapy. A three-facet evaluation process is widely utilized by school-based occupational therapists: interview, observation and standardized and/or non-standardized testing (Bundy, 1995; Dunn, 1983; Rogers, 1995). Each facet of the evaluation process is discussed in the following section.
Interview

The interview process lends perspective to the needs and goals of the student, parent and school staff. Through this process the therapist explores the discrepancies between a student's performance and the expectations for student performance held by the student, parent or teacher. The interview allows further evaluation to address aspects of student behavior that are problematic and to assess underlying causes of disability that others involved with the student may not consider. Interviewing begins the process of teamwork as the occupational therapist and others share information and expertise (Hall et al., 1992). This portion of the assessment process allows all participants to express concerns regarding the student and may provide the occupational therapist with insight to areas that did not appear on the referral but may present significant barriers to the student's ability to benefit from special education. Often the referral issue is a small part of a greater problem or the end result of a situation that may not be recognized when the present difficulty encountered in the academic program is viewed by other team members (Bundy, 1995).

Interview formats differ greatly. Some therapists may choose to ask prepared questions and to record responses as the interview progresses. Other interviewers may ask general, open-ended questions as issues come up and acquire a general "feel" for the issues at hand. Group interviews (team meetings) allow team members to spark comments and expressions of concern regarding general student performance. The interview portion of the assessment process is crucial to gain
understanding of the needs of the student and the educational team but it is not enough to provide occupational therapists with the information needed to make intervention decisions (Magrun, 1988).

Observation

Observation offers the opportunity to gather accurate information in a situation specific setting. Occupational therapists have long promoted observation as a valuable method of information gathering. Observation of a student in the setting in which he/she is expected to function allows the occupational therapist to become aware of environmental factors, levels of sensory input, motor performance and social and emotional concerns. The occupational therapist may then be able to enlighten other team members about the impact of these factors. Observations of neuromuscular and sensory function are combined with observation of a functional skill. The conscious focus of different functional systems serves to encourage observation of most components of the individual’s function. Observations of the student’s skills in the classroom as well as in the gym, lunchroom and on the playground are necessary to paint a complete picture of function and to achieve the full scope of academic requirements (Carr, 1989).

Observation is an efficient and functional method employed by occupational therapists in the schools to gather information on student performance. This portion of the assessment process allows the occupational therapist to gather data about the student in the settings in which he or she functions and to gain greater understanding of the specifics of the barriers to educational achievement.
Testing

Testing, whether standardized or non-standardized, norm or criterion-referenced, offers occupational therapists a firm basis from which to make recommendations. Testing often generates numbers, age equivalents, and categories which may assist the occupational therapist in communicating with other team members regarding the functional status of a student (Farley, Sarracino & Howard, 1991). Concrete, reproducible test scores may be required by some school districts for students that are being evaluated to determine if special education and accompanying related services are necessary.

When reviewing testing tools for utilization, it is important to assess levels of validity (does the test measure what it claims to) and reliability (are test results consistent). School-based therapists concur that there are few educationally relevant tests with high levels of reliability and validity (Bundy, 1995; Farley et al., 1991; Giangreco, 1995). Many therapists have developed "homegrown" evaluations without the expertise to conduct adequate research to assure the appropriateness of the tool (Farley et al., 1991; Giangreco, 1995). These independently developed tools are often checklists or directed narrative sheets that do not provide consistent rankings or comments among therapists administering them (low inter-rater reliability) and fail to correlate the specific areas being reviewed with a standardized test score (poor criterion validity). "Homegrown" evaluations are often lacking evidence of validity and reliability but also fail to review many functional areas that may contribute to classroom difficulty. A test
may evaluate perceptual processing without consideration to motor control; if this
test is used to evaluate handwriting function key areas of difficulty may be
overlooked. "Homegrown" evaluations may be the best method of evaluation of
individuals for whom complying with standardized testing is not possible and who
demonstrate inconsistent behaviors and abilities while being observed.

Crowe (1989) surveyed school-based occupational therapists in northwest
states of the United States. Responses to inquiry regarding which school skills were
most frequently assessed indicated that fine/gross motor skills from a developmental
framework were the most frequently evaluated skills. Visual - perception skills were
the next most frequently evaluated skills followed by evaluation of sensory
integration skills. These areas of most common evaluation, as indicated in Crowe's
study, appear to have an impact on the student's performance and are educationally
relevant.

Authors have surveyed and ranked which assessments are most frequently
used in the academic setting. The results of the work of Reid (1987) and Crowe
(1989) suggest the following tools to be the most commonly used evaluation
instruments in school-based practice: Peabody Developmental Motor Scale,
Bruininks - Oseretsky Test of Motor Proficiency, Jebsen - Taylor Hand Function
Test, Test of Motor Impairment - Henderson Revision, Denver Developmental
Screening Test, Bayley Scales of Infant Development, Developmental Test of Visual
Motor Integration, Developmental Test of Visual Perception, Test of Visual
Perception Skills, Motor - Free Visual Perception Test, Southern California Post
Rotary Nystagmus Test, Southern California Sensory Integration Test, Ayres Clinical Observations and the Miller Assessment of Preschoolers. The publishers and developers of these tools have conducted validity and reliability studies. No requirements or standards for validity and reliability govern evaluation tool development.

The evaluation process is crucial to determine what supports and interventions are necessary to foster success in the academic setting. The results of evaluation allow related service providers to then use clinical reasoning and professional judgment to determine the type of intervention, frequency of intervention and expected outcomes of treatment (Magrun, 1988). Intervention planning as a group process requires that the occupational therapist be able to share information regarding a student, which represents an accurate picture of the student’s functional ability, disabling condition and ability to meet academic goals (Miller & Robinson, 1996). The evaluation, regardless of method or tools used, is a crucial element of service need determination.

Summary

Special education and occupational therapy share common philosophies and are rooted in many of the same ideals and standards. Similar pathways have been followed as each discipline has evolved and blended to form an ever-changing system to benefit children with disabilities. Legislation has promoted the collaboration of these disciplines with the implementation of IDEA and civil rights
legislation. These statutes have mandated occupational therapy as a service in the educational setting.

Great ambiguity is noted in the referral and evaluation processes for school-based occupational therapy. These processes differ by method and tool from school district to district and from individual therapist to therapist. Though trends exist for each process, greater standardization is needed to promote professionalism in the educational model (Johnson, 1996). Needs, situations and caseloads vary greatly among school-based occupational therapists. Determining current practices in referral and evaluation processes may provide input toward the development of unified practice standards for school-based occupational therapists.
CHAPTER 3

METHODOLOGY

Introduction

This chapter describes the methodology used in this study. The research design, sampling procedure, instrument development data collection and analysis are discussed.

Research Design and Related Factors

The design employed in this study is descriptive survey research. To best describe current practice trends in school-based occupational therapy, input from a large representative sample of therapists is needed. This research gathered the facts and attitudes needed to describe current practices in school-based occupational therapy referral and evaluation. Survey research allows for the gathering of information from a large sample and gives an accurate description of defined characteristics of a population at a designated point in time (Dillman, 1978; Mueller, 1986). Appropriate areas of study for survey research are facts, opinions and attitudes (Dillman, 1978). These points support the use of descriptive survey research for this study.
Mailed questionnaires were used due to the ease of cost projection and logistics of administration to a large group of school-based occupational therapists. Further advantages include a short duration of time needed to gather information and limited intrusion for the population; this intrusion may be perceived with telephone or face to face survey practices. Limitations of the mailed questionnaire include difficulty assuring sample response, lack of opportunity for respondents to achieve clarification for any questions and limitations of the length of the instrument.

Sampling Procedure

The intended target population of this study is occupational therapists involved in school-based practice in the United States. The frame, a list of members of a population, could not be developed to include all school-based occupational therapists. Occupational therapists who have defined themselves as working in the schools and are American Occupational Therapy Association (AOTA) members served as the accessible population for this study. The membership service database from AOTA was used to compile the frame. AOTA reports the accessible population of school-based occupational therapists to be approximately 5,220 members. Therefore, a sample of 360 was needed to represent the population of school-based occupational therapists that are also AOTA members (Orlich, 1978). A sample size of 400 members was utilized to allow for the assumption that 7% to 10% of the sample would be lost to frame error. AOTA provided a randomized list of occupational therapists that have indicated “schools” as a primary work setting.
AOTA membership services generated a 400-member sample, meeting the specific parameters indicated from the researcher’s intended population. Limitations in the capacity to generalize the findings of this survey are related to any differences that may exist between the accessible population of AOTA members in school-based practice and the general population of school-based occupational therapists.

**Instrumentation**

The method of data collection in this study was a mailed questionnaire. An instrument of three sections was developed. The first section asked four general information questions focusing on the referral process and referral sources. The general information questions were followed by fifteen Likert-type statements with a six point response scale (1 = strongly disagree, 2 = moderately disagree, 3 = slightly disagree, 4 = slightly agree, 5 = moderately agree, and 6 = strongly agree). The Likert-type questions measured attitude regarding the process by which referrals are made and attitude regarding the function or outcome of a referral. The second section asked six general information questions regarding evaluation. These questions gathered information on the evaluation process, standardized test requirements and utilization of the standardized tests previously indicated as most commonly used in school-based practice by Crowe (1989) and Reid (1987). The second section included fifteen Likert-type statements, which measured attitude regarding standardized testing. These Likert-type statements used the same six-point scale indicated above. The third section consisting of eight demographic
questions asked respondents to indicate years of experience in school-based practice, caseload composition and functional limitations or needs of each therapist’s caseload.

Field Test

The four members of the School Systems Special Interest Section - Standing Committee (AOTA) and six other recognized authorities in school-based occupational therapy from around the country were requested to review the survey instrument and evaluate content validity. A cover letter was included with the instrument to provide a definition of content validity and explain the significance of the preceptors’ input to establish this validity. The preceptors were asked to respond to the survey and make editorial and content changes that they believed were needed. In addition, a blank comment page was included in the packet so that additional comments could be made. Following modifications suggested by the expert preceptors, a field test was conducted. The field test was conducted with fifteen practicing occupational therapists to determine clarity of questions, to gather suggestions for format revision and to estimate the duration of time needed to complete the survey. A convenience sample of central Ohio school-based occupational therapists was used during field testing so that direct contact with the researcher was possible, lessening the demands on the field test group.
Procedures and Data Collection

Exemption from Human Subjects IRB Review was granted on November 17, 1997 (protocol # 97E0051). No human subject manipulation occurs in mail survey research.

An initial packet was mailed which included: a cover letter, to communicate the importance and the intent of the study and to emphasize confidentiality (Appendix A), a questionnaire (Appendix B) and a pre-addressed, stamped return envelope. Postcards were mailed to non-respondents on February 7, 1998 encouraging them to complete and return the questionnaire. A second mailing to non-respondents was sent according to the timeline in Appendix C. This mailing included a modified cover letter (Appendix D), a questionnaire and a pre-addressed, stamped returned envelope.

Fowler (1988) suggests that a 70% response rate is considered to be an acceptable rate of response for mailed survey. To limit inflation of projected costs two mailings were issued. Following the second mailing, a response rate of 70% was not achieved. A statistical comparison of responses to specific questions by early and late respondents was used to determine the differences between the two groups. It is an accepted belief that late respondents are more similar to non-respondents than are early respondents (Fowler, 1988). No significant differences were indicated; this made it unnecessary to weight data analysis with greater attention to late respondents to account for non-response error (Miller & Smith, 1983; Ary, Jacobs & Razavieh, 1990).
Data Analysis

Descriptive statistics were used to analyze demographic data of responding school-based occupational therapists. A profile of respondents was formed based on frequencies, percentages and means computed for individual items. A mean score was calculated for each Likert-type item and a construct mean score of all questions dealing with attitude regarding standardized testing, attitude regarding referral process and attitude regarding referral outcome was calculated. Cronbach’s alpha was calculated for each attitude construct measured to determine internal reliability of the grouped statements. Pearson correlation was used to explore the relationships between sets of variables. Data analysis was completed using the Statistical Package for Social Services (SPSS-PC).
CHAPTER 4

RESULTS OF SURVEY

Introduction

This chapter presents response data and statistical results of the survey instrument. The sample is described and demographic information is presented. This chapter describes current practices of referral and school-based occupational therapists’ attitudes regarding the referral process. Referral information is followed by the description of current evaluation practices and school-based occupational therapists’ attitudes regarding evaluation. Interpretations and implications of the results are presented in Chapter 5.

Response Data

The initial mailing of 400 survey instruments (Appendix B), cover letters (Appendix A) and return envelopes yielded a response from 204 subjects. A reminder postcard was sent (see timeline: Appendix C) which generated 8 additional responses. A second mailing was issued to the 188 non-respondents. This mailing included survey instruments, modified cover letters (Appendix D) and return envelopes. The second mailing generated 69 additional responses. A total of 281
responses were received. The 119 non-respondents represent 29.75% of the original sample.

From the 281 survey instruments returned, 48 of these were not usable. The 48 unused returns may be grouped into 3 categories: those not currently in school-based occupational therapy practice (32 returns), those without any information (12 returns) and those that were incompletely filled out, missing data from more than one entire section (4 returns). This reduces the adjusted sample size to 368 and the useable returns to 233. The adjusted rate of response is 63.3%.

Description of Sample

The population of the study was comprised of occupational therapists employed in school-based practice in the United States who were also members of The American Occupational Therapy Association (AOTA). Respondents indicated years of experience practicing occupational therapy ranged from 1 to 40, with a mean of 13.7 years. Years of school-based occupational therapy practice ranged from 1 to 26 with a mean of 9.1 years.

Respondents indicated that 48.5% worked in a school setting as a contract employee. The remaining 51.5% were direct employees of the school or school system. Respondents indicated that 59.6% worked full-time (over 35 hours a week for 9 months) while the remaining 40.4% worked part-time.

Caseload age distribution responses showed that for 67.0% of all respondents students in the range of 6 through 12 years were the largest group on their caseload. This age group was most often indicated to be a part of the total caseload, with only
3.9% of respondents indicating that they did not treat children in this age range.

Almost 30% of respondents indicated that students age 3 through 5 years was the largest group of students on their caseload. This age group was not a portion of the caseload for 11.7% of the respondents. Ages birth to 3 years was cited as the largest portion of the caseload by 2.6% of the respondents. Ages 13 through 18 and those over 18 were least often indicated as being the largest portion of the occupational therapist’s caseload. Table 4.1 displays the rankings for each age group.

<table>
<thead>
<tr>
<th>Rank</th>
<th>Birth-3 years</th>
<th>3-5 years</th>
<th>6-12 years</th>
<th>13-18 years</th>
<th>18 years and older</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2.6%</td>
<td>29.6%</td>
<td>67.0%</td>
<td>2.2%</td>
<td>2.2%</td>
</tr>
<tr>
<td>2</td>
<td>6.5%</td>
<td>51.3%</td>
<td>24.3%</td>
<td>13.5%</td>
<td>0.0%</td>
</tr>
<tr>
<td>3</td>
<td>12.2%</td>
<td>7.0%</td>
<td>3.9%</td>
<td>46.5%</td>
<td>3.0%</td>
</tr>
<tr>
<td>4</td>
<td>5.7%</td>
<td>0.4%</td>
<td>0.9%</td>
<td>13.0%</td>
<td>18.3%</td>
</tr>
<tr>
<td>5</td>
<td>3.9%</td>
<td>0.0%</td>
<td>0.0%</td>
<td>0.0%</td>
<td>11.3%</td>
</tr>
<tr>
<td>None</td>
<td>69.1%</td>
<td>11.7%</td>
<td>3.9%</td>
<td>24.8%</td>
<td>65.2%</td>
</tr>
</tbody>
</table>

Table 4.1: Percent of respondents indicating ranking for age group

Additional caseload information indicated that the largest group of respondents, (33.5%) identified students with developmental delays as the majority of their caseload. The second classification most frequently indicated as the largest portion of the school-based occupational therapists’ caseload were students with
specific learning disabilities with 21.6% indicating this classification. The classifications most frequently indicated as being a portion of the caseload, not necessarily the largest group, are as follows: developmental delays (90.9%), specific learning disability (83.1%), autism (81.3%), mental retardation (81.3%), multiple disabilities (75.2%), orthopedic handicaps (63.5%), other health impairments (59.6%), speech language delay (54.5%), traumatic brain injury (44.2%), visual impairment (41.6%), severe emotional disorder (39.6%), at risk infant and toddler (22.5%), hearing impairment (21.7%), deaf and blind (20.4%) and other (13%). No consistent pattern of write in responses was noted in the other classification. See Figure 4.1 for details of caseload classification distribution.

Respondents indicated that the majority did not unconditionally provide services to students in one of the above classifications. Approximately one quarter of respondents indicated that they always treated students that were in specific classifications. Developmental delay, multiple disabilities and autism were the most noted classifications of students provided with services without referral and evaluation for eligibility.

The respondents identified the functional needs and limitations of the students on their caseloads. Handwriting was indicated to be the most common limitation of students by 48.9% of respondents. Motor planning was the limitation next indicated as most common by 17.3% of respondents. Limitations or needs most frequently indicated, though not necessarily the most common, are as follows: handwriting (98.3%), motor planning (94.4%), perceptual function (87.9%),
inattention in the classroom (84.8%), self care (82.3%), behavioral issues (71%), positioning (68.4%), assistive technology (66.2%), oral-motor control (65.4%), prevocational needs (40.3%) and transition planning (35.1%). See Figure 4.2 for functional limitations and needs distribution.

![Figure 4.1: Caseload Classification Distribution](image)

Figure 4.1: Caseload Classification Distribution
Figure 4.2: Percent of Caseload with Limitations and Needs

Referral

The first section of the survey instrument asked school-based occupational therapists about the number of referrals, referral process and referral sources. The range of numbers of new referrals received during the 9 month, 1996 – 1997, school year was 0 through 250 with a mean of 25.1, median of 17.0 and mode of 20.0. It is important to note that 28 members of the sample did not respond to the question regarding the number of referrals. Specific protocols for occupational therapy service referral were used by 88.3% of the respondents. Written formalized referrals were most frequently used and were indicated by 84.7% of respondents. Verbal, unstructured referrals were noted by 43.7% of respondents. Verbal referrals made during formal or scheduled meetings were indicated by 36.8% of
respondents. Written, in a non-structured manner, was the referral method least utilized and was indicated by 24.2% of respondents.

Reported referral sources were highly varied. The multi-factored evaluation team was cited as the most frequent primary source (27.8%). The second most frequent primary source noted was the classroom teacher, indicated by 24.3% of respondents. Referral sources cited, though not necessarily the most common, are as follows: classroom teacher (85.7%), multi-factor evaluation team (74.8%), related service provider (67%), special education coordinator (57%), building level intervention team (43.9%), other (39.1%), building principal (17.4%), guidance counselor (13.9%) and school nurse (13%). See Table 4.2 for referral source information. Of the 90 respondents (39.1%) indicating other, 66.6% or 60 respondents wrote in parent as the source of the referral.

<table>
<thead>
<tr>
<th>Source</th>
<th>Percent Indicated as Source</th>
<th>Percent Indicated as Primary Referral Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Multi-factored Evaluation Team</td>
<td>74.8%</td>
<td>27.8%</td>
</tr>
<tr>
<td>Classroom Teacher</td>
<td>85.7%</td>
<td>24.3%</td>
</tr>
<tr>
<td>Building Principal</td>
<td>17.4%</td>
<td>1.3%</td>
</tr>
<tr>
<td>School Nurse</td>
<td>13.0%</td>
<td>0.0%</td>
</tr>
<tr>
<td>Guidance Counselor</td>
<td>13.9%</td>
<td>1.3%</td>
</tr>
<tr>
<td>Special Education Coordinator</td>
<td>57.0%</td>
<td>13.5%</td>
</tr>
<tr>
<td>Related Service Provider</td>
<td>67.0%</td>
<td>3.5%</td>
</tr>
<tr>
<td>Building-level Intervention Team</td>
<td>43.9%</td>
<td>14.8%</td>
</tr>
<tr>
<td>Other</td>
<td>39.1%</td>
<td>6.5%</td>
</tr>
</tbody>
</table>

Table 4.2: Referral Sources
Attitudes Regarding Referral

Attitudes regarding referral system were measured by four items. The Cronbach alpha reliability coefficient of items in the referral system construct was 0.63. Table 4.3 displays levels of agreement for the items that measured attitude toward the referral system. The mean of the four items was 3.93, indicating a slight positive feeling toward the referral system. The respondents felt slight disagreement that their school systems educated staff regarding occupational therapy referrals \( m = 2.89 \). Respondents moderately agreed that a referral enhances a feeling of being a valued member of the educational team \( m = 4.76 \). Respondents slightly agreed that the referral system that they work with meets the needs of students \( m = 4.09 \) and that their school system has an efficient referral system \( m = 3.96 \).

Attitudes about the functions that referrals serve were measured by eight items. The internal consistency of these items measured by Cronbach alpha was 0.585. This construct reflects the outcome of functions served by the referral process. Table 4.4 summarizes levels of agreement. The mean of the 8 items was 4.27, indicating a slightly positive attitude toward referral function. Respondents moderately disagreed that referrals were a final cry for help \( m = 2.79 \) and slightly disagreed that referrals were to made to shift responsibility for student limitations \( m = 2.87 \). Respondents moderately agree that referrals are necessary to assure students get services needed to benefit from educational programming \( m = 5.28 \). No significant correlation was noted between the use of a formal referral process and therapist's attitude toward referral system or referral outcome.
<table>
<thead>
<tr>
<th>Statement</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>Percent Moderately to Strongly Agreeing</th>
<th>Percent Moderately to Strongly Disagreeing</th>
</tr>
</thead>
<tbody>
<tr>
<td>My school district has an efficient, streamlined referral system.</td>
<td>3.96</td>
<td>1.38</td>
<td>43.5%</td>
<td>17.8%</td>
</tr>
<tr>
<td>School systems educate staff about Occupational Therapy referrals.</td>
<td>2.89</td>
<td>1.33</td>
<td>12.6%</td>
<td>44.6%</td>
</tr>
<tr>
<td>A referral for Occupational Therapy evaluation makes me feel like a valued part of the educational team.</td>
<td>4.77</td>
<td>1.06</td>
<td>62.9%</td>
<td>3.5%</td>
</tr>
<tr>
<td>The referral process that I work with meets the needs of students.</td>
<td>4.09</td>
<td>1.25</td>
<td>43.9%</td>
<td>13.9%</td>
</tr>
</tbody>
</table>

1=Strongly Disagree, 2=Moderately Disagree, 3=Slightly Disagree, 4=Slightly Agree, 5=Moderately Agree, 6=Strongly Agree

Table 4.3: Attitudes Toward the Referral System: Process means, standard deviations and percentages of agreement
<table>
<thead>
<tr>
<th>Statement</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>Percent Moderately to Strongly Agreeing</th>
<th>Percent Moderately to Strongly Disagreeing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Referrals are made to Occupational Therapy as a final cry for help.</td>
<td>4.21*</td>
<td>1.29</td>
<td>10.9%</td>
<td>45.2%</td>
</tr>
<tr>
<td>A referral for Occupational Therapy evaluation makes me feel like a valued part of the educational team.</td>
<td>4.77</td>
<td>1.06</td>
<td>62.9%</td>
<td>3.5%</td>
</tr>
<tr>
<td>Referrals generate too much paperwork.</td>
<td>3.93*</td>
<td>1.42</td>
<td>14.8%</td>
<td>39.1%</td>
</tr>
<tr>
<td>Referrals are necessary to assure students get services needed to benefit from educational programming.</td>
<td>5.28</td>
<td>0.85</td>
<td>85.2%</td>
<td>4.0%</td>
</tr>
<tr>
<td>A large number of referrals show positive regard for School-Based Occupational Therapy.</td>
<td>4.35</td>
<td>1.19</td>
<td>49.5%</td>
<td>7.8%</td>
</tr>
<tr>
<td>In many school districts, students are referred to Occupational Therapy so that they can be “fixed”.</td>
<td>3.04*</td>
<td>1.21</td>
<td>34.9%</td>
<td>16.1%</td>
</tr>
<tr>
<td>A referral to Occupational Therapy reinforces the team approach.</td>
<td>4.50</td>
<td>1.12</td>
<td>54.4%</td>
<td>4.8%</td>
</tr>
<tr>
<td>Referrals are made to Occupational Therapy so that the student’s limitations become the Occupational Therapist’s problem.</td>
<td>4.13*</td>
<td>1.35</td>
<td>12.6%</td>
<td>45.3%</td>
</tr>
</tbody>
</table>

* = Scoring Inverted
1=Strongly Agree, 2=Moderately Agree, 3=Slightly Agree, 4=Slightly Agree, 5=Moderately Agree, 6=Strongly Agree

Table 4.4: Attitudes Toward Referral Function: Means, standard deviations and percentages of agreement
Referral function serving the teams function was measured by 3 items. The Cronbach’s alpha coefficient measuring internal consistency for this construct was 0.65. Table 4.5 summarizes levels of agreement. The mean for these items was 4.54, indicating a positive regard.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>Percent Moderately to Strongly Agreeing</th>
<th>Percent Moderately to Strongly Disagreeing</th>
</tr>
</thead>
<tbody>
<tr>
<td>A large number of referrals show positive regard for School-Based Occupational Therapy.</td>
<td>4.35</td>
<td>1.20</td>
<td>49.5%</td>
<td>7.8%</td>
</tr>
<tr>
<td>A referral to Occupational Therapy reinforces the team approach.</td>
<td>4.50</td>
<td>1.12</td>
<td>54.9%</td>
<td>4.8%</td>
</tr>
<tr>
<td>A referral for Occupational Therapy evaluation makes me feel like a valued part of the educational team.</td>
<td>4.76</td>
<td>1.06</td>
<td>62.9%</td>
<td>3.5%</td>
</tr>
</tbody>
</table>

1=Strongly Agree, 2=Moderately Agree, 3=Slightly Agree, 4=Slightly Agree, 5=Moderately Agree, 6=Strongly Agree

Table 4.5: Attitudes Toward Team Function: Means, standard deviations and percentages of agreement

Evaluation

The second section of the survey instrument asked the school-based occupational therapists about their sequence of evaluation, required evaluation or testing to qualify students for services, and tests used. Attitudes regarding standardized testing and evaluation were measured.
The respondents indicated the evaluation activities they used and the sequence in which they implemented these activities. Chart review and teacher interview was noted by over 78% of respondents to be among the first three steps of a student’s occupational therapy evaluation. Screening was indicated to be one of the first three steps by 48% while student observation was indicated by 47.1%. Standardized testing was noted to be in the first three steps for 16.7% of respondents, but was not used by 6.6% of the respondents.

A majority (63.5%) of the respondents indicated that standardized test results are required to qualify students for special education services. In addition, 29.6% reported that standardized test results are required to qualify students for occupational therapy services. “Home grown” tests, those evaluations designed by the individual or group administrating them, are used by 62.7% of respondents. Of those using homegrown tests, a small percentage indicated that validity (3.2%) and reliability (4.9%) studies had been conducted. Evaluations are completed for students who have not been referred to occupational therapy by 18.8% of respondents.

Respondents indicated the use of specific standardized evaluations. The most common evaluation tool was the Bruininks-Oseretsky Test of Motor Proficiency used by 84.5%. The frequency of use for others was: Peabody Developmental Motor Scale (83.2%), Motor – Free Visual Perception Test – Revised (81.5%), Developmental Test of Visual Perception – 2nd Edition (70%), Ayres Clinical Observations (48%), Miller Assessment of Pre-Schoolers (30.8%), Denver
Developmental Screening Test (21.6%), Sensory Integration and Praxis Test (18.9%), Bayley Scales of Infant Development (17.6%), Jebsen-Taylor Hand Function Test (7.5%) and Test of Motor Impairment – Henderson Revision (3.5%).

See Figure 4.3 for test utilization information.

Figure 4.3: Percentages of Respondents Using Specified Standardized Tests
Attitudes Toward Evaluation

Attitudes toward standardized test use were measured by nine Likert scale items. Cronbach’s alpha measuring internal consistency for attitudes regarding standardized testing was 0.77. Table 4.6 displays levels of agreement. The mean score for the nine items was 3.68, indicating a neutral attitude regarding standardized tests. Nearly one half of the respondents moderately to strongly agreed that standardized test scores help the evaluation team make decisions. Half of the respondents also agreed that standardized test scores are important to make evaluation consistent. One third (33%) of respondents agreed that standardized test scores do not reflect functional levels of students.

Three quarters (73.3%) of respondents agreed that therapists are aware of a student’s functional level when an evaluation is completed. The item mean was 4.78, indicating moderate agreement. Table 4.6 displays levels of agreement.

A Pearson correlation was completed to describe the relationship between attitudes regarding standardized testing and the number of standardized tests used. A weak negative correlation was found (r = -0.148), p = .05. The relationship between standardized test score requirements to qualify students to receive occupational therapy services and the number of tests used was also explored; no significant correlation was noted (r = -0.091). Correlation in the relationship of number of tests used and years of school-based practice experience was not significant (r = 0.104). Correlation between primary diagnosis and age group
making up the therapist's caseload with the number of test used were not significant

\( r = -0.122, r = 0.107 \).
<table>
<thead>
<tr>
<th>Statement</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>Percent Moderately to Strongly Agreeing</th>
<th>Percent Moderately to Strongly Disagreeing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Too much emphasis is placed on standardized evaluations.</td>
<td>3.44</td>
<td>1.32</td>
<td>25.3%</td>
<td>21.7%</td>
</tr>
<tr>
<td>Standardized test scores that are clear and concise help the evaluation team make decisions.</td>
<td>4.41</td>
<td>1.03</td>
<td>49.2%</td>
<td>5.8%</td>
</tr>
<tr>
<td>Scoring tests is more time-efficient than writing narratives.</td>
<td>3.47</td>
<td>1.31</td>
<td>22.9%</td>
<td>23.2%</td>
</tr>
<tr>
<td>Test scores correlate positively with classroom function.</td>
<td>3.34</td>
<td>1.26</td>
<td>22.6%</td>
<td>29.2%</td>
</tr>
<tr>
<td>Administering standardized tests makes evaluation more consistent.</td>
<td>4.40</td>
<td>1.15</td>
<td>49.6%</td>
<td>6.1%</td>
</tr>
<tr>
<td>Standardized test scores do not reflect a student’s functional level.</td>
<td>3.07</td>
<td>1.28</td>
<td>33.0%</td>
<td>15.6%</td>
</tr>
<tr>
<td>Evaluation tools that generate a numerical equivalent are necessary for an objective evaluation.</td>
<td>3.44</td>
<td>1.22</td>
<td>18.8%</td>
<td>21.8%</td>
</tr>
<tr>
<td>No evaluation tools are available that are normed for the students I work with.</td>
<td>3.86</td>
<td>1.65</td>
<td>24.4%</td>
<td>38.9%</td>
</tr>
<tr>
<td>Most school-based therapists who use standardized tests achieve objective evaluation.</td>
<td>3.70</td>
<td>1.17</td>
<td>28.8%</td>
<td>16.2%</td>
</tr>
</tbody>
</table>

Not included in this construct:

| I am aware of a student’s functional ability when I have completed my evaluation | 4.79 | 1.01 | 73.3% | 6.9% |

1=Strongly Agree, 2=Moderately Agree, 3=Slightly Agree, 4=Slightly Agree, 5=Moderately Agree, 6=Strongly Agree

Table 4.6: Attitudes Toward Standardized Tests: Means, standard deviations and percentages
CHAPTER 5

INTERPRETATIONS AND IMPLICATIONS

Introduction

This chapter presents a summary and interpretations of data presented in Chapter 4. The four research questions of this study will guide this discussion. Limitations of the study, areas recommended for further research and recommendations for practice are also discussed.

The Education of the Handicapped Act of 1975 and its recent amendments, the Individuals with Disabilities Education Act of 1990, 1997, address the rights of students with disabilities to receive related services to enhance students’ benefit from special education programming. These pieces of legislation have opened the arena of school-based occupational therapy practice. The American Occupational Therapy Association membership services reported that 5,220 members are in school-based practice. It is estimated that 8,100 occupational therapists will be working in school-based practice by 2000 (Crowe & Kanny, 1990; Davidson, 1995).
Summary of Findings

Response Rate

A final adjusted response rate of 63.3% was achieved. This response rate was less than the 70% rate desired by the researcher. A statistical comparison of early and late respondents was conducted based on the assumption that late respondents are more like non-respondents (Miller & Smith, 1983). Responses on 10 items from the early respondents, those responding after the initial mailing were compared to responses on the same items from late respondents, those responding after a reminder card and second mailing. Items used in comparison were referral section questions 2, 4, 5, 13; evaluation section questions 1, 6, 7, 16 and demographics questions 2 and 5 (See Appendix B). No differences were noted in the comparison of early and late respondents on mean scores and frequencies indicating no need to weight responses of late respondents during the data analysis process (Miller & Smith, 1983; Ary, et al, 1990). The 63.3% response rate is felt to be adequate (Fowler, 1988) to represent the population of occupational therapists in school-based practice in the United States who are also American Occupational Therapy Association members.

Demographics

Respondents indicated that 51.1% are direct school employees and have a mean of 9.1 years of school-based experience. Respondents indicated that 59.6% worked over 35 hours per week during the 9-month school year. These
demographic characteristics are similar to those reported by other researchers exploring school-based practice (Cable, 1994; Crowe & Kanny, 1990; Swart et al, 1997). These similar characteristics of samples suggest that comparisons between the studies may be made.

**Caseload**

Respondents indicated the majority of students receiving occupational therapy interventions are ages 3 to 12 years. Individuals birth to 3 years and those over 18 years are not considered to be of “school age” although educational legislation includes these age groups. The birth to 3 and over 18 age groups may be receiving occupational therapy services in settings other than schools. Therapists providing services to these age groups may have not indicated themselves as school-based practitioners and may not be represented in the sample.

The respondents were asked to categorize their caseloads using a list of the student disability classifications specified in IDEA. Disability categories of developmental delay, specific learning disability, autism and mental retardation were most frequently cited by respondents as being portions of their caseloads. The categories of disability composing the caseloads of school-based therapists can and may determine the evaluation tools and processes used and dictate the limitations and needs that an occupational therapist will address. Eight respondents wrote medical diagnosis and indicated this as the primary disability category. Though these were not utilized in statistical analysis, this is an important point as it may indicate poor separation from the medical model or may indicate limited awareness
of the IDEA categories. This occurrence was also noted in the AOTA 1993 School-Based Practice Survey (Chandler, 1994).

Handwriting was indicated as the most common primary limitation by almost half of all respondents while being indicated as an encountered limitation by 98.3% of respondents. Motor planning, inattention in class, perceptual function and self care were student limitations noted on caseloads of over 80% of respondents. These limitations appear to be logical outcomes associated with disabilities categories listed above. Other researchers have also found these functional limitations and needs to be a primary reason for referral to school-based occupational therapists (Crowe & Kanny, 1990; Reid, 1987; Swart et al, 1997). Further, other researchers have indicated that these areas are unique to occupational therapy intervention with little intervention from other related service providers (Lawlor & Henderson, 1989; Swart et al, 1997). Self care skills are difficult to incorporate into an IEP because other professionals may not be aware of the importance of self-care skills to educational outcome and successful transitioning. Levels of feeding, toileting and hygiene independence have a great impact on future placements and opportunities for students (Swart et al, 1997). Brodler, Shepherd and Markley (1994) pointed out that even with IDEA’s requirement for transition planning as part of the IEP for special education students over fourteen years of age, self care and daily living skills, necessary for community function, are often the sole responsibility of the occupational therapist. Self care skills are an important emphases when children make transitions from one
environment to another. Respondents indicated that 35.1% participate in transition planning, whether from early intervention to preschool, preschool to school age programming or school to community transitions. This low number of respondents may indicate need for increased focus in this area as is greater education for the transition team regarding needed life skills and the practical training of these skills (Brollier et al, 1994).

Current Referral Practices

IDEA infers that an educational team assessment generates referrals to related services. Respondents indicated that the most common primary referral source was a multi-factored evaluation team; therefore, this is in agreement with IDEA language. Teams or groups made referrals to most of the respondents: multi-factored evaluation teams and building level intervention teams were also common primary sources of referral.

Individuals, however, were frequently cited as referral sources: classroom teacher (85.7%) related service provider (67%) and special education coordinator (57%). The number of individuals indicated as primary referral sources may reflect the need to enhance and promote teamwork in the process used to generate referrals. The slight negative attitude indicated by respondents regarding the education of school staff about occupational referral may indicate the need to provide education to staff at various levels of the educational personnel hierarchy; education for classroom staff as well as principals, program coordinators and administrators. Increased knowledge regarding the process used to make an
occupational therapy referral, when to make such a referral and why to make a referral for all members of the educational team may enhance the effectiveness of the team process. Parents were often cited as a referral source in the “other” source grouping. This common trend reinforces the family’s role on the educational team (Coutinho & Hunter, 1988; McEwen & Sheldon, 1995).

Most of the respondents (88.3%) use specific protocols for referrals, with the written formal referral being most common. The correlation between the utilization of a formal referral system and therapists attitude toward the referral system was not significant.

**Attitudes Regarding Referral**

The respondents held a positive attitude about their referral system. This may indicate overall comfort with the referral system or may indicate that this aspect of school-based practice is not a primary focus of practitioners. Respondents have agreed that they feel that referrals are necessary and agreed that an inefficient referral system has a negative impact on students. Further, respondents were neutral regarding the limitations that the referral process may place on who receives occupational therapy in the school setting. Therapists may have felt that they are presently serving enough or more than enough students and do not desire an increased number of referrals.

A slightly positive attitude was expressed regarding the outcome of the referral process. Therapists seem to feel that referrals are necessary to assure that students receive the interventions they need to benefit from educational
programming. Further, therapists have indicated that referrals show positive regard for occupational therapy and suggest confidence in the occupational therapist’s ability to assist students. Respondents do agree that students are sometimes referred to occupational therapy to be “fixed” as suggested by Coleman (1988). The negative implication of this statement does not over ride the general positive attitude toward referral function and is the only statement-measuring attitude toward referral outcome that was found to be negative. Therapists feel that the referral system works to meet student needs and that it promotes team cohesion.

Referrals seem to be an important aspect of team function. The respondents strongly agreed that referrals make them feel as if they are part of the team and that their referral system reinforces the team approach in educational planning.

Much literature focusing on school-based occupational therapy practice makes a reference to referral, but little is found to address specifics of the referral process. Carr (1990) reviewed state guidelines for school-based occupational therapists, finding that none of the 32 states using guidelines have referral protocols included in the state guidelines.

**Current Evaluation Practices**

School-based occupational therapists use many techniques, processes and tests to evaluate students. Chart review, teacher interview and screening were among the first 3 steps of evaluation for the majority of respondents. Standardized testing was a portion of the evaluation process for 93.4% of respondents but was noted to be among the first 3 steps by only 16.7%. Other researches have suggested
the importance of standardized testing in the evaluation process but have stressed the importance of being aware of student functional level prior to choosing an evaluation tool (Davidson, 1995; Litton et al., 1982; Madill, Tirrul-Jones & Magill-Evans, 1990). The utilization of standardized tests by respondents later in the evaluation process support these findings. It is perhaps necessary to complete a form of screening or observation to gather information about a student’s ability to complete a testing instrument or to determine if the information that an instrument will provide will be of use to the assessment process.

Standardized testing results are required to qualify a student for occupational therapy services in the practice arenas of 29.6% of respondents. Carr (1990) noted that only four states had occupational therapy service guidelines that required the use of specific tests to qualify students for occupational therapy services in a school setting. This finding suggests that the use of non-standardized testing, screening tools and professional decision judgement is adequate to determine a student’s need for occupational therapy interventions. Interview, observation and testing are needed steps in the evaluation process to assure a full assessment of a student’s level of function (Bundy, 1995; Dunn, 1983; Stewart, 1996).

Literature supports clinical judgement or clinical reasoning as a critical element of the evaluation process. Beyond the determination of which evaluation methods or tests to use, school-based occupational therapists must then apply these findings to the educational setting and share these results with the educational team.
as they relate to the student’s function at school. Clinical judgements are not made on the basis of test scores or isolated observation but are made through a complex process of clinical reasoning (Hall et al, 1992; Neistadt, 1998). The large number of evaluative techniques used by the majority of respondents suggests that they use a variety of tools to uncover the basis for student problems. Further, a number of steps in the evaluation process suggest that a thorough evaluation of student abilities and limitations is achieved.

“Home grown” tests are used by 62.7% of respondents, indicating that these checklists and tests are prevalent. Strong disagreement with the idea of developing a standardized test to use as a qualifier for school-based occupational therapy intervention may indicate the high level of respect that therapists hold for clinical judgement skills. The respondents did not perceive a need to have a standardized score as a baseline. These findings support the previous research of Farley et al (1991) and Giangreco (1995) who each suggested that therapists have developed tools that are specific to populations and functional level of students being evaluated.

The use of “home grown” tests reflects school-based occupational therapists’ confidence in clinical judgement. As therapists are willing to utilize evaluation methods that do not generate objective numerical scores they project a level of comfort with the assessment of a student’s functional ability using subjective measures. Perhaps use of “home grown” tests allow for flexibility in testing, that is, the testing protocol can be changed to meet the individual needs of the student.
Informal tests can allow for shifts in emphasis of testing, such that performance areas of concern can be thoroughly analyzed. The use of clinical judgement or clinical reasoning to direct the evaluation process, whether by "home grown" tests or other methods, is a growing trend in the practice of occupational therapy (Neistadt, 1998).

Respondents reported that the Bruininks – Oseretsky Test of Motor Proficiency is their most commonly utilized evaluation tool, used by 83.2% of respondents. Other frequently used tools were the Peabody Developmental Motor Scale, Motor – Free Visual Perception Test (Revised) and the Developmental Test of Perception – 2nd Edition used by over 70% of respondents. A high number of unsolicited write in responses may indicate that the tests listed in the survey instrument were not an accurate representation of the test tools currently used by school based therapists. The tests used in the survey were those that were listed in studies by Crowe (1989) and Reid (1987). Miller and Robinson (1996) recommended use of tests designed specifically for children with known functional limitations. Respondents frequently wrote in the Pediatric Evaluation of Disability Inventory and the Toddler and Infant Motor Evaluation. These tests were noted by Miller and Robinson (1996) to be new tools developed for use with children with significant motor or sensory disabilities.

Fine and gross motor skills as well as perceptual skills are most frequently evaluated; this was also noted by Crowe (1989) and Reid (1987). With hand writing
the most frequently noted area of functional difficulty, it is surprising that specific writing assessments are not cited as frequently used.

**Attitudes Regarding Evaluation**

Attitudes regarding standardized testing were neutral; the scale mean was 3.72. Attitudinal questions illustrated that therapists felt test scores to be valuable but not adequate to give a full picture of student function. Almost 84% of respondents felt that it was not possible to have one standardized test to qualify all students for occupational therapy services. This may suggest that therapists feel that a test score is not important or may suggest that students are referred for a variety of unique reasons and it is not feasible to evaluate using a single instrument.

Therapists indicated that they felt that they achieved a good understanding of a student’s functional level following evaluation. This strong positive feeling toward the evaluation outcome suggests the value of assessment methods other than standardized testing.

**Limitations**

Several limitations are indicated in this study. A significant limitation is the limited rate of response. The desired response of 70% was not achieved. A statistical comparison of early to late respondents was used to determine if weighting late respondent responses was necessary to better reflect the population. No significant differences were indicated between early and late respondents.
Several of the respondents reported that they had received other mail surveys during the time of this study.

Respondents indicated confusion about some items on the survey instrument. Several therapists appeared to be unaware of the disability categories in IDEA and edited the instrument before responding. A convenience sample was used to complete pilot/field testing. The knowledge base of the test group is felt to be higher than the general population of school-based occupational therapists. Members of the test group held higher education certifications than indicated as average in AOTA membership surveys (1990,1993), resided in a university community with many continuing education opportunities and indicated that they actively followed changes in legislation affecting school-based occupational therapy practice. Based on the pilot/field test results it was assumed that items could reference to legislation and components of public law without explanation. However, a significant portion of the sample indicated that these items were confusing or unclear.

A further limitation is that there was no mechanism to encourage descriptive narrative data to be added to the questionnaire by the respondents. Statistical analysis of write in responses to “other” options were hand tallied. These options could have help to explain quantitative results of the questionnaire.

**Recommendations for Future Investigation**

Areas for further study in school-based occupational therapy services are many. Several respondents indicated interest in gathering information regarding what functional skills or needs were most often evaluated by “home grown” check
lists and observation report forms. Summarizing which skills and limitations are felt to be most important to the student’s function in school would provide guidance to future development of assessments.

Given the disparity in how referrals for occupational therapy evaluation are made, a more in depth study is needed that would investigate the timing of referrals, who is referred, the appropriateness of referral and other aspects of the process. Indications from school-based occupational therapists as to what information is needed to begin the process of screening and evaluation may help to generate a valuable referral standard. Time efficiency studies comparing methods of referral with the time needed to complete the assessment process may be valuable.

**Recommendations for Practice**

Based on the findings of this research, recommendations for practice are offered. The slightly positive attitude toward existing referral system indicates a need to improve the process by which students are identified for occupational therapy assessment. A written referral form was reported to be a positive part of the referral system. A written referral with information specific to the student’s educational limitations may be of assistance in all educational settings.

This study indicates that fine/gross motor function and perceptual skills are the areas most frequently evaluated by school-based occupational therapists. It is suggested that therapists make an effort to gain familiarity with test or evaluation tools that assess these areas. By increasing their awareness of tool availability,
therapists will be better able to select tools that are most appropriate for the student’s skills.

**Education for school staff regarding student limitations or needs which may indicate a need for occupational referral is indicated.** Without knowledge of how, when or why to make a referral, educational staff may not pursue the assistance of school-based occupational therapy services. Promoting of team processing in the education setting will be enhanced as awareness of the specialty areas of the school-based occupational therapist are understood.

**Occupational therapists in school-based practice must further their knowledge of team processing to promote the referral system and to asset educational teams to best meet the needs of students.** Therapists must strive to review new evaluation tools and methods to assure that therapists achieve the best possible understanding of student function, leading to the most appropriate intervention.
BIBLIOGRAPHY


APPENDIX A

COVER LETTER
January 12, 1998

Dear AOTA member:

Occupational therapy in school systems is growing and changing at a rapid pace. With the enclosed survey we seek to gain information on referral and evaluation methods used in the school setting and to gather information on occupational therapist’s attitudes regarding these methods. Your completion of the survey instrument is crucial to gain input from a representative sample of AOTA members who practice in the schools.

Field-testing has indicated that approximately 15 minutes is needed to complete the survey. Please take this time from your busy schedule to respond to the survey and return it in the enclosed envelope by January 26, 1998.

Please be assured that all information will be kept completely confidential. Each survey has been numbered to allow for follow-up reminders so that results representative of the randomly selected sample of school-based occupational therapists may be reported. Your responses will not be reported in any manner that would breach confidentiality.

Questions regarding this study are welcome. Messages may be left by calling (614) 792-2311 or via electronic mail: tait.5@osu.edu.

Thank you for your valuable assistance.

Sincerely,

A. Irene Stratton Tait, OTR/L  
Master’s Candidate

Jane Case-Smith, Ed.D., OTR/L  
Associate Professor
APPENDIX B

QUESTIONNAIRE
Current Practices in School-Based Occupational Therapy Referral and Evaluation

Division of Occupational Therapy
School of Allied Medical Professions
The Ohio State University
Practices that bring students with special educational needs to the attention of an occupational therapist vary by school, district and state. Occupational therapists, using many evaluation tools and techniques, identify students who may benefit from school-based occupational therapy services.

This survey will determine current practices of student referral and evaluation by school-based occupational therapists. The attitudes of school-based therapists regarding these practices will be measured.
Part I - Referral

Referral is defined as a series of acts aimed at directing a student to an appropriate specialist for definitive treatment.

1. What is the approximate number of new referrals you received during the nine-month school year (1996-1997)? ________

2. Does your school district have a specific protocol for Occupational Therapy service referral?
   Yes ____  No ____

3. In what form do these referrals come to you? (check all that apply and place a (1) in front of the most common form)
   ___ Written, on a formal referral form
   ___ Written, in a non-structured manner
   ___ Verbally, during a scheduled meeting format
   ___ Verbally, in a non-structured manner

4. Who generates the referrals for Occupational Therapy evaluation that you receive? (check all that apply and place a (1) in front of the most common referral source)
   ___ Multi-factor evaluation team
   ___ Classroom teacher
   ___ Building principal
   ___ School nurse
   ___ Guidance counselor
   ___ Special ed. coordinator
   ___ Related service provider (e.g., Physical Therapist, Speech Language Pathologist)
   ___ Building level intervention team
   ___ Other ________________
Reflect on how you feel about the referral procedure that you work with, and then respond to the following statement regarding referral.

Indicate the degree to which you agree with each statement by circling one of the numbers following each statement.

<table>
<thead>
<tr>
<th>KEY</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 = strongly disagree</td>
</tr>
<tr>
<td>2 = moderately disagree</td>
</tr>
<tr>
<td>3 = slightly disagree</td>
</tr>
</tbody>
</table>

5. My school district has an efficient, streamlined referral system.
   1  2  3  4  5  6

6. Referrals are made to Occupational Therapy as a final cry for help.
   1  2  3  4  5  6

7. School systems educate staff about Occupational Therapy referrals.
   1  2  3  4  5  6

8. Waiting for referrals limits an Occupational Therapist's ability to treat students.
   1  2  3  4  5  6

9. A referral for Occupational Therapy evaluation makes me feel like a valued part of the educational team.
   1  2  3  4  5  6

10. Educational teams should refer more students to Occupational Therapy.
    1  2  3  4  5  6

11. Referrals generate too much paperwork.
    1  2  3  4  5  6

12. Referrals are necessary to assure students get services needed to benefit from educational programming.
    1  2  3  4  5  6

13. An inefficient referral system has a negative impact on student progress.
    1  2  3  4  5  6
<table>
<thead>
<tr>
<th></th>
<th>A large number of referrals show positive regard for School-Based Occupational Therapy.</th>
</tr>
</thead>
<tbody>
<tr>
<td>14</td>
<td>1 2 3 4 5 6</td>
</tr>
<tr>
<td></td>
<td>In many school districts, students are referred to Occupational Therapy so that they can be “fixed”.</td>
</tr>
<tr>
<td>15</td>
<td>1 2 3 4 5 6</td>
</tr>
<tr>
<td></td>
<td>A referral to Occupational Therapy reinforces the team approach.</td>
</tr>
<tr>
<td>16</td>
<td>1 2 3 4 5 6</td>
</tr>
<tr>
<td></td>
<td>Referrals are made to Occupational Therapy so that the student’s limitations become the Occupational Therapist’s problem.</td>
</tr>
<tr>
<td>17</td>
<td>1 2 3 4 5 6</td>
</tr>
<tr>
<td></td>
<td>Referrals to Occupational Therapy are unnecessary once a student has qualified for special education.</td>
</tr>
<tr>
<td>18</td>
<td>1 2 3 4 5 6</td>
</tr>
<tr>
<td></td>
<td>The referral process that I work with meets the needs of students.</td>
</tr>
<tr>
<td>19</td>
<td>1 2 3 4 5 6</td>
</tr>
</tbody>
</table>
Part II – Evaluation

Evaluation is defined as the systematic method of gathering information for the purpose of making a decision

1. In what order do you complete the following evaluation techniques? (order only those that you use; 1 = first, 2 = second, etc.)
   - [ ] student observation
   - [ ] file/chart review
   - [ ] screening
   - [ ] parent interview
   - [ ] teacher interview
   - [ ] non-standardized test
   - [ ] standardized test

2. Are standardized test scores required in your district to qualify a student for special education?
   Yes [ ] No [ ]
   If so, which standardized test(s)? __________________________

3. Are standardized test scores required to qualify a student for Occupational Therapy services?
   Yes [ ] No [ ]
   If so, which standardized test(s)? __________________________

4. Do therapists in your school district use a “home-grown” evaluation tools or checklist?
   Yes [ ] No [ ]
   If yes, have reliability studies been conducted?
   Yes [ ] No [ ]
   If yes, have validity studies been conducted?
   Yes [ ] No [ ]
5. Do you evaluate students who have not been referred to Occupational Therapy services?
   Yes ____  No ____

6. Please check each tool that you have used during your school-based practice.

<table>
<thead>
<tr>
<th>Usage (√)</th>
<th>Evaluation Tool</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Peabody Developmental Motor Scale</td>
</tr>
<tr>
<td></td>
<td>Bruininks-Oseretsky Test of Motor Proficiency</td>
</tr>
<tr>
<td></td>
<td>Jebsen-Taylor Hand Function Test</td>
</tr>
<tr>
<td></td>
<td>Test of Motor Impairment–Henderson Revision</td>
</tr>
<tr>
<td></td>
<td>Denver Developmental Screening Test</td>
</tr>
<tr>
<td></td>
<td>Bayley Scales of Infant Development</td>
</tr>
<tr>
<td></td>
<td>Developmental Test of Visual Perception - 2nd Edition</td>
</tr>
<tr>
<td></td>
<td>Motor-free Visual Perception Test-Revised</td>
</tr>
<tr>
<td></td>
<td>Sensory Integration and Praxis Test</td>
</tr>
<tr>
<td></td>
<td>Ayres Clinical Observations</td>
</tr>
<tr>
<td></td>
<td>Miller Assessment of Pre-schoolers</td>
</tr>
</tbody>
</table>
Reflect on how you feel about the evaluation procedure that you work with, and then respond to the following statements regarding evaluation. Indicate the degree to which you agree or disagree with each statement by circling one of the numbers following each statement.

**KEY**

<table>
<thead>
<tr>
<th>1 = strongly disagree</th>
<th>4 = slightly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 = moderately disagree</td>
<td>5 = moderately agree</td>
</tr>
<tr>
<td>3 = slightly disagree</td>
<td>6 = strongly agree</td>
</tr>
</tbody>
</table>

7. Too much emphasis is placed on standardized evaluations.  
   1 2 3 4 5 6
8. Standardized test scores that are clear and concise help the evaluation team make decisions.  
   1 2 3 4 5 6
9. Scoring tests is more time-efficient than writing narratives.  
   1 2 3 4 5 6
10. Determining which evaluation tools to use is difficult.  
    1 2 3 4 5 6
11. Test scores correlate positively with classroom function.  
    1 2 3 4 5 6
12. Administering standardized tests makes evaluation more consistent.  
    1 2 3 4 5 6
13. Standardized test scores do not reflect a student’s functional level.

14. Evaluation tools that generate a numerical equivalent are necessary for an objective evaluation.

15. No evaluation tools are available that are normed for the students I work with.

16. Evaluation is too subjective.

17. I am aware of a student’s functional ability when I have completed my evaluation.

18. Evaluation procedures should be consistent for all school-based therapists in a school district.

19. One standardized test should be used to qualify all students for Occupational Therapy Services.

20. “Home-grown” evaluation tools are not reliable.

21. Most school-based therapists who use standardized tests achieve objective evaluation.
Part III - Demographics

Please respond to the following demographic questions. All information is confidential.

1. Total years in Occupational Therapy practice ___

2. Total years in School-Based Occupational Therapy practice ___

3. Employment arrangement (check the most appropriate response)
   a. ___ Direct employee of school system
      ___ Contract employee
   b. ___ Full time (>35 hr/wk)
      ___ Part time

4. Please indicate the age distribution of students in your caseload
   (Please rank-order, 1=the largest number of students)
   ___ less than 3 years
   ___ 3-5 years
   ___ 6-12 years
   ___ 12-18 years
   ___ over 18 years
5. Please indicate the special education classification distribution of students on your caseload. (1 = the largest number of students – please leave spaces which do not apply blank)

___ autism  
___ deaf/blindness  
___ hearing impairment  
___ mental retardation  
___ multiple disabilities  
___ orthopedic impairment  
___ other health impairment  
___ serious emotional disturbance  
___ specific learning disability  
___ speech/language impairment  
___ traumatic brain injury  
___ visual impairment including blindness  
___ at-risk infant/toddler  
___ other ________________________

6. Are there any student classifications listed above that always receive Occupational Therapy services? Yes____  No____

If yes, please specify the classification(s): ________________________________

7. What are the prevalent functional limitations or needs of your caseload? Please check all that apply. Put a (1) in front of the most common limitation.

___ hand writing  
___ inattention in the classroom  
___ behavioral issues  
___ self-care  
___ motor planning/clumsiness  
___ oral-motor control  
___ positioning  
___ prevocational needs  
___ perceptual function  
___ assistive technology  
___ transition planning
APPENDIX C

RESEARCH TIMELINE
**RESEARCH TIMELINE**

<table>
<thead>
<tr>
<th>Date</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Winter and Spring 1997</td>
<td>Development of proposal</td>
</tr>
<tr>
<td></td>
<td>Instrument development</td>
</tr>
<tr>
<td>August 11, 1997</td>
<td>Instrument mailed to expert advisors</td>
</tr>
<tr>
<td>August 25, 1997</td>
<td>Follow up phone calls to non-respondents</td>
</tr>
<tr>
<td>October 24, 1997</td>
<td>Field test of instrument (convenience sample)</td>
</tr>
<tr>
<td>January 12, 1998</td>
<td>Initial mailing to sample</td>
</tr>
<tr>
<td>February 7, 1998</td>
<td>Mailing of post card reminders</td>
</tr>
<tr>
<td>March 6, 1998</td>
<td>Second mailing to non-respondents</td>
</tr>
<tr>
<td>Winter and Spring 1998</td>
<td>Responses encoded and entered in data base</td>
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<tr>
<td>Winter and Spring 1998</td>
<td>Statistical analysis of data</td>
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</tbody>
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APPENDIX D

COVER LETTER 2ND MAILING
March 6, 1998

Dear School-Based Occupational Therapist:

Please let this serve as encouragement to complete and return the enclosed survey. We are hoping to gain information on referral and evaluation practices of school-based occupational therapists. Your response is crucial if we are to report results that are representative of AOTA members who practice in a school setting.

The time taken from your busy schedule to complete this survey is greatly appreciated. Please let us hear from you by March 13, 1998 so that your responses may be utilized to determine trends and practices in school-based occupational therapy.

Questions regarding this study are welcome. Messages may be left by telephone at (614) 792-2311 or via electronic mail: tait.5@osu.edu.

Thank you for your valuable response.

Sincerely,

A. Irene Stratton Tait, OTR/L
Master’s Candidate

Jane Case-Smith, Ed.D., OTR/L
Associate Professor