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The Effects of Age and Socio-Economic Status on the Diagnosis and Educational Treatment of Mildly Handicapping Conditions of School Children

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THE EFFECTS OF AGE AND SOCIO-ECONOMIC STATUS ON THE
DIAGNOSIS AND EDUCATIONAL TREATMENT OF MILDLY
HANDICAPPING CONDITIONS OF SCHOOL CHILDREN

by

John W. Kelsey

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

of

DOCTOR OF PHILOSOPHY

in

Psychology

Approved:

UTAH STATE UNIVERSITY
Logan, Utah

1976
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It is finally trite but true to also acknowledge the contribution of one's wife, and with all sincerity I want to state that the support of Wendy (H. B.) made this effort possible.

John W. Kelsey
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Abstract

The Effects of Age and Socio-Economic Status on the Diagnosis and Educational Treatment of Mildly Handicapping Conditions of School Children

by

John W. Kelsey

Utah State University, 1976

Major Professor: Dr. William Dobson
Department: Psychology

Biasing effects in labeling and recommendations for educational services when factors of socio-economic status and age are manipulated were studied using 50 certified school psychologists in Utah. Subjects received case report information about IQ, behavior and achievement which described a school child in need of services within one of four conditions, Age 7 Socio-economic status (SES) High, Age 7 SES Low, Age 13 SES High, and Age 13 SES Low. Other potentially biasing variables such as ethnic background, and sex were held constant. No evidence of bias could be found when dependent measures of labeling, recommendations for educational services, and perceived deficiency were used, although the school psychologists indicated they perceived that the child had a significant problem.

The implications of these results were discussed in terms of training factors, the relationship between recommendations and actual services school
districts may provide, other true causative biasing variables, and experimental methodology.
Introduction

Background of the Problem

School psychologists are often presented with the problem of assessing a child for the purpose of recommending possible diagnostic classifications, placements, and educational services. Although guidelines exist to differentiate the handicapping conditions of mental retardation, emotional disturbance, or learning disabilities (Bower, 1969; Grossman, 1973; Johnson, 1975), and required assessment procedures can be defined by state law (Utah State Board of Education, 1975a), there are indications that mild forms of the disorders present symptoms which involve areas of overlap (Hammill, 1973). Hammill's model suggests that in actuality non-discrete classifications are forced into separate diagnoses for educational, funding, and administrative purposes. Thus, in some children, when reported IQ, emotional-behavioral classroom problems, and discrepancy between potential and actual achievement do not clearly guide the school psychologist, diagnosis and recommendation of an educational service plan becomes problematic.

There are studies which suggest that when a child has a mild handicap in one or more of the areas of IQ, emotional-behavioral problems, or lagging achievement level, the diagnostician may rely on other sorting factors (Johnson, 1975) to make the final determination of the diagnostic category in which to place the child. Neer, Foster, Jones, and Reynolds (1973), found
that when IQ was held constant, social class becomes a significant factor in the diagnosis. Likewise in several surveys (Johnson, 1975), weighting factors have been identified for economic status, sex, and age. Although the weighting factors have been shown to vary across studies, there are trends which suggest that diagnosis consistently favors one category over another within the above factors. Thus children aged 6-8 generally receive the diagnosis "learning disabled" where a child aged 10-14 usually is diagnosed as "mentally retarded," and for the factor of socio-economic status, mental retardation is more prevalent in children from lower economic backgrounds (Farber, 1968; LaPouse & Weitzner, 1970).

The argument has often been made that diagnosis by itself is not important, but that the placement and educational service plan for a child are the real concern. In the area of placement of children in special education or regular classrooms, Rubin, Krus, and Balow (1973) found that children from lower socio-economic backgrounds were assigned to special education classes regardless of assessed IQ, and that children from a higher economic background with IQ's, which by law should have led to placement in classrooms for educably mentally retarded, often were placed in regular classrooms. They further showed that placement, and not diagnosis, was a possible critical factor in achievement assessed after 5 years in the educational system, since the low IQ students placed in a regular classroom often achieved 4 to 10 months ahead on various sub-tests than their special education classroom counterparts.
Under the Education for All Handicapped Act (P. L. 94-142) diagnosis of all children who currently have a handicapping condition, and provision for their educational services in the "least restrictive environment" must be completed by 1978. As the literature cited above has pointed out, the process of diagnosis and recommendation for educational services of children who have a mild deficiency which requires attention may not be as systematic as provisions under P. L. 94-142 require, thus raising the possibility of future litigation against school districts or the professionals they employ if it can be demonstrated that some unwarranted biasing factor has determined which children get advantageous educational services. The studies which have suggested an influence for sorting factors have been ex post facto in design which could confound any conclusion which suggests that the sorting factors of socio-economic status, sex, or age were the cause of a particular diagnosis, since some other true determiner of diagnosis may be involved (Johnson, 1975).

Statement of the Problem

A review of the literature reveals that the process of diagnosing possible educational handicapping conditions within a child and assigning that child to educational services may possibly be open to unwarranted biasing factors. Assuming that within the public school system all children should have equal access to placements and services relevant to their problem, it becomes imperative that an understanding should be obtained of exactly how the cause and effect relationship works when age and socio-economic status
vary in the diagnosis, placement, and educational services of individual children.

Objectives of the Study

When presented with a child who has a possible educationally handicapping condition which does not clearly suggest diagnostic categories or educational services to recommend, does the school psychologist employ a systematic decision making process free from unwarranted biasing factors? This study has concerned itself with measuring the effects age and socio-economic status have on the process when IQ, behavior, and achievement level are held constant. Measures of how the child and his deficiency are perceived, diagnosis, and recommendations for educational services have been collected.

The first variable that this study investigated is the effect age has on the diagnosis and recommendation process. Two age levels, 7 and 13 years old, have been used to maximize possible effects. The second variable is that of socio-economic status, and again two levels have been used, low and high status as defined by various indicators of family standing. Both variables are viewed with the assumption that presumed differences which might limit the available diagnoses or recommendations for either level of a variable are cultural artifacts, and do not necessarily represent true diagnostic, or more importantly, learning potential limiting factors of which the school psychologist must be aware.
This study also has concerned itself with an attempt to make tentative statements about the type of personnel utilized to deliver diagnostic and recommendation services, and what types of actual services are available within the school districts from which the subject population has been drawn.

The purpose of this study was to determine if age and socio-economic status in a child in need of educational services are the factors which delimit the services to be offered that child.

**Hypotheses**

1. When factors of IQ, behavior, achievement level, sex, and socio-economic status are held constant and do not clearly place a child within the handi-capping conditions of Mental retardation, Learning disabilities, or Emotionally disturbed:
   a. children aged 7 will receive a significantly higher proportion of learning disabilities diagnoses than 13 year olds.
   b. children aged 13 will receive a significantly higher proportion of mental retardation diagnoses than 7 year olds.
   c. there will be a significant difference between children aged 7 and 13 years old in the recommendations for placement, and educational services they receive.
   d. there will be a significant difference between children aged 7 and 13 years old in terms of the perception of the child's deficiency as made by school psychologists.
2. When the factor of IQ, behavior, achievement level, sex, and age are held constant and do not clearly place a child within the handicapping conditions of Mental retardation, Learning disabilities, or Emotionally disturbed:

a. children from low socio-economic backgrounds will receive a significantly higher proportion of mental retardation diagnoses than those from a high socio-economic background.

b. children from high socio-economic backgrounds will receive a significantly higher proportion of learning disabilities diagnoses than those from a low socio-economic background.

c. there will be a significant difference between children from low and high socio-economic backgrounds in the recommendations for placement and educational services they receive.

d. there will be a significant difference between children from low and high socio-economic backgrounds in terms of the perception of the child's deficiency as made by school psychologists.

3. The information presented in the case reports will be perceived as presenting a child with a problem (as measured by collapsing the three handicap labels and the no problem category into a problem versus no problem dichotomy).

Definition of Terms

Bias--that which causes the mind to inclind towards a particular object or course (n.); or to prejudice (v.).
**Diagnosis**—is considered to be the process whereby background information, behavioral observations, and test results are gathered for the evaluation of a child's present achievement level, intelligence level, and behavioral functioning as they relate to the child's optimum educational placement.

**Educational service**—is the development of a special service plan for educating a child with regard to his abilities in achievement, intelligence, or behavioral areas.

**Expectancy**—the act or state of entertaining at least a slight belief in the happening of (n.).

**School psychologist**—is a certified specialist in psychology as defined by the Utah State Board of Education who is empowered to make diagnoses and recommendations for educational services.

**Socio-economic status (SES)**—a. **Low**—a family, or a child of a family, that has parents or primary wage earner living in the home whose job is defined as common laborer including farm worker, and who has a salary qualifying the family for assistance from Division of Family Services (Utah), and whose education of both parents is below the 10th grade.

b. **High**—a family, or a child of a family that has parents or primary wage earner living in the home whose job is defined as professional, and education of both parents is beyond completion of 1 year of college.
Review of the Literature

An understanding of the affects of possible biasing factors in school related psychodiagnosis should be based in a knowledge of the total diagnostic process and the general interrelationship between diagnostic variables. The literature demonstrates the complexity of the process and the various sources of diagnostic error whether in the setting of school or clinical psychology, or the older area of medical diagnosis and problem solving. Furthermore, advances in diagnostic power in one specialty area are often easily translatable into another with little modification. This review is concerned with (1) the general process of diagnosis, (2) psychodiagnosis as it is currently practiced within the schools, and (3) bias and expectancy factors which have been previously identified in diagnostic and prescriptive practices.

The Diagnostic Process

As currently practiced in psychology, psychodiagnosis is grounded in decision theory and various deductive, analytic, or systematic models, many of which draw heavily from methods first utilized in medicine. The process begins with the diagnostician making certain rational assumptions concerning what he is likely to be observing or his "concept of the universe" (generally implied from that person's training or personal philosophy), then proceeds through active observation, hypothesis construction and testing, to a final diagnosis and the making of recommendations. In essence the good
diagnostician practices the scientific method with each new case, and as in the scientific method, decisions are usually made (i.e., to reject or accept a certain diagnostic hypothesis) at some probability less than absolute certainty. Therefore, diagnosis can be open to the same errors incurred when the experimenter deviates from the scientific method.

The first area of concern is the construction of working assumptions about the outcomes of diagnosis and remediation. Scheff (1963) has noted that the assumptions of certain basic rules in medical and legal decision making have different consequences when applied to psychiatric diagnosis. In legal situations our society dictates that the rule "a man is innocent until proven guilty" takes precedence, thus implying that it is better to make a Type I error and let society pay then to make a Type II error and ruin an innocent man's reputation. Medicine on the other hand, attempts to maximize the Type II error with the assumption "when in doubt diagnose illness." Here to make a Type I error is culpable and implies incompetence (and can be followed by legal action), while making a Type II error involves only time and money wasted for needless therapeutic interventions. It should be noted that the physician does not always use this primary assumption as in the possibility of an epileptic diagnosis when a Type II error has consequences not unlike those in the legal model (i.e., loss of driver's license or job needlessly). However, Scheff observes that psychiatric diagnosis grounded as it is in the first medical decision model, borders on creating the consequences of the legal model's Type II error. Thus the stigma of being labelled "mentally ill" can
lead to an unfavorable and unfair standing with society and friends, and should not be taken lightly. Another consequence can be iatrogenic illness or the display of a "sick role" initiated by the diagnosis and not by an actual state of affairs. These concepts have substantial implications generally not recognized by psychologists. Both the psychiatric Type II error or creation of an iatrogenic illness are steps away from protection of the individual implied in the basic assumptions under the legal and medical decision models. Therefore, the consequences of the diagnosis should be weighed against the harm it might do, and the diagnostician's conception of possible outcomes should be thought out well in advance.

Another assumption that the diagnostician makes is that observation of the person is, of necessity, one of the first steps in diagnosis. In his seminal work comparing clinical versus statistical prediction Meehl (1954) notes that considerable accuracy can be gained when observations are done systematically from an actuarial base. This in effect maximizes the chances that the observations are "true" events. He later suggested (Meehl & Rosen, 1955) the following:

The practical value of a psychometric sign, pattern, or cutting score depends jointly upon its intrinsic validity (in the usual sense of its discriminating power) and the distribution of the criterion variable (base rate) in the clinical population. (pp. 214-215)

In some circumstances, notably when the base rates of the criterion classification deviate greatly from a 50% split, use of a test sign having slight or moderate validity will result in an increase of erroneous clinical decisions. (p. 215)
The importance then of an observation whether a test score, response, or psychological symptom is in the ability of a diagnostician to use it meaningfully for predictive or discriminative purposes.

One would expect that since observation of behavior is a cornerstone of diagnosis (Sawyer, 1966), the assumption can be made that trained individuals display a high degree of inter-observer reliability. Unfortunately this is not necessarily the case. In an experiment involving 542 clinicians Chance (1963) suggests that more significant differences of observation occur when the clinician has at least 10 years of experience. Also, in a recent series of experiments Nathan, Berg, Behan, and Patch (1969) report on the observation of the same patient by 32 professionals which included a professor of psychiatry, psychiatric social workers, occupational therapists, psychiatric residents, clinical psychologists, and psychiatric nurses. The patient was presented at a hospital staffing and each observer had equal access to the prior history, medical work-up, lab studies, and physical exam. During the staffing the observers were given a 100 item checklist of behaviors and symptoms to complete as they observed the patient. Nathan et al. found that the most experienced observers recorded more symptoms related to organicity, confusion, and clouding of consciousness, while the least experienced group perceived more symptoms of perceptual disorder. The 32 observers conferred 14 different diagnostic labels with consistent organic diagnoses being made by the psychiatrists with at least 10 years experience, and functional-dynamic labels by physicians with less than 6 months clinical experience. Nathan et al. (1969)
concluded that:

Low diagnostic reliability may result from the fact that patients who share common psychopathology often manifest the same symptoms with such significant differences in frequency and interests that their common diagnoses are lost. (p. 9)

Since their group was able to demonstrate that many of the common signs of differential diagnosis lack diagnostic validity Nathan, Gould, Zare, and Roth (1969) suggest that a good diagnostic method would present symptom frequency data across the various symptom categories. This substantiates Meehl and Rosen's (1955) argument that without a knowledge of the base rate the importance of an observation is unknown.

There exists a possibility that inability to agree on observations or their importance reflects idiosyncratic biases which substantially effect diagnoses. Dawes (1971) points out that even when a systematic set of decision rules are generally used by a person, these rules are not necessarily consistently applied. This was in part demonstrated by Beck, Ward, Mendelson, Mack, and Baugh (1962) who had 153 outpatients screened by paired psychiatrists working independently. Only when both members of the pair stated they were absolutely certain of a diagnosis did agreement reach 81%, and addition of an alternate diagnosis demonstrated only a 1% gain in total agreement. Agreement when they were unsure was substantially lower.

Another interpretation of the lack of consensus is that diagnosis may be the over-weighting of importance a clinician gives to a single observation. In their 10 year review of the literature on prognosis, Fulkerson and Barry
conclude that most experiments attempted to prove the efficacy of singular data placed in linear models to predict the outcome of therapeutic interventions, thus ignoring any necessity of accounting for interaction effects. Ample evidence is provided by Buros (1971) and Engle (1966) that psychologists in general are still attempting to construct singular test scores to make differential diagnoses.

A third factor which may disrupt the reliability of clinical observations is the length of time involved in the observation. In the single interview (Edelman, 1969) there is evidence that a person under observation can withhold critical information. Changes in behavior can reflect conscious or unconscious efforts to project oneself in a favorable light. Edelman demonstrated that in some cases, notably clients not seen on their own initiative, it takes four meetings to observe pathologically critical behavior. This possibly negates attempts to make diagnostic decisions at an early stage.

There have been suggestions of a different sort which attempt to explain the diagnostic power in observable behaviors. Thorne's (1967) integrative psychology and Menninger's (1958) unitary concept of mental illness stress that psychiatric disorders represent time based dysfunctions. Thorne and Nathan (1969) state that:

The psychodiagnostic significance of the viewpoint of integrative psychology is that symptoms are regarded as reflecting different psychological states organized by different levels of etiological factors which must be studied across time [italics in original] in order to discover the actual sequence of changes in the integrative milieu reflected in changes of mental status. (p. 377)
The inconsistency of symptom patterns, observed in clinical practice . . . often causes symptoms to be disregarded by both "organic" and "dynamic" psychiatrists searching for "personality traits" or "mental diseases." (p. 377)

Again this argument seems to imply that critical information can be lost because of the observation method.

Observation leading to diagnosis seems then to be affected by several extraneous variables of which the psychologist should be cognizant. First, the diagnostician may be unaware of the actual base rate of a symptom or sign being used and therefore the predictive weight it should be given. Secondly, training and experience factors greatly influence what is perceived from the patients total behavioral display. Finally, some observables are discounted as unimportant due to disregarding the time based nature of behavior. All account to some degree for the variance in diagnostic reliability.

Experimentation and theory development within the process of diagnosis has lead to defining the steps a clinician should take to insure being able to make cogent statements with the highest degree of validity. The recognition has been made within the areas of clinical psychology, psychiatry (Miller, 1972) and school psychology (Wedell, 1970) that the process requires increases in the use of systems analytic techniques. Miller has refined the process for the psychiatric disorders through a Systems Analysis Index for Diagnosis (SAID) which provides the user with a step list of observations to carry out based on the rational model of a flow chart which terminates with a specific diagnosis based in part on the occurrence of critical behaviors and
their severity. While not as refined, Wedell's model attempts to suggest a system which terminates in both diagnosis and remediative recommendations, and although he suggests its use with the potentially learning disabled child, its use can be clearly generalized to any client a school psychologist might have referred. Both systems' power lie in the reduction of possible errors caused by overlooking important symptoms and signs or failure to apply correct decision rules consistently.

In an experiment on the decision process in vivo concerning medical thinking and problem solving Elstein and Shulman (1971) attempted to differentiate the factors related to hypothesis generation and testing which characterizes the good diagnostician. They found that the better diagnostician was able to demonstrate greater flexibility in generating alternate hypotheses based on minimal information, a greater sensitivity to observations which are critical decision points in an interview and which delineate hypotheses that are strong conceptual competitors, and a more comprehensive and efficient use of negative proof when competing hypotheses are available. For the psychologist this may imply that any theory of human dysfunction must take into account an approach which allows for generation of multiple hypotheses and observation of many types of behavior before alternate hypotheses are discarded. It furthermore suggests, assuming that the poor clinician is liable to generate significantly fewer alternate or conflicting hypotheses because he has fewer therapeutic interventions available, that psychological theories which culminate in singular therapies are less likely to be predictively powerful.
It is clear that diagnosis is not a universally consistent process as now applied. Differences in basic assumptions concerning outcomes of diagnosis, observation variables in weighting frequency and perception, and application of decision theory less than at an optimal level, all reflect possible sources of error. The perfectly applied diagnostic method is as unlikely to occur as the "perfect" scientific experiment. However, factors which lead to biased results can and should be minimized by recognition of possible extraneous variables which significantly affect diagnosis.

Psychodiagnosis in the Schools

It is hardly news that the psychodiagnosis of school children has in recent years come increasingly under scrutiny. Educators, psychologists, and consumers have begun to question both the relevance and outcomes of assessment as it applies to the educational process. In this section an attempt has been made to delineate the controversy, and to review literature concerning the application of diagnostic theory in the schools and the definition of the service provider.

As noted in the previous section the psychodiagnosis of school children conforms to the same decision models of diagnosis used in other areas of psychology and medicine. However, a possibly greater emphasis is applied to the outcome of school psychodiagnosis since in most cases educators desire to find ways to enhance children's learning or adjustment. The school psychologist then has had to deal with the issue of making meaningful
statements about a child which can be translated into action on the part of educators.

There has been some evidence (Engle, 1960, 1969; Hutson, 1974) that many school psychologists classify rather than diagnose which results only in placing labels on dysfunctional classroom behavior. The typical outcome here has been psychological jargon to the educator; now the teacher knows what to call a child's poor performance. However, the label under the guise of diagnosis does not help the teacher educate the child.

Engle studied the reasons for this tendency to classify, and suggested a fuller meaning for diagnosis. Using classification systems assumes "order in the universe," and was derived from the science of taxonomy with its initial function of increasing ease of communication. A transition began with the medical sciences when the nosological desire to classify diseases included the concepts of classification and diagnosis. Engle has observed that classification is only a part of diagnosis by pointing out the following steps in the process.

1. Level of discernment of differences--"this child not like others."

2. Level of assignment of value--"this behavior is sick, not bad," thus implying a need for action and remediation.

3. The assignment of labels--naming of classification which still does not include any formalized explanation of the origin and nature of a child's difficulties.
4. The work of explanation--diagnosis

   a. etiology helps specify implications for action

   b. assessment of strengths in relation to symptoms and
devvelopmental process of symptoms

   c. inferences about a child's various internal processes (i.e.,
memory vs. concentration, gross vs. fine motor abilities,
   etc.)

Skepticism about the utility of "diagnosis" arose primarily because the process
usually never passes stage 3 which in itself is not powerful enough to lead to a
choice among recommendations.

Why then have school psychologists typically failed to complete the
process of diagnosis? Engle (1966) has suggested several factors. First,
clinicians have spent an inordinate amount of time in the belief that single test
scores will correlate to specific syndromes rather than synthesizing from
various sources. Secondly, since a clinician's personality is part of the
assessment situation, some would rather have objective paper and pencil tests
than be forced to explain themselves as part of the child's performance. Next
she reported that "there is an expectation that a correct diagnosis will some-
how guarantee a good cure, although this is not as true as in the medical
professions." Fourthly there is an expectancy that a definitive diagnosis will
remain static for a child "like a millstone." Finally she noted that a diagnosed
child becomes a responsibility and when the psychologist discerns what the
child needs he faces an internal obligation to fill those needs even if
remediative resources are unavailable. Thus, because of all of these factors, school psychologists have spent more time in psychotherapeutic endeavors which are open-ended than on a finite period of formal diagnosis.

A second issue in school related diagnosis has been defining what function the psychologist will fill. Different sources expect the school psychologist to be a tester and labeler, or an advisor on learning to the classroom teacher. Difficulty in fulfilling these roles can arise when educational theory and practice are at cross-purposes to legislative mandates. Traditionally the school psychologist has been required to label children for administrative or funding purposes (Anastasi, 1968). This trend was continued within the past year under the Education for All Handicapped Act (P. L. 94-142) which specifies that all children with handicaps (i.e., blind, deaf, educable mentally retarded, trainable mentally retarded, learning disabled, emotionally disturbed, etc.) must be identified by 1978 or federal funds will be withdrawn from school districts found not to be in compliance. Although the law does make other admirable provisions such as requiring the serving of handicapped children in the "least restrictive environment," the specification of quotas for handicapping conditions is tantamount to requiring labeling.

Testing has played a large part in the labeling process and has fallen into disrepute with some professionals because the tests are often unresponsive to the needs of educators and children. Bersoff (1973) and Keogh (1972) have suggested that traditional testing can be limited in both criterion related validity, and relevance for an educator. There can be found studies that show
that some psychologists still do not recognize this issue. Recently, Rice (1974) has suggested that what the school psychologist needs is a battery of tests to include only the WISC, Bender-Gestalt, Visual Retention Test, ITPA, WRAT, and MMPI. The problem with this approach has been that it can lead to ignoring the fact that the critical behavior to be observed may not be within the battery's items extensive as they are. What is needed is a much broader definition of testing which includes both traditional tests, and observation of children in the classroom or other typical learning situation (Forness, 1970; Ginsburg, 1975).

Defining the role of the school psychologist has been complicated by state and district regulations whose intention it was to lessen demands for the psychologist's time. In many cases the attempted product was admirable, except that it can create a false impression of reputable diagnosis when in fact it is conducted by incompletely trained personnel. The trend began innocently enough with "rules of thumb" for teachers to apply in recognizing systems of children who are having problems in their classrooms (Fault, Pecot, Gill, Kane, & Kreaner, 1970), or teacher checklists and classroom administered tests designed for the same purpose (Blake, McCart, John, Friend, & Hard, 1972). This has paved the way for uncertified district personnel to diagnose and make recommendations under such titles as "designated psychological examiner" (Utah State Board of Education, 1975a), or "elementary coordinator" (Fulmer, 1976). Some literature to teachers has even bypassed the complete diagnostic process by recommending specific therapeutic interventions for all
cases (Pedrini & Pedrini, 1972), although hopefully this was only a rare example. The best instances of role specification were found in district recommendations which clearly define the diagnostic limits of teachers, the methods for making referrals, and available remediations within a district (Demonstration of Techniques in the Identification, 1966; Psychological Evaluation and Prescription, 1970; Summary and Evaluation of the Regional Educational Diagnostic, 1969).

School psychodiagnosis may have been in question partly because it has been unresponsive to educator needs. Where school psychologists have been forced to mainly label children the usefulness of the diagnostic process has suffered. Although there has been evidence as in P.L. 94-142 that this remains a requirement, the increased realization that psychologists can best aid educators through the trained observation of learning behaviors and by making cogent recommendations about how to enhance learning and adjustment may in time bring specific benefits to children.

Defining Handicapping Conditions

The problem of labeling as a goal in school psychodiagnosis may be best understood within the context of three typical differentiations which psychologists are asked to make in schools, mental retardation, emotional disturbance, and learning disabled. Previously the assumption was made that differentiation of handicapping conditions was necessary since special segregated placements were then indicated. Although emphasis shifted to the
concept of mainstreaming or placing a handicapped child within a regular classroom situation as often as possible, Jones (1976) has suggested the concept does not emphasize that some children are not necessarily best served in this manner. Thus the issue for the school psychologist has become on the one hand recognition of individual needs of handicapped children, while on the other being forced to recommend placements within the resources of the school district.

The ease with which the school psychologist can make meaningful statements about a child's handicaps has been directly related to the severity and obviousness of the particular condition (McClung, 1973). However, in many cases there can be found little agreement on the definition of what constitutes a specific handicap or the border between normal and handicapped.

Mental retardation has been variously defined as an IQ two standard deviations below the population mean and impaired adaptive behaviors in motor, independence, communication, or social areas (Grossman, 1973), an IQ one standard deviation below the population mean (Heber, 1959), or an IQ in the lowest 3% of the population (Mercer, 1971a). In another study Mercer (1972) noted that whatever the definition of mental retardation, only the most severely handicapped individuals continue to be labeled "retarded" after graduation from school. She observed this was due to the fact that many formally labeled as mentally retarded have adaptive behaviors indistinguishable from most people in their communities.

Definitions of emotional disturbance seem to be closely related to symptom constellations. An emotionally disturbed child has been suggested as
having an inability to learn not based in intellectual, sensory, or health factors, and an emotional/behavioral problem (Bower, 1969), or specifically maladaptive behavior associated with situational crises (Blake et al., 1972; Faulk et al., 1970).

Defining learning disabilities constitutes an even more complex problem. Glenn (1975) has noted that the same problem has been variously called educational handicap, dyslexia, minimal brain dysfunction, neural dysfunction, organic brain syndrome, perceptual handicap, specific learning disability, or specific reading disability. He also suggested that the label learning disabled was often applied by elimination to children not previously labeled educable mentally retarded, trainable mentally retarded, gifted, or normal.

After deciding which label to use, there still remains the question of definition. Samuels (1970) has suggested a distinction between learning difficulties, an academic achievement significantly below what was expected on the basis of age, and learning disabilities, "with no observance of emotional problems or inadequate attendance, a cooperative child whose reading achievement level is significantly below some measure of potential." Several authors have used various combinations of motor, visual-perceptual, speech, attention, or deviant activity measures (Clyne, 1973; Glenn, 1975; Klasen, 1972). Earlier, Ladd (1971) had noted that the Specific Learning Disabilities Act (P. L. 91-230) places the emphasis on dysfunctional understanding or use of language as "manifested by imperfect ability to listen, think, speak, write, spell or do mathematical calculation."
A search for symptoms, signs, and test scores which might differentiate learning disabilities from other handicaps has shown a number of different possibilities. Klasen (1972) in a review of 500 plus children labeled learning disabled obtained the following symptom base rates, visual-perceptual difficulties (67%), anxiety (65%), mixed laterality (44%), poor concentration (39%), low frustration tolerance (31%), speech disorder (22%), hyperactive (27%), hypoactive (21%), withdrawn (21%), and aggressive (12%). Also, Hertzig, Bortner, and Birch (1969) demonstrated that children identified as learning disabled by psychological "soft signs" later manifested "hard signs" of central nervous system dysfunction on subsequent neurological examinations. Taking test scores as possible discriminating signs, evidence of appropriateness has been inconclusive for the Illinois Test of Psycho-linguistic Ability, Visual-Motor Integration Test, Wide Range Achievement Test, and Detroit Test of Learning Aptitude (Haring & Ridgway, 1967), Bender-Gestalt (Billingslea, 1963), Weschler Intelligence Scale for Children (Mallinger, Owen, McCook, & Gable, 1973), and the Stanford Achievement Test and Cooperative Primary Tests (Eaves, Kendall, & Crichton, 1974).

A final problem with defining learning disabilities is related to the use of achievement expectancy formulas (Bruininks, Glaman, & Clark, 1971). These researchers have noted that use of expectancy formulas often create an artifactual increase with age in the reported prevalence of learning disabilities. Their remedy consisted of "varying the criteria of disparity between predicted and actual achievement according to the length of time the children have been
exposed to systematic instruction." However, they have not suggested what the differential criteria should be.

As the handicapped child approaches normal performance in various areas, diagnosis becomes increasingly problematical since the various definitions in use for mental retardation, learning disabilities, and emotional disturbance can be shown to involve considerable inter-correlation of symptoms (Hamill, 1973). Hamill's model has demonstrated that when IQ is in the 70 to 85 range, behavior problems are subtle, and there is a minor IQ-achievement discrepancy, the three handicaps are indistinguishable. Thus any special placements due to the label which was applied to the handicaps may be inadequate and force the child to receive educational services with more handicapped children.

Bias and Expectancy in Diagnosis

Although it was shown in the preceding sections that diagnosis in general and school psychodiagnosis in particular can be subject to considerable error because of the use of inadequate diagnostic procedures or the lack of conformity in defining handicapping conditions, bias and expectancy in school diagnosis may constitute the major area of concern for education. This may be so because bias and expectancy factors as they relate to social variables or educational philosophy are more universally understood by the public then questions about methodology or definition. The literature of bias and expectancy while not necessarily conclusive has suggested that biases related
to economic status or race, and expectancy because of negative prior knowledge about a child may influence the diagnostic label or educational services a child receives.

**Socio-economic status factors.** Diagnostic and service biases of socio-economic status have been demonstrated for both adult and children, although Miller (1964) has suggested that when taken alone "income, occupation, residence, and education do not convey any substantive information about the individual's life style." Most research has demonstrated systematic biases against the lower class in terms of judgments of severity of handicaps, or therapies and services offered, and this research has generally been conducted with adult clinical populations or school children.

In their classic research on social class and mental illness Hollingshead and Redlich (1958) concluded that all forms of mental illness can be associated with all classes, but in proportionately different degrees. These differences were thought to be influenced by social and cultural conditions within the class. Since that time several authors have attempted to demonstrate whether these differences are due to bias in diagnosis.

Dinardo (1975) in a study involving the presentation of the same 27 year old male found that significantly more psychopathology and a poorer prognosis was recorded when psychology graduate students were told that the patient was from the lower class as opposed to the middle class. Previously, Lee and Termerlin (1970) had demonstrated the same biases when the subjects evaluating the patient were psychiatric residents. Also, Siegel, Kahn, Pollack,
and Fink (1962) suggested when they studied a private versus public treatment center that philosophy of the treatment setting may contribute to diagnosis, treatment of choice, and length of hospitalization, although differences due to socio-economic status were inconclusive. In an earlier study which used years of education as an index of social class, Kahn, Pollack, and Fink (1957) found that less educated patients were referred in disproportionate numbers for electro-convulsive therapy, but that the response to this type of treatment was generally favorable. Both Haase (1964) and Trachtman (1971) found evidence of diagnostic biases in personality tests, but Trachtman believed that these biases were diminishing in scoring Rorschach protocols when a diagnosis of psychoses was in question.

The question of class biases against low socio-economic status children has tended to be associated with controversy over intelligence testing. Cronbach (1975) in his historical review of the environmental versus biological arguments as causative factors in intelligence test scores noted that scientific pronouncements on either side of the issue often coincided with public sentiment. Thus during the influx of peoples from southern European countries after World War I, biological factors were in vogue and invoked to stifle immigration. Conversely during the Great Society programs of the mid-1960's detrimental environmental factors were suggested as primary reasons for certain children's school failures.

Research on group differences in IQ typically do not favor the lower classes. While suggestive of bias, it is not conclusive (Johnson, 1975).
Anastasi (1958) reported that children of unskilled laborers fall about 20 points below children of professional men. This finding has been explained by Hunt (1972) when he observed that traditional testing assumes equal opportunity for learning which is decidedly absent for poor families. Pasamanick and Knobloch (1958) also noted that organic brain damage because of less than adequate health care, poor diet, or other health hazards such as lead poisoning, occurs more frequently in the lower class. Hunt also reported cross-cultural research of Draw-a-Man IQ's which showed that a 72 point range in mean scores could be attributed directly to cultural variations.

In a continuing longitudinal study concerning diagnosis and educational services Rubin, Krus, and Balow (1973) followed 1,240 children from birth with periodic evaluation which was not released to the child's school district. The state in which this study was conducted had regulations specifying mandatory placements, but it was found that a significantly higher number of upper class children were placed in regular classes when tested IQ was the same as their lower class counterparts, and within special education classrooms there were a significant number of lower class children with tested IQ's above the ceiling score mandated by law. In the one experimental design which could be found which attempted to vary the same type of case information across classes, Neer, Foster, Jones, and Reynolds (1973) suggested that diagnostic impressions gave evidence of low mental abilities in the lower class case. However, this study used a technique of procedure which could invalidate these findings.
**Ethnic background factors.** Data which could be interpreted as possible diagnostic bias due to ethnic origin has also been reported. In educational surveys and field studies (Jastak, MacPhee, & Whiteman, 1963; Mullen & Nee, 1952; Richardson, Higgins, & Ames, 1965) racial differences in diagnosis of mental retardation were observed which were unfavorable to black children, and Shuey (1966) reported that the mean IQ for samples of black children was about 15 points below the mean of Caucasian children.

There have also been reported observations of possible bias in other minority groups. Shutt (1972) found that when WISC scores were used to assign Navajo children to special education classes, the evaluation frequently disregarded differences in language or positive adaptive behaviors. In a community study on retardation Mercer (1971a; 1972) found that a significant proportion of Chicanos (60%), and blacks (90.9%) with tested IQs below 70 passed adaptive behavior measures while "Anglos" in the same range typically failed the adaptive behavior evaluation. She also found that "99% of persons nominated by schools as mentally retarded had been given an IQ test, but only 13% had received a medical diagnosis, 62% had no physical disabilities and 46% had IQs above 70..." but only the most intellectually and physically subnormal adults continue to be regarded as mental retardates after leaving school. Much of the racially based diagnostic discrepancy was observed at the point the IQ test was administered. This was concluded because although in special education classes there were 4.5 times as many Chicanos, 2 times as many Blacks, and .5 times as many whites as would have been predicted
by proportions within the school population, teachers and principals were referring at a rate equal to the various ethnic proportions within the schools.

Mercer (1971b) has suggested that the above data can be explained in a social systems perspective. She hypothesized that over-representation of socio-economically disadvantaged persons and ethnic minorities with the labeled status of mental retardate is due to a status assignment phenomena not unlike other social role assignments. That there is a differential vulnerability because of race within the labeling process was due to cultural biases which emphasize educational value in white middle class adaptive behaviors. As long as schools remain constituted as they are and IQs predict success within this system, norms within ethnic groups should also be devised to predict who has the most potential to succeed from that group.

**Expectancy factors.** Expectancy, while not implying the irrational prejudice associated with bias as used in this paper, can influence the perception of a child's capabilities by school personnel, and therefore the educational services that child receives. Rosenthal and Jacobsen (1968) theorized that "self-fulfilling prophecy" due to prior labeling may effect a child's later achievement. This notion was generated from earlier experimental work in which Rosenthal observed that experimenters could misjudge their own data in the direction of the researcher's hypothesis. Although an experiment to test expectancy factors was conducted by purportedly mislabeling school children as "spurters" at the beginning of a school year and showing academic gains later in the year over children in the control condition, Snow (1969) and Thorndike
(1968) pointed out that Rosenthal had fallen victim to his own theory when critical methodological deficiencies were found in the experiment.

Two later studies have produced inconclusive but suggestive evidence for the "self-fulfilling prophecy." Herson (1974) using 180 teachers as subjects and presenting the same case with conditions of a) diagnostic label only, b) behavior description only, and c) both a and b combined, found that a significantly higher degree of perceived psychological incapacitation occurred whenever labels were used. In a study of the effect of unfavorable prior information on a child about to be observed (Mason & Larimore, 1974) it was found that the information did negatively affect expectations about the child, but the actual observations were not affected.

Legal Implications

Possible inconsistencies and inequities in the outcomes of school psychodiagnosis have not gone unnoticed by the legal community. In a substantive review of many of the same issues reported in this paper, McClung (1973) has indicated possible areas within the school psychodiagnostic process which are in need of legal challenge, and the cogent precedents upon which such challenges could be based. The ethical assumption for these challenges was set forth in the following statement.

Even if the classifying process is "fairly" administered, what convincing justification does the school have for a practice which stigmatizes and isolates children, and narrows their occupational options? We believe that most of the benefits claimed to result from the practice are either nonexistent or greatly exaggerated, and, except for those children whose needs are so clearly different as to
require special education, certainly do not outweigh the consequent harms. Most forms of ability grouping are not justifiable either as a matter of policy or law. (p. 24)

Although McClung's review of the literature does not demonstrate a deep understanding of the methodological problems within school psychodiagnosis, it should not be concluded that judicial opinions will demure to such scientific niceties. If recent legal challenges can be considered to predict the course the judiciary may take, educators and school psychologists are likely to have their practices closely scrutinized in the future.

While it is not within the expertise of this writer to critique all recent precedent setting decrees, mention of some or the most important are in order. Most deal with procedural safeguards and equal protection concepts within the system as it is now constituted, but an increasing number of precedents could be applied to future challenges of the need for any form of ability grouping.

Two recent cases have defined the minimum requirements necessary to insure protection of children considered for transfer to special education. In Pennsylvania Association of Retarded Children v. Commonwealth of Pennsylvania [PARC] [344 F. Supp. 1257 (E. D. Pa. 1971)] a consent agreement established that prior notice and a hearing must be accorded to all allegedly mentally retarded children being considered for fundamental changes in their educational status. Later, these safeguards were expanded in Mills v. D. C. Board of Education [348 F. Supp. 866 (D. D. C. 1972)] to include a wider range of potential plaintiffs (i.e., children labeled mentally retarded to
behavior problem), appointment of an independent hearing officer, presumption of placement in a regular class, placement of the burden of proof onto the school district, and unrestricted access to school files kept on a child.

The courts have also made ruling on challenges of school psychodiagnosis which appears to be culturally or linguistically biased. In Guadalupe Organization, Inc. v. Tempe Elementary School District #3 [CIV No. 71-435 PHX (D. Ariz. 1972)] the decision stated in part:

No children shall be considered for placement in classes for handicapped children unless an examination of developmental history, cultural background, and school achievement substantiates other findings of educational handicap. This examination shall include estimates of adaptive behavior. Such examination of adaptive behavior shall include, but not be limited to a visit with the consent of parents or guardian, to the child's home by an appropriate professional adviser who may be a physician, psychologist, professional social worker, or school nurse, and interviews of the child's family at their home. If the language spoken in the home is other than English, such interviews shall be conducted in the language of the home.

If a child's primary language is determined to be other than English, school districts shall follow one or more of the listed objectives for evaluating a child for possible placement in a special education program.

a) Use a psychologist fluent in both the child's language and English.
b) Use an interpreter to assist the psychologist both with language and testing.
c) Use test instruments which do not stress spoken language and which are considered valid and reliable performance measures of intellectual functioning such as Wechsler Performance Scales.

Parental approval must be obtained in writing prior to placement of any child in classes for handicapped children. Such written permission shall be obtained on a form written in English, and the primary language of the home, if other than English.
In Larry P. v. Riles [343 F. Supp. 1306 (N. D. Cal. 1972)] it was found that where the percentage of Black children in special education classes was twice the percentage of total Black enrollment, the burden of proof in using a potentially racial biased IQ test shifted to the school district.

A challenge, based on the presumption that ability grouping or "tracking" often leads to children from low income families being placed in the lowest track, was decided in Hobson v. Hansen [269 F. Supp. 401 (D. D. C. 1967) aff'd sub nom Smuck v. Hobson, 408 F. 2d 175 (D. C. Cir. 1969)]. In this case it was found that the tracking system within the D. C. public school system was in violation of the federal constitution because labeling was tantamount to de facto economic classification, since poor black children typically could be found in the lowest track. This precedent's importance lies in insuring equal educational opportunities. McClung (1973) has indicated that Hobson is one of the more important court decisions because it can be used in challenges of any form of ability grouping.

For psychologists and educators the legal implications of these cases seems clear. No longer will methods of assigning labels and providing educational services go unchallenged if these methods can be shown to infringe on constitutionally guaranteed rights. However, for the psychologist and educator, concern for the legal implications in all school related actions would seem to be wasted effort. What is implied by the above legal decisions is that efforts to clarify inconsistencies in the psychodiagnostic process should begin.
Summary of the Major Trends

1. The diagnostic process. Research on the general process of diagnosis suggests that decision models based in the scientific method's use of basic assumptions, systematic observation, and hypothesis formation and testing yield the most consistent results. Error can occur at each point in the process, and can lead to mis- or inadequate diagnosis.

Prior to the diagnosis a clinician should understand the basic assumptions under which he is operating and their possible consequences. Various outcomes of diagnosis may depend on how the clinician views the relationship between the needs of society and the needs of the individual.

Observation through the use of symptoms, signs, cutting scores, or test scores may be unreliable if the base rate of the behavior is unknown, or if the base rate deviates greatly from a probability of .50 within any given population. Also, care must be taken to decrease possible idiosyncratic or over-weighting effect related to training and experience, and to increase consensus definitions, if inter-rater judgments about the occurrence of a behavior are to be significantly high. Increasing the number of observations or the amount of time spent in observation increases the probability of seeing significant psychopathology. Finally, system analytic approaches to observation provide the clinician with a step-by-step procedure for obtaining consistent results.

The clinician who is best able to generate alternative hypotheses which are possibly conceptually conflicting will have the best chances of making
a correct diagnosis. Recognition of critical decision points, and the use of negative information also increases diagnostic validity.

2. **Psychodiagnosis in the schools.** This area of psychodiagnostic theory does not differ substantially except with regard to the age of the clients served. However, outcomes in terms of educational service recommendations do place an increased burden on the school psychologist to make statements which can be carried out by educators. This makes it necessary that the psychologist do more than just classify children, although he may be required to label children because of administrative or legislative regulations.

The psychodiagnostic process can be subject to error when uncertified persons replace the school psychologist. When district regulations precisely define roles and outcomes, there is a decreased chance that significant diagnoses will be missed.

3. **Defining handicapping conditions.** When asked to provide a diagnosis of mental retardation, emotional disturbance, or learning disabilities, the school psychologist is faced with the problem of providing a differentiating classification, and meeting the individual educational needs of a child. At times these two requirements may conflict when a diagnostic label is tantamount to a special education classroom placement. Furthermore, as the severity of the handicap declines, differential diagnosis becomes increasingly problematic.

All three classifications are subject to variable definitions within the handicap, but a learning disabilities classification presents the highest number
of defining symptoms. There is also a possibility that mild forms of these three handicaps may be symptomatically indistinguishable and, therefore, the same.

4. Bias and expectancy in diagnosis. Prejudicial biases associated with the sorting factors of socio-economic status and ethnic origin, and expectancy because of negative prior knowledge can greatly affect the outcomes of psychodiagnosis. Often bias and expectancy factors can be demonstrated for all ages. It should also be noted that some literature has not effectively separated economic and ethnic factors.

Socio-economic status factors tend to disfavor the lower classes, although all diagnostic classifications can be found in all classes. For adults socio-economic biases can be shown in increasing rates of observed psychopathology or differential treatments often related to organic therapies. In children socio-economic biases have been related to the issue of intelligence testing. That consistently lower IQ scores in the lower class are related to bias was demonstrated in a longitudinal study which found differential educational services across classes when IQ was held constant.

Diagnostic and service biases against ethnic minorities have also been observed. These tend to be associated with psychological evaluations which emphasize white middle-class values and behaviors. Also, handicapped labels for Caucasian children tend to define a degree of symptom severity not found in minority children with the same label.
Expectancy is related to negative prior knowledge which brings about a "self-fulfilling prophecy" when educators are told a child's label. Although experimental evidence has been inconclusive to date, it is suggestive that the label and not the actually observed behavior causes the negative perception.

5. **Legal implications.** In general the legal profession has not been concerned with the sources of diagnostic error, but with the outcomes. Where outcomes can be shown to be inconsistently applied to one group over another, legal challenges have sought to provide procedural safeguards and shape social policy. Recent decisions require that the school psychologist and the school district increase due process whenever a change in educational placement is contemplated for a child. Also, when testing occurs, demonstrating the validity and reliability of a test is the school's responsibility, and evaluation must be conducted in the native language of the child. These judicial opinions may be forerunners of challenges directed against all forms of labeling and ability grouping.

6. **A final word.** This review has left unstated until this point, two important factors which can be discerned from the literature of psychodiagnosis. First, there is little experimental evidence available on many of the issues discussed which directly effect diagnosis and recommendations for remediation. Although there are methodological problems associated with attempting to manipulate many of the variables in question, this does not completely explain the general failing in this field. Secondly, what literature there is available, is typically concerned with diagnostic labeling. There
seems to be an implied association between diagnostic categories and placement, but only one study (Rubin et al., 1973) of the effects of an independent variable on other educational services could be found.
Methodology

Subjects

The subject population of this sample consisted of all certified school psychologists (excluding those at the Exceptional Child Center, Utah State University) who were employed by the various school districts of the State of Utah at the time of this study. Seventy-four subjects were identified through a survey to each of the 40 Utah School District Superintendents (see Appendix A) and by validating their certification where possible by their listing in Pupil Personnel Services Utah Directory, 1974–1975 (Utah State Board of Education, 1975b). The subjects were then randomly assigned to one of the four treatment cells in the study. Of the 74 initially identified subjects, 58 (78%) responded with information, and of those 50 (68%) provided information in the format requested. The final sample consisted of these 50 subjects (12 subjects in condition age 7, SES low group; 14 subjects in condition age 7, SES high group; 14 subjects in condition age 13, SES low group; and 10 subjects in condition age 13, SES high group). All of the sample subjects were considered to be volunteers.

Materials

Each subject was presented with a fictitious case report supposedly written after the child had been seen for evaluation by a school psychologist. All presented information was universal, except references to age and
socio-economic status, and was drawn from definitions of the handicaps mental retardation, emotionally disturbed, and learning disabled in guidelines used in the school districts of Utah (Utah State Board of Education, 1975a). In an attempt to make the case report information ambiguous, one or two symptoms from each definition was included, a Stanford-Binet IQ of 77 (above the legal definition of EMR in the State of Utah) was reported, and an achievement level on the Stanford Achievement Test's various sub-tests between 1 year and 2 months behind grade level was reported. The case report was divided into major sections of 1) reason for referral, 2) background information, 3) behavioral observations, and 4) test results, and was presented as follows:

Case Report

Client: David L.

Parents: Edward and Jane L.

327 E. 800 North

_______, Utah

Age: 7 or 13 years*

Birthdate: 2/3/62 or 2/3/68*

Date of Evaluation: 3/10/75

Referral Reason:

David L. was referred by his teacher, Mrs. Sharon K., and principal, Mrs. Noreen S. of A____ school for psychological evaluation and possible placement in a service plan for an educationally significant handicap.

*Dependent on assigned treatment cell.
Tests Administered: Stanford-Binet, LM, Intelligence Test
Stanford Achievement Test
Draw-A-Man (unscored)

Background Information:

David L. transferred to A school on January 7th from a school in Los Angeles, California. His records were not available from that school at this time, but his current principal, Mrs. S related that David's mother indicated that he "had some problems" at the previous school. He was placed in the classroom of Mrs. K, and over the past month she has voiced some concerns which necessitated this referral. Specifically, Mrs. K reported that David does not seem to be interested in making friends or in the activities within the classroom. She described his behavior as "impulsive" but generally "underactive, as he seems to act in slow motion." Often he "refuses to talk," and often fails to make appropriate responses in social situations (i.e., doesn't talk to other children when spoken to, doesn't join in games). She also indicated that "he is a clumsy child, or at least un-coordinated for his age." "When you can get him to respond, he seems to be a little behind in all subjects, but especially reading."

On the first day of the evaluation Mrs. L was in attendance and provided the following information. David is the second of four children. He has had no significant illnesses up to this time. When tested previously his vision was believed to be 20/20 in both eyes, and his hearing was "OK." Mrs. L stated "I don't think there is a problem with David; he's fine at home." (Then was added*) 1. Mr. L is employed as a farm laborer presently,
ad the family receives assistance through the Department of Family Services. Bth parents reportedly completed the ninth grade. (or) 2. Mr. L____ is employed as an electrical engineer for James Mantow and Sons Inc., and completed 1 year on his master's degree. Mrs. L____ completed her bachelor's degree in history "before getting married, and becoming a housewife." Mrs. L_____ reported that both parents enjoy taking an active interest in community affairs.

Behavioral observations. The tests were administered in two morning sessions on two consecutive days. On the first day, David was brought to the testing room in the school by his teacher. When introduced to the examiner, David remained quiet. At this time, David was given a Draw-A-Man which was not scored, and whose purpose was only as a rapport builder. On the second day of testing David was frequently verbal with the examiner, and his speech could be characterized as "slow." During administration of the Stanford-Binet some of the answers were impulsive, especially for the memory for digits items. Although rapport could be characterized as good, David seemed quite distractable from the task at hand when the examiner would reach into the kit for the next item. David remained in his seat except on two occasions. When walking he seems to drag his feet in an uncharacteristic gait. He does not hold a pencil solidly.

Test results. The Stanford Achievement Test was administered first as a broad based assessment of David's academic achievement up to this point. (The SAT has two different forms for the two ages used in this experiment,
thus the presented information had to be varied slightly.) He was administered the Primary 1 Battery (or Intermediate II Battery), and according to the norms supplied, obtained the following scores:

a. Word Reading--1 year behind
b. Paragraph Meaning--10 months behind
c. Word Study Skills--10 months behind
d. Vocabulary--4 months behind
e. Spelling--5 months behind
f. Arithmetic--2 months behind

- Concept Formation--2 months behind
- Computation--2 months behind
- Application--4 months behind

The Stanford-Binet was administered next as an indicator of David's abstract verbal learning and problem solving ability. The test results were considered to be valid as David was passively cooperative. According to the norms supplied, David received an IQ = 77. He had particular problems on the vocabulary, maze, and memory or digits items. He also had problems when asked "What would you do if you were in a strange city and someone asked you for directions?" (ans: Don't know), and "What would you do if you were late for school?" (ans: Don't know). Scattered throughout the other
items were answers which can only be characterized as a puzzled look, as if David just didn't understand the question.

Procedures

After the potential subjects were identified and assigned to treatment cells, a cover letter (Appendix B) asking for participation and the case report appropriate to the assigned condition was mailed to the subjects with instructions and materials provided for returning their responses. If after 30 days no response was obtained, a second cover letter (Appendix C) and case report was mailed again with instructions and materials for returning responses.

Each case report and response set was accompanied by instructions on how to proceed with the case report. The first set of instructions read as follows:

You will be presented with a typical case report of a child which you are to assume has seen a school psychologist for evaluation. You will be asked upon completion of the reading to diagnose the child's probable problem, and to make recommendations about a possible educational service plan. Please read the case report.

The case report was then presented.

After reading the case report, a second set of instructions was provided as follows:

Below are listed four different sections which are concerned with diagnosis of this child's problem, and recommendations for his educational service plan. In each section you are to check the one statement which you feel best fits this child's diagnosis or needs from the information presented. For the sections which are concerned with the educational service plan, you are to assume that each treatment is equally available.
The various item responses were then presented.

A third set of response instructions, which was concerned with a survey of services actually available within the school district of the school psychologist, was then presented with the instructions as follows:

We are also interested in finding out what services might realistically be obtained for this child in your district. We understand that factors such as funds for personnel, numbers of students in a classification, and quality of available specialists may influence what you recommend for a child. Please fill out the sections below with the question in mind, "What services would this child probably receive in your district within one year of seeing the school psychologist?" Space has been provided if you care to suggest any other appropriate services which would be provided in your district which haven't been listed.

The various item responses were then represented as after the second set of instruction, except that categories were made available for comments and reporting additional services, and the section pertaining to the psychologist's perception of the problem was deleted.

A fourth set of instructions was then presented which stated, "Please return only the three colored pages. Thank you." Additionally the cover letter contained further instruction concerning how to reply, and an offer to provide a summary of the results of the study if the psychologist so desired.

Upon receipt of the various responses a blind system of data collection was initiated to insure confidentiality.

**Analysis of the Data**

Since the data collected contained different degrees of scaling, the analysis, especially in the case of the inferential statistics computed, had to
be varied. In all cases non-parametric methods and an alpha level equal to .05 was used for decision making. For the survey data the obtained responses are reported in descriptive form only.

For the data considered to be appropriate to inferential analysis the following methods were used:

1. Since the data concerned with diagnostic categories are nominal scales the Chi\(^2\) test is considered appropriate (Siegel, 1956).

2. Since the data concerned with placement and possible educational services are ordinal scales the Mann-Whitney U test is considered appropriate (Siegel, 1956).

3. Since the data concerned with perception of the child's deficiencies are essentially in the form of a Likert type scale, an ordinal scale must be assumed, and the Mann-Whitney U test is considered appropriate (Siegel, 1956).

(For the total sample of respondents including those who provided information in a manner other than that requested, various descriptive statements are made where possible.)

Measures

As a search of the literature concerning methodology revealed no standardized dependent measures which were appropriate for this study, development of those measures were instituted. In the case of the diagnostic classifications the four descriptors: 1) mentally retarded, 2) emotionally
disturbed, 3) learning disabled, 4) no problem, were used. For the recommendations for educational services (see Appendix D for the statements which were finally developed) the following methods were used.

1. Classroom placements--Five possible placement statements which correspond to ranked statements presented as the Cascade System (Utah State Board of Education, 1975a) were used. An independent psychologist familiar with the Cascade System was presented the statements and asked to rank them according to the Cascade System. One hundred percent correspondence between raters was obtained on the first sort.

2. Reading remediation recommendations--Five possible statements were presented to two specialists in reading at Utah State University who were then asked to independently sort the statements into a ranked order by the following instructions. "Please sort the following cards into a ranking from least to most needed involvement by a reading specialist for a child's individualized educational service plan." Wording of the statements was changed until 100% agreement as to rank order was received, and a score equal to the rank was assigned to the statements.

3. Emotional/Behavioral recommendations--Six possible statements were presented to two specialists in psychology at Utah State University who were then asked to independently sort the statements into ranked order by the following instructions. "Please sort the
following cards into a ranking from least to most involvement needed by a specialist/teacher and cost to a school district for a child's individualized educational service plan. The cards deal with different psychological treatments of an emotional/behavioral problem." Wording of the statements was changed until 100% agreement as to ranked order was received, and a score equal to the rank was assigned to the statements.

For the measure of the perception of the child's problem in the case report, each subject was presented with four possible areas of concern 1) General achievement, 2) Reading efficiency, 3) Emotional/Behavioral, and 4) Intellectual efficiency, five spaces after each area labeled from 1 (no problem) to 5 (severe problem), and instructions worded "Please check the appropriate space as you see this child's problem."

For the survey of which services the child would actually receive, the same statements as developed above in placement, reading recommendations, and emotional/behavioral recommendation were again presented with an added category included under each for other services the child might receive.
Results

The results of this experiment do not substantiate the hypothesis that when faced with symptoms which do not clearly place a child within the handicapping conditions of mental retardation, emotional disturbance, or learning disabilities school psychologists will use sorting factors of age or socio-economic status to label or make educational service recommendation decisions. The data supported the conclusion that the case report was perceived as presenting a child with a problem in need of educational services.

Hypothesis 1 stated that when the factors of IQ, behavior, achievement level, sex, and socio-economic status are held constant and do not clearly place a child within the handicapping conditions of mental retardation, emotional disturbance, or learning disabilities, children aged 7 will receive a significantly higher proportion of learning disabilities diagnoses, children aged 13 will receive a significantly higher proportion of mental retardation diagnoses, there will be a significant difference between children aged 7 and 13 in recommendations for educational services and there will be a significant difference between children aged 7 and 13 in terms of the perception of the child's deficiencies made by school psychologists. None of these statements were supported (see Table 1).

Hypothesis 2 stated that when the factors of IQ, behavior, achievement level, sex, and age are held constant and do not clearly place a child
Table 1

Chi² and Mann-Whitney U's for the Comparisons Associated with Hypothesis 1--Socio-Economic Status Constant

<table>
<thead>
<tr>
<th>Measures</th>
<th>Comparison</th>
<th>Chi²</th>
<th>Mann-Whitney U Converted to z</th>
</tr>
</thead>
<tbody>
<tr>
<td>Label</td>
<td>Hi SES 13 vs 7</td>
<td>1.70, df=3, p &lt; .6</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Lo SES 13 vs 7</td>
<td>.03, df=3, p &lt; .99</td>
<td></td>
</tr>
<tr>
<td>Placement</td>
<td>Hi SES 13 vs 7</td>
<td></td>
<td>z = -.47</td>
</tr>
<tr>
<td></td>
<td>Lo SES 13 vs 7</td>
<td></td>
<td>x = .89</td>
</tr>
<tr>
<td>Emotional/</td>
<td>Hi SES 13 vs 7</td>
<td></td>
<td>z = -1.64</td>
</tr>
<tr>
<td>Behavioral</td>
<td>Lo SES 13 vs 7</td>
<td></td>
<td>z = .59</td>
</tr>
<tr>
<td>Recommendations</td>
<td>Hi SES 13 vs 7</td>
<td></td>
<td>z = -.40</td>
</tr>
<tr>
<td></td>
<td>Lo SES 13 vs 7</td>
<td></td>
<td>z = .20</td>
</tr>
<tr>
<td>General</td>
<td>Hi SES 13 vs 7</td>
<td></td>
<td>z = .36</td>
</tr>
<tr>
<td>Achievement</td>
<td>Lo SES 13 vs 7</td>
<td></td>
<td>z = -1.57</td>
</tr>
<tr>
<td>Perception</td>
<td>Hi SES 13 vs 7</td>
<td></td>
<td>z = -1.55</td>
</tr>
<tr>
<td></td>
<td>Lo SES 13 vs 7</td>
<td></td>
<td>z = .72</td>
</tr>
<tr>
<td>Emotional/</td>
<td>Hi SES 13 vs 7</td>
<td></td>
<td>z = .16</td>
</tr>
<tr>
<td>Behavioral</td>
<td>Lo SES 13 vs 7</td>
<td></td>
<td>z = .15</td>
</tr>
<tr>
<td>Problem</td>
<td>Hi SES 13 vs 7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Perception</td>
<td>Lo SES 13 vs 7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intellectual</td>
<td>Hi SES 13 vs 7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Efficiency</td>
<td>Lo SES 13 vs 7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Perception</td>
<td>Hi SES 13 vs 7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reading</td>
<td>Lo SES 13 vs 7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Efficiency</td>
<td>Hi SES 13 vs 7</td>
<td></td>
<td>z = .78</td>
</tr>
<tr>
<td>Perception</td>
<td>Lo SES 13 vs 7</td>
<td></td>
<td>z = .50</td>
</tr>
</tbody>
</table>
within the handicapping conditions of mental retardation, emotional disturbance, learning disabilities children with low socio-economic status will receive a significantly higher proportion of mental retardation diagnoses, children with high socio-economic status will receive a significantly higher proportion of learning disabilities diagnoses, there will be a significant difference between children with low and high socio-economic status in recommendations for educational services, and there will be a significant difference between children from low and high socio-economic backgrounds in terms of the perception of the child’s deficiencies as made by school psychologists. None of these statements were supported (see Table 2).

Hypothesis 3 stated that the case study used presents a child who will be seen as having a problem (as measured by collapsing the three handicap labels and the no problem category into a problem versus no problem dichotomy). This hypothesis was supported by the following results, 1) condition: age 7 SES low, \( X^2 = 7.4, \text{ df} = 1, p < .01 \), 2) condition: age 7 SES high, \( X^2 = 13.0, \text{ df} = 1, p < .01 \), 3) condition: age 13 SES low, \( X^2 = 8.3, \text{ df} = 1, p < .01 \), and 4) condition: age p3 SES high, \( X^2 = 10.0, \text{ df} = 1, p < .01 \) with the highest frequency being in the direction of the problem category in all conditions (see Table 3).

For the various measures of recommendations for educational services and perception of the degree of deficiency in each area for the four experimental conditions, medians and semi-interquartile ranges (Q) were computed and are presented in Table 4. An evaluation of which services would
Table 2
Chi² and Mann-Whitney U's for the Comparisons Associated with Hypothesis 2--Age Constant

<table>
<thead>
<tr>
<th>Measures</th>
<th>Comparisons</th>
<th>$\chi^2$</th>
<th>Mann-Whitney U Converted to z</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lanel</td>
<td>13 yrs Hi vs Lo</td>
<td>$2.23$, $df=3$, $p &lt; .6$</td>
<td></td>
</tr>
<tr>
<td></td>
<td>7 yrs Hi vs Lo</td>
<td>$3.78$, $df=3$, $p &lt; .3$</td>
<td></td>
</tr>
<tr>
<td>Placement</td>
<td>13 yrs Hi vs Lo</td>
<td></td>
<td>$z = - .23$</td>
</tr>
<tr>
<td></td>
<td>7 yrs Hi vs Lo</td>
<td></td>
<td>$z = .56$</td>
</tr>
<tr>
<td>Emotional/Behavioral Recommendations</td>
<td>13 yrs Hi vs Lo</td>
<td></td>
<td>$z = - .58$</td>
</tr>
<tr>
<td></td>
<td>7 yrs Hi vs Lo</td>
<td></td>
<td>$z = - .36$</td>
</tr>
<tr>
<td>Reading</td>
<td>13 yrs Hi vs Lo</td>
<td></td>
<td>$z = - .22$</td>
</tr>
<tr>
<td></td>
<td>7 yrs Hi vs Lo</td>
<td></td>
<td>$z = .27$</td>
</tr>
<tr>
<td>General Achievement</td>
<td>13 yrs Hi vs Lo</td>
<td></td>
<td>$z = - .75$</td>
</tr>
<tr>
<td></td>
<td>7 yrs Hi vs Lo</td>
<td></td>
<td>$z = .08$</td>
</tr>
<tr>
<td>Emotional/Behavioral Problem Perception</td>
<td>13 yrs Hi vs Lo</td>
<td></td>
<td>$z = 1.35$</td>
</tr>
<tr>
<td></td>
<td>7 yrs Hi vs Lo</td>
<td></td>
<td>$z = .16$</td>
</tr>
<tr>
<td>Intellectual Efficiency</td>
<td>13 yrs Hi vs Lo</td>
<td></td>
<td>$z = - .28$</td>
</tr>
<tr>
<td></td>
<td>7 yrs Hi vs Lo</td>
<td></td>
<td>$z = .72$</td>
</tr>
<tr>
<td>Reading Efficiency</td>
<td>13 yrs Hi vs Lo</td>
<td></td>
<td>$z = 0.00$</td>
</tr>
<tr>
<td></td>
<td>7 yrs Hi vs Lo</td>
<td></td>
<td>$z = .79$</td>
</tr>
<tr>
<td>Condition</td>
<td>Mentally Retarded</td>
<td>Emotionally Disturbed</td>
<td>Learning Disabled</td>
</tr>
<tr>
<td>--------------------</td>
<td>-------------------</td>
<td>-----------------------</td>
<td>-------------------</td>
</tr>
<tr>
<td>Age 7 SES Low</td>
<td>3</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>Age 7 SES High</td>
<td>4</td>
<td>2</td>
<td>6</td>
</tr>
<tr>
<td>Age 13 SES Low</td>
<td>4</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Age 13 SES High</td>
<td>1</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>Total</td>
<td>12</td>
<td>10</td>
<td>21</td>
</tr>
</tbody>
</table>
Table 4
Medians and Semi-Interquartile Ranges

<table>
<thead>
<tr>
<th>Condition</th>
<th>Place*</th>
<th>E/B</th>
<th>BR</th>
<th>GA</th>
<th>RE</th>
<th>E/BP</th>
<th>IE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age 13</td>
<td>Mdn</td>
<td>3.1</td>
<td>4.9</td>
<td>4.0</td>
<td>3.3</td>
<td>3.2</td>
<td>4.1</td>
</tr>
<tr>
<td>SES High</td>
<td>Q</td>
<td>.35</td>
<td>.47</td>
<td>.85</td>
<td>.85</td>
<td>.75</td>
<td>.35</td>
</tr>
<tr>
<td>Age 13</td>
<td>Mdn</td>
<td>3.1</td>
<td>4.6</td>
<td>4.0</td>
<td>2.8</td>
<td>3.1</td>
<td>3.7</td>
</tr>
<tr>
<td>SES Low</td>
<td>Q</td>
<td>.30</td>
<td>.50</td>
<td>.90</td>
<td>.70</td>
<td>.45</td>
<td>.45</td>
</tr>
<tr>
<td>Age 7</td>
<td>Mdn</td>
<td>3.0</td>
<td>4.2</td>
<td>3.4</td>
<td>3.6</td>
<td>3.6</td>
<td>3.4</td>
</tr>
<tr>
<td>SES High</td>
<td>Q</td>
<td>.35</td>
<td>.50</td>
<td>.85</td>
<td>.70</td>
<td>.60</td>
<td>.60</td>
</tr>
<tr>
<td>Age 7</td>
<td>Mdn</td>
<td>3.0</td>
<td>4.4</td>
<td>3.3</td>
<td>3.3</td>
<td>3.3</td>
<td>3.5</td>
</tr>
<tr>
<td>SES Low</td>
<td>Q</td>
<td>.35</td>
<td>.60</td>
<td>1.0</td>
<td>.55</td>
<td>.55</td>
<td>6.5</td>
</tr>
</tbody>
</table>

* Place = Placement.
E/B = Emotional/Behavioral recommendations.
RR = Reading recommendations.
GA = General achievement perception.
RE = Reading efficiency perception.
IE = Intellectual efficiency perception.
SES = Socio-economic status.
be made available in Utah to a child of the type presented in the case study was attempted, and frequency distributions related to the various educational services are presented in Table 5.

Finally an attempt was made to estimate the degree to which all respondents (both those who completed the basic questionnaire correctly and incorrectly) would have desired or attempted to obtain further information. These results are subject to some error of measurement as these figures were obtained subjectively scoring each respondents written comments. It was found that

a. 53% indicated they would have done more testing (paper and pencil assessments or classroom behavioral observations),
b. 28% indicated they would refer child to obtain a medical or neurological examination,
c. 5% indicated they would have tried to obtain child’s old school records, and
d. 5% indicated they would have attempted to obtain more social background information.
Table 5

Educational Services which Respondents Believed would be Carried Out Within 1 Year if Child in Case Study was Enrolled in their District

<table>
<thead>
<tr>
<th>Condition</th>
<th>Placement*</th>
<th>E/B Treatmental</th>
<th>Read. Treatments</th>
<th>Other$^2$</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1 2 3 4 5 6</td>
<td>1 2 3 4 5 6</td>
<td>1 2 3 4 5 6</td>
<td>a b c d</td>
</tr>
<tr>
<td>Age 7</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SES Low</td>
<td>0 0 11 2 0 0</td>
<td>1 1 1 5 7 0</td>
<td>3 1 5 2 4</td>
<td>0 3 0 0 1</td>
</tr>
<tr>
<td>Age 7</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SES High</td>
<td>0 1 10 6 7 0</td>
<td>1 3 5 9 9 0</td>
<td>2 3 7 2 3</td>
<td>0 2 0 1 0</td>
</tr>
<tr>
<td>Age 13</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SES Low</td>
<td>1 2 11 3 1 0</td>
<td>1 4 6 10 9 1 0</td>
<td>3 2 4 2 8</td>
<td>1 1 3 0 0</td>
</tr>
<tr>
<td>Age 13</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SES High</td>
<td>0 0 9 1 0 1</td>
<td>1 2 2 4 7 0 1</td>
<td>1 0 3 2 4</td>
<td>0 1 2 0 0</td>
</tr>
<tr>
<td>Total</td>
<td>1 3 41 12 8 1</td>
<td>1 4 10 14 28 32</td>
<td>1 2 9 6 19</td>
<td>8 19 1 7 5</td>
</tr>
</tbody>
</table>

*See Appendix D for exact wording of service statements.
1E/B = Emotional/Behavioral.
2a = Some form of parent counseling or social work intervention.
b = Home based treatment plan.
c = Speech Therapy.
d = Physical Therapy.
Discussion

Although the situation presented by this experiment is narrowly defined as to symptoms and personnel diagnosing the case, and there may be some doubts as to how closely this situation conforms to real life labeling, placement, and recommendations for educational services, there seems to be clear evidence of a high degree of consistency among this group of school psychologists, and no data which supports the contention of differential bias with regard to socio-economic or age factors. This gives some credence to Johnson’s (1975) contention that the designs of experiments which purported to demonstrate bias were such that the true determiner of diagnosis was possibly confounded. What seems clear in the present study is that taken as a group these school psychologists were not able to make distinctions which would lead to differential diagnosis or a consistent label when faced with mild symptoms of lowered IQ, discrepant achievement to IQ ratio, and dysfunctional behavior, but that their recommendations for educational services were fairly and judiciously applied. Even though this data cannot be used to state unequivocally that there is no evidence of bias in recommendations by school psychologists, it certainly seems to make a positive statement about the worth of specific State Board of Education regulations, guidelines, and certification requirements.
Assuming that bias does exist in some psychodiagnostic and service situations as suggested by Rubin, Krus, and Balow (1973), why does the data of this study demonstrate the opposite? The possible explanations lie in four areas, 1) the training of the psychodiagnostic evaluator, 2) the relationship between psychodiagnostic recommendations and the actual providing of educational services by a school district, 3) other factors which are the real biasing agents and which were unmanipulated in this experiment, and 4) possible methodological errors in this study.

Training Factors

Some of the evidence for bias in other studies may be due to the training of the actual persons making diagnostic and educational service recommendations. Especially in the one case directly related to this question (Rubin, Krus, & Balow, 1973) no information was obtained about who had recommended the various placements, let alone who made the actual placement decisions. Therefore, the issue becomes not whether bias exists, which they decidedly demonstrated, but who is responsible for it. Although the present study did not attempt to answer this question directly, a closer look at the subject population seems warranted.

School psychology as a specialty encompasses graduate level training in such diverse areas as child development, psychological assessment, psychotherapy, and educational resources, and certification requirements where they exist, tend to make at least minimum statements about the qualifications needed
to work with school children. In the Utah population of certified school psychologists, the Basic Professional Certificate requirements (Utah State Board of Education, 1970) must encompass at least a master's degree of not less than 60 quarter hours approved for preparation for school psychology, course work in at least the psychology of learning, human growth and development, group dynamics, social psychology, personality assessment, psychotherapy, testing practicum, group testing, individual testing, and research statistics. In addition experience in a school or agency setting primarily with children and recommendation of an approved institution is mandatory. Although not formally required for certification, the master's level psychologist would also probably have come in contact with the ethical and legal implications under which psychologists in general must operate. Certification then can be seen as making at least an effort to standardize the training of school psychologists, and by implication their diagnostic and recommendation making abilities.

An interesting State Board of Education trend can be identified in Utah (Utah State Board of Education, 1975a) in regulating the personnel conducting psychodiagnosis. Although school psychologist certification requirements are specific, the latest Board statement allows for psychological examination to be made with the aid of a certified school psychologist, licensed psychologists, licensed psychiatrist, or a qualified person designated by the local Superintendent as a psychological examiner. This regulation can have the effect of allowing licensed professionals with little or no training with children in a school setting to function as school psychologists or providing the district
Superintendent wide discretion in appointing the "designated psychological examiner." At issue in the latter case is the question that if the person is qualified why not grant certification? In the survey which attempted to identify certified school psychologists for this experiment approximately 35% of all reported Utah personnel, used to perform psychodiagnosis, were not specifically school psychologists.

Licensed psychologists and psychiatrists or designated psychological examiners may or may not be sources of diagnostic bias. However, given that school psychology is a specialty area, it hardly seems adequate to allow persons trained in other areas to function as school psychologists. An analogy from medicine may be warranted. Although the M.D. degree and Internship can make a minimum statement about the training many physicians undergo, later specialty training and residencies significantly change a physician's qualifications. Thus the urologist and neurologist may be able to make some common statements about a problem, but one would hardly expect to receive adequate treatment for a brain tumor from a urologist.

At issue is the source of biases shown in other studies (Lee & Termerlin, 1970), not that all but certified school psychologists are the actual cause of bias. It would seem imperative that if regulations in other states allow for persons not trained specifically to practice school psychology to do so, that experiments are warranted to determine to what degree, if any, their training or biases influence psychodiagnosis.
Relationship Between Recommendations and Actual Services

Two factors, the multidisciplinary diagnostic team concept, and the reality of resources within a school district could influence such outcomes as reported in surveys (Jastak, MacPhee, & Whiteman, 1963; Miller & Nee, 1953; Richardson, Higgins, & Ames, 1965) which purported to show bias. Even if the personnel carrying out school psychodiagnosis and making recommendations are completely free of bias there is no evidence that these recommendations are necessarily initiated by school districts in all cases. An assumption that a school psychologist's recommendations are begun without modification by district level personnel, principals, or teachers would seem tenuous at best. Thus this could be the source of biased placements and services.

Recently the multidisciplinary team concept has had an impact in the diagnosis of children seen because of educational or developmental problems (Special Children's Clinic, 1976; Utah State Board of Education, 1975a; Utah State University Affiliated Exceptional Child Center, 1975). In the team concept various specialists diagnose a child and provide input to the child's eventual diagnosis and remediative program. The Utah Board of Education's regulations state in part:

Placement in a service pattern and reevaluation of pupils receiving service must be made and documented by a team consisting of a qualified diagnostician(s) in the area of the handicap, and at least three of the following: the regular teacher, the special education teacher, the principal, the parent, the resource personnel-- psychologists, social workers, nurses, psychiatrists and other.

(p. 2)
Thus, although the school psychologist can have some say, there is no requirement that his recommendations need pass beyond the consideration stage. Also the biasing effects regarding actual service rendered to the child when administrators and parents are involved are unknown.

Recent judicial opinions have required procedural safeguards when a actual placements are concerned (i.e., PARC v. Commonwealth of Pennsylvania, and Mills v. D.C. Board of Education) by allowing parents and their counsel to play a part in the decision making process. The courts have recognized the potential bias coming from that source by requiring that an impartial hearing officer rule on the merits of any suggested placements whether they be initiated by the school district or the parents. The intent of the court's decision is to maximize the child's right to a relevant education, and to protect him from bias of any source. Although school district related biases were mentioned previously, McClung (1973) has noted the special need for procedural safeguards from parent biases in instances where parents wanted children placed in restrictive environments which were unwarranted.

Increasing the number of persons on the diagnostic team whether they are trained or not may increase the chance that critical symptoms and signs in the child's behavior can be recognized for their true importance, although Nathan et al. (1969) raises some doubts on this issue. Thus, including parents on a diagnostic team may be both good and bad for determining the educational services a child needs. While the parent can provide extensive background information about the child's behavior and development in situations outside of
school, and suggest areas of educational concern, no conclusive statement can be made about the perceptual accuracy of the parent's observation or the parent's motivation. The second factor may be the most critical since short of performing a psychological assessment on the parent, the diagnostic team has little idea whether the parent is or is not attempting to have the child seen in the best possible light.

Almost the same can be said of any of the other team members. Educators can assume that each team member has the best interest of the child in mind, but this hardly recognizes important motivational factors such as pride, reputation, or community acquaintance, all of which could bias the final outcome of the diagnostic proceedings.

The second issue in the relationship between recommendations and actual services is based in the educational resources a school district has available to it at any one time. In the past Cronbach (1975) has observed that society often dictates what services are to be available and to whom. The whole concept of educational legislation whether it be at the level of the community, state, or nation must in part be seen as reflecting what the aggregate citizens are willing to pay to provide certain services. Even assuming that recommendations for educational services are completely free of bias, there still remains the problem that a school district cannot provide what is needed because of a lack of specialized personnel, facilities, or transportation. Thus bias may occur at that point when administratively a decision must be made as
to who receives a special service, such as individualized instruction, and who gets placed in a special education classroom until more funds are available.

In the case of the recent Identification of All Handicapped Act (P. L. 94-142) which has been passed and requires that school districts provide certain services by 1978, compliance brings in additional Federal funds while non-compliance threatens loss of all Federal funds to the district. The benefits to handicapped children in terms of sound diagnosis and educational objectives seem valuable enough that most school districts would want to comply. However, although P. L. 94-142 has been signed into law, no funds are available until an appropriations bill is passed. Thus as the deadline for compliance approaches there is still no clear mandate for a district to hire additional personnel or for that matter for colleges and universities to begin training the increased number of specialists needed.

What should be learned from the above example is that even if the intentions foster an atmosphere in which it seems that all children in need could be provided with relevant educational services, school districts must live with the reality of the situation. Depending on the conditions within a district at any given time that reality is that it is not financially feasible to provide for every child. It is within this context that it can be understood how, faced with an administrative necessity, a biased decision can be made.
Other Potential Biasing Factors

Lack of evidence of bias may be due to the particular variables manipulated by this experiment. Johnson (1975) previously has noted that the ex post facto designs of most research done in this area is insufficient to determine the true cause of bias. As a statement about bias this experiment should be viewed as only a preliminary step until all of the possible causative agents have been investigated.

Since the data from the present experiment suggests that socio-economic status and age play a much less important part then previously expected, ethnic origin would seem to be the next logical variable to manipulate experimentally. Mercer (1971a) and Shutt's (1972) studies demonstrate possible psychodiagnostic bias towards Indian, Chicano, and Black children, and recent judicial decisions including Guadalupe Organization, Inc. v. Tempe Elementary School District #3, Hobson v. Hansen, and Larry P. v Riles continue to suggest that equal educational opportunities for ethnic minorities constitutes a problem requiring court action. Typically in most of the studies (Hollingshead & Redlich, 1958; Hunt, 1972) which suggest that a relationship could be demonstrated between differential treatment and socio-economic status, no control for an ethnic variable exists. Even in the case of Hobson v. Hansen where ethnic origin and socio-economic status are shown to be correlated, the final judicial opinion addresses itself to the potential debilitating economic effect which can occur because of Labeling ("tracking"), and not to race bias.
Another possible explanation of previously demonstrated bias is that in actuality bias is a result of the interaction between variables. Designs which add or subtract single factors for community composition may be too simplistic in nature (Johnson, 1975) to demonstrate bias. Therefore, a methodology which could observe interaction effects would be useful.

Methodological Factors

The design of this experiment may be too simplistic to demonstrate bias because of its lack of evaluation of the interaction between variables as mentioned above, and because the written case report method used here does not conform sufficiently enough to the way in which psychodiagnosis is in actuality performed. However, the final format of the present experiment is related to a preliminary attempt to develop a methodology whereby potentially biasing factors can be manipulated, and the dependent measures which are available to this type of investigation. Further experiments in the area of biasing factors should take into account some of the following changes which would increase the probability that real differences could be detected while keeping in mind that those associated with the presentation of the case will drastically increase the time required of each subject.

The first methodological change relates to the simplistic nature of the case report method and the uncertainty of some respondents that all pertinent information was given. The intent of the experiment was to produce a case with handicapping symptoms which would produce labeling uncertainty.
However, it was not desired to leave an impression that more information would be helpful.

As noted by the 53% of respondents who indicated that they would have performed further information gathering on the child, there was a tendency to postpone making a diagnostic decision. Both Engle (1966) for school psychodiagnosis and Scheff (1963) in medical diagnosis suggest that one of the primary assumptions of a diagnostician may very well be "When in doubt delay." Indeed many of those who suggested a need for further testing, specifically indicated a desire to obtain WISC scores. Here the potential increase in discriminating ability over the Stanford-Binet IQ is minimal, although there is some validity to the argument that the sub-scales of the WISC if reported could have improved the diagnosis. Other tests which were requested, but never in combination, included the Bender-Gestalt, Illinois Test of Psycholinguistic Abilities, the Draw-A-Man, and "any" projective test. Therefore, to decrease uncertainty about the child's true condition, later experiments which use this methodology should supply more testing and observational information to the subjects.

A separate and more definitive social assessment should also be included to maximize the possible effects of the socio-economic variable. Thorndike's (1968) criticism of *Pygmalion in the Classroom* is in part based on the observation that when important information is presented in a simplistic manner there is little evidence that its potential importance is recognized. In further bias studies the social background information should be maximized.
One potential method of doing this would be to include a social worker’s case report as might be available when a multidisciplinary team approach is used for psychodiagnosis.

An optimal approach for increasing realism would be to produce the subject of the case study for observation (assuming that age is not a factor to be manipulated). Meier (1969) has suggested that videotaped behavior samples of a child in various environments and situations are useful to the psychodiagnostic process. Therefore, a pre-recorded and rehearsed behavior sample of a child could be presented to each subject along with the testing report and social assessment.

The argument has been made in other circumstances that experimental manipulation of social variables will invariably produce a "Hawthorne Effect." This may be true in the present experiment since the subjects were informed that the efficacy of the case report format was being tested by the College of Education and Utah State University. One should be aware of this potential bias even though the subjects were informed that their responses would be analyzed anonymously. Realism in the experiment may minimize the effect, but never obliterate it.

The dependent measure may also be a potential source of error. Two issues should be discerned within each type of educational recommendation. First the possible number of statements about an educational service area is quite large when the hours per week of receiving assistance from various personnel are varied. One potentially better way to rank order services would be
to analyze the cost effectiveness of each service statement and then place the items in rank order starting with the cost of normal classroom interventions without aid from outside specialists. A second method would be to generate a large enough sample of educational service statements then have area experts, for example in reading, perform a Q sort. This method would produce both a ranking and an estimate of the number of ranks within an area that school psychologists were liable to be able to discriminate.

Statistically it would be desirable to have some sort of interval measure for scoring placements and other educational services. However, for this experiment none could be located, and it seems that a system of measures much like the one in this experiment must be used.

Limitations of the Study

During the course of this experiment four possibly confounding variables were identified which should be reported:

1. The study was carried out on a population defined as Certified School Psychologists in the State of Utah in an attempt to limit somewhat any variability due to training. However, even with this standardization and random assignment to the treatment cells, training and experience differences of each subject could have had possible biasing effects, especially since there was approximately 15% subject mortality and this was not quite evenly distributed across treatments.
2. Another issue related to the question of the effect of subject mortality was the observation that some subjects chose to be selective in providing item responses. Still others provided responses in a manner which gave insights into the questions of the study, but which were not analyzable in the manner specified by the original experimental design of the study.

3. Many subjects made statements about the ambiguity of the presented case, although this was an essential condition of the study. One must raise the question of the possibility that the subjects perceived the child's mild deficiencies not as the true state of affairs, but as an indication that the psychologist who originally wrote the case report did not do a complete diagnostic work-up. A better experimental design might present to each subject a larger but still ambiguous set of information, but this suggestion has to be tempered with the realization that when working with a large number of volunteer subjects, certain constraints must be placed on their demand for time to get them to respond at all.

4. The final and probably most important limiting factor of this study relates to the subject population and the generalizability of the findings outside of Utah. The subjects were drawn from school districts which in large part service a population with specific social and religious characteristics. The possible effect on subject responses is unknown, and because of this, any generalization of the findings to the population of all school psychologists should be considered tentative.
Summary and Conclusions

Information concerning a child in need of psychological and educational placement and treatment recommendations was presented in case report format to 50 certified school psychologists in the State of Utah. When the information was manipulated along the variables of age (conditions for a 7 and 13 year old), and socio-economic status (conditions of high and low status), while all other relevant factors such as intelligence quotient, achievement level, behavior, ethnic background, and medical history were kept constant, it was found that there were no significant indicators of bias in terms of recommended placement, remedial reading treatment, or psychotherapeutic/behavioral strategies. The four conditions were also not significantly different when the dependent measures of perceived deficiency in terms of intellectual efficiency, reading efficiency, emotional/behavioral problem, or achievement level was used. However, the subjects in the various experimental conditions were significantly in agreement that the case report information presented a child with at least a mild handicapping condition.

When the variables of socio-economic status and age are manipulated in an experimental design which controls for ethnic origin, sex, presented IQ, achievement, and behavior, this study produced evidence that bias in labeling and recommendations for educational service is minimal. Since this research used only certified school psychologists within one state who had
available specific regulations and guidelines about diagnosing various handicaps, the generalizability of these results to other school psychologists should be seen as only tentative. However, the conclusion can be made that training and guidance can significantly affect the psychodiagnostic process in the direction of decreasing potential bias towards various groups of school children.

The biased labeling and placement data which have been demonstrated in survey and ex post facto design experiments may be due to the affect of other variables. The potential biasing effect of using personnel without the training of school psychologists whether they be other professionals or parents is unknown. Secondly, ethnic origin or the interaction between variables of age, socio-economic status, or ethnic origin may be the true source of bias.

The implications for further experimental effort are numerous. Since educational services which reflect on both psychodiagnosis and administrative decision have been increasingly tested in the courts and found wanting, it would seem to be in the best interests of children to isolate the cause of bias. The potential good in finding the cause of bias is in the hope that knowledge may somehow eliminate its effect.
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Appendices
Appendix A: District Psychological Examiner Survey

The "Rules and Regulations for Programs for the Handicapped" adopted by the Utah State Board of Education, and revised October 17, 1975 states "Placement in a service pattern and reevaluation of pupils receiving service must be made and documented by a team consisting of a qualified diagnostician(s) in the area of the handicap, and at least three of the following: the regular teacher, the special education teacher, the principal, the parent, the resource personnel—psychologist, social workers, nurses, psychiatrist, and others." For the handicaps designated Educable Mentally Retarded, Emotionally Handicapped, and Learning Disabled the revised regulations require assessment "... by an individual psychological examination administered by a qualified psychological examiner." The examiner is further defined as "... must be made by or under the direct supervision of a certified school psychologist, licensed psychologist, a licensed psychiatrist, or an equally qualified person designated by the local Superintendent as a psychological examiner."

PLEASE ANSWER THE FOLLOWING QUESTIONS WITH THE ABOVE DEFINITION IN MIND.

1. Do you have a person(s) presently within your district who provides psychological evaluations?

   YES_______  NO_______  How Many?_____

2. If 1 above is NO, are these services provided through:

   a. Combination of districts?  YES_______  NO_______

   b. Outside agency (ex: Utah State's Exceptional Child Center)?  YES_______  NO_______

   If YES, please name

   ______________________________________

3. Please provide below the name(s) and addresses (if different from your District Office address) of all the persons which your District uses to provide psychological evaluations who are defined as above.

   ________________________________

   *Certified School Psychologist, CSP; Licensed Psychologist, LPY; Licensed Psychiatrist, LPT, or Designated Psychological Examiner, DPE.
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December 17, 1977

Dear Sir:

The attached questionnaire concerned with district personnel involved in providing psychological evaluations is part of a statewide study being carried out at Utah State University prior to the implementation of the new guidelines entitled "Rules and Regulations for Programs for the Handicapped" by the State of Utah Board of Education. This project is concerned specifically with identifying the names of the qualified psychological examiner(s) in each district, and the process of assigning certain types of handicapped children to educational services. The results of the complete study may help in developing better procedures to aid handicapped children receive educational services.

We are particularly desirous of obtaining your responses so that a complete list of those individuals presently designated as psychological examiners in Utah can be compiled. This questionnaire should require about 10 minutes of your time.

It will be appreciated if you will complete the questionnaire prior to January 7th, and return it in the stamped envelope enclosed. Other phases of the research cannot be carried out until we complete analysis of the questionnaire data. We will be pleased to send you a summary of the questionnaire results if you desire.

Thank-you for your co-operation.

Sincerely,

[Signature]

Orval Ballam
Dean
College of Education
Table 6

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*CSP--certified school psychologist, LPY--licensed psychologist, LPT--licensed psychiatrist, DPE--designated psychological examiner.

Same person named twice.

Reported only as "psychologist."
Appendix B: First Cover Letter to Subjects
February 23, 1976

Dear

The attached case report and questionnaire is part of a statewide study being carried out at Utah State University. This project is concerned with evaluating a specific case report format, and the process of assigning certain types of handicapped children to educational services. The results of the complete study may help in developing better procedures to aid handicapped children receive educational services in Utah.

We are particularly desirous of obtaining your responses since you have been identified as a School Psychologist in Utah. A blind numerical identifier has been developed so that your responses can be kept strictly confidential. A field test indicates that this questionnaire should require about 15 minutes of your time.

It will be appreciated if you will complete the questionnaire prior to March 12th, and return only the colored pages in the enclosed stamped envelope. Other phases of the research cannot be carried out until we complete analysis of the questionnaire data from our sample. We will be pleased to send you a summary of the study results if you desire.

Thank-you for your cooperation.

Sincerely,

[Signature]

Oral Ballam
Dean
College of Education

OB/jk
Appendix C: Second Cover Letter to Subjects
Dear

We have not received a return of the questionnaire which was mailed to you on February 23, 1976, and would therefore like to supply you with another case report and questionnaire if you have lost or did not receive the original. This study which we are asking you to participate in, is concerned with developing better procedures to aid handicapped children receive educational services in Utah.

Obtaining your particular response is extremely important to us since you are one of only a small group of people who have been identified as functioning as a school psychologist here in Utah. All responses are considered strictly confidential.

Please help us by completing the questionnaire prior to April 5th, and return only the colored pages in the enclosed envelope. Other phases of the research cannot be completed without analysis of the questionnaire data from our sample. If you would like a summary of the study, results will be sent to you if you indicate so.

Thank-you for your cooperation and support.

Sincerely,

Orrin L. Hallam
Dean
College of Education
Appendix D: Questionnaire
Below are listed different sections which are concerned with diagnosis of this child's problem, and recommendations for his educational service plan. In each section you are to check the one statement which you feel best fits this child's diagnosis or needs from the information presented. For the sections which are concerned with the educational service plan, you are to assume that each treatment is equally available.

Which do you feel is the most likely diagnostic classification?

1. Mentally retarded
2. Emotionally disturbed
3. Learning disabled
4. No problem

Which do you feel is the best classroom placement for this child?

1. Regular classroom placement, no special monitoring system necessary.
2. Regular classroom placement on a trial basis with re-evaluation by a school psychologist every three months.
3. Regular classroom placement with special education teacher tutoring 1 hour per day with re-evaluation by school psychologist every three months.
4. Special education classroom placement within district with re-evaluation by school psychologist every three months.
5. Placement at state residential facility.

Which do you feel is the best recommendation to solve this child's emotional/behavioral problem?

1. Ordinary classroom interaction with teacher.
2. Teacher has conference with child about problem behavior in hopes of resolution of the problem.
3. Teacher has conference with the child's parents in hopes of resolution of the problem.
4. Teacher holds formal staffing within the school in hopes of obtaining information on how to resolve child's problem.
5. Child receives weekly scheduled psychotherapy or behavioral treatment plan from school psychologist within district.
6. Child receives scheduled psychotherapy at a residential treatment facility outside of district.
Which do you feel is the best recommendation for reading remediation for this child?

1. Classroom teacher continues reading program regularly in use.
2. Child assigned to work with strong reader in class.
3. Teacher aid assigned to work individually with child using teacher’s suggestions.
4. Classroom teacher works individually with child 15 minutes per day.
5. Reading specialist assigned to work with child twice a week for thirty minutes each session.

Please check the appropriate space as you see this child’s problem.

1. General achievement
2. Reading efficiency
3. Emotional/behavioral
4. Intellectual efficiency

no problem 2 3 4 5 severe problem

We are also interested in finding out what services might realistically be obtained for this child in your district. We understand that factors such as funds for personnel, numbers of students in a classification, and quality of available specialists may influence what you recommend for a child. Please fill out the sections below with the question in mind, “What services would this child probably receive in your district within one year of seeing the school psychologist”? Space has been provided if you care to suggest any other appropriate services which would be provided in your district which haven’t been listed.

Classroom placement

1. Regular classroom placement, no special monitoring system necessary.
2. Regular classroom placement on a trial basis with re-evaluation by a school psychologist every three months.
3. Regular classroom placement with a special education teacher tutoring 1 hour per day with re-evaluation by school psychologist every three months.
4. Special education classroom placement within district with re­
evaluation by school psychologist every three months.
5. Placement at a state residential facility.
6. Other suggestions:

Emotional/behavioral recommendation
1. Ordinary classroom interaction with teacher
2. Teacher has conference with child about the problem behavior in
   hopes of resolution of the problem.
3. Teacher has conference with the child's parents in hopes of
   resolution of the problem.
4. Teacher holds formal staffing within the school in hopes of obtain­
ing information on how to resolve the child's problem.
5. Child receives weekly scheduled psychotherapy or behavioral treatment
   plan from school psychologist within district.
6. Child receives scheduled psychotherapy at a residential treatment
   facility outside of the district.
7. Other suggestion:

Reading recommendation
1. Classroom teacher continues reading program regularly in use.
2. Child assigned to work with strong reader in class.
3. Teacher aid assigned to work individually with child using teacher's
   suggestions.
4. Classroom teacher works individually with child 15 minutes per day.
5. Reading specialist assigned to work with child twice a week for thirty
   minutes each session.
6. Other suggestion:

What other recommendations might you make within your district for this child?

Please return only the three colored pages. Thank-you.
Vita

John W. Kelsey

Candidate for the Degree of

Doctor of Philosophy

Dissertation: The Effects of Age and Socio-Economic Status in the Diagnosis and Educational Treatment of Mild Handicapping Conditions in School Children

Major Field: Psychology

Biographical Information:

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