THE EFFECT OF BACKGROUND INFORMATION ON A STUDENT REFERRAL FOR SPECIAL EDUCATION

By

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ABSTRACT

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The purpose of this study is to investigate the effect of background information on the decisions made for a student who is being referred for special education. Specifically, the effect that the demographic details of the student and his/her IQ test scores will have on how school psychologists interpret the results of a test of cognitive abilities and what educational decisions will be made based on the test results and the student's perceived family background.

The review of literature suggests that background variables, such as the school setting and the child's background of either living in a rural, suburban, or urban setting, have an effect on psychoeducational decisions, but the magnitude of those variables were not as strong as were

originally hypothesized (Huebner, 1985). Other research has found that when a student is being referred for specific special education title, either “gifted” or “learning disabled”, the school psychologist confirmed that the child was indeed “gifted” or “learning disabled” and the psychologist found evidence to support the reason why the student was referred, which is described as “confirmation bias” (O’Reilly, Northcraft, and Sabers, 1989). Additional research suggests that students are affected by extraneous information given to them about animals used in experimental research.

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CHAPTER ONE

INTRODUCTION

Biases have an affect on how people react to and treat others based on the information that they have been given. This effect on people is called the "Pygmalion Effect," named after the George Bernard Shaw play in which the main character, Professor Henry Higgins, is able to transform Eliza Doolittle to a woman of nobility and worthy of royalty from a sassy, smart-mouthed girl based on his treatment of her. Past studies have shown that when students are given certain pieces of information about their animal subjects in an experimental study, the students' success and liking of the experiment were predicated based on what they were told about their animal subject (McLeod, 1995). The same effect has been found in education. Research has been conducted and has shown that when a teacher is given information about students in their class (e.g. IQ score) and was told about their ability to perform well academically during the school year, the teacher's behavior towards that student changes (Claiborn, 1969). For example, teachers began treating those students in a friendlier way, being more encouraging, increased reinforcement of correct responses, and increased attention paid to those students. Teachers have also been found to have a better memory for those students who were labeled as "gifted" or a "bloomer" as opposed to non-labeled students (Claiborn, 1969).

School psychologists are also faced with the potential of bias when reacting to students. Decisions can be made based on the student's sex, their socioeconomic status (SES), and even physical appearance (Algozzine & Ysseldyke, 1980). However, when presented with a referral for special education or academic remediation, it is the duty of the school psychologist to take in all of the information that is needed in order to make a proper decision on the academic future of the referred child. When an objective decision is made based on academic performance,

behavioral observations, and standardized testing, the recommendations made by the school psychologist can improve the chance that the student can succeed in school and beyond. When a decision is based on too little information or only one or two pieces of information is paid attention to by the psychologist, however, the outcome becomes less objective and more subjective based on the psychologist's own experiences.

Statement of the problem

School psychologists are to be as unbiased as possible when taking on a psychological assessment referral and must consider all of the information they have accrued when making an educational decision for their students. However, there are times, whether consciously or unconsciously, when mental shortcuts, called heuristics, are taken while considering the reason for why a child is being referred to the school psychologist. Sometimes, only paying attention to one piece of information can be enough to bias the psychologist's opinion about the student. For example, when interpreting the results of an IQ test, the psychologist's attitude and perception towards the student based on their sex, race, SES, or even physical attractiveness may be enough to bias their decisions on whether or not the child is eligible for special education services. School psychologists need to take make objective decisions about the students that are referred to them such that the child's race or sex does not jeopardize their eligibility for special education services.

Purpose of the study

The goal of this study is to review research and literature that pertains to bias and attribution errors that occur during and have occurred during psychological research. Also included will be a discussion of the use of judgment heuristics and the impact of their use. Also, there will be a review of attempts at examining the sources of bias that may occur when performing a psychological assessment for a referred student.

Questions, Objectives or Hypothesis

The objective of this study is to provide a review of research into the area of bias in psychological assessment and other psychological research. This study will also investigate the use of mental shortcuts, also known as heuristics, and how their use can have an affect on decisions made about a psychological assessment. There will also be a review of research pertaining to what factors, if any, can bias a psychoeducational assessment.

Justifications or Significance

This is a significant study in that if recommendations and classifications are being made based on only the name of the student and his/her standardized test performance, it introduces a great amount of bias on the part of the school psychologist if only those two pieces of information are used to make diagnostic decisions or decisions on whether or not the child is in need of special education. This study can also raise awareness of one's own personal biases and can see how those biases have affected the decisions they have made on former students who were referred for psychoeducational testing.

Definition of terms

Judgmental Heuristics-A strategy, deliberate or not, that relies on a natural assessment to produce an estimation or prediction (Fagley, 1988)

Limitations of the study

The most significant limitation to this study is that the majority of the research reviewed in this study is not very current, with dates of publications ranging from the mid-1970s to the mid-1980s. Although research into the area of bias and attribution errors in psychological assessment appear to be exhausted, it is a topic that is worthy of attention.

CHAPTER TWO

LITERATURE REVIEW

The literature review will discuss the history of how attribution bias and expectation effects in schools have or have not affected the academic performances of students. The topic of judgmental heuristics will also be discussed, as those thought processes may contribute to bias in test interpretation and recommendations. There will also be a discussion regarding research studies that have attempted to identify bias in test interpretation by professionals and if those biases had an effect on recommendations for case studies. Additionally, there will be a discussion of the effect that a psychological report may have on a psychologist's interpretation and a teacher's expectations of the student. Furthermore, examples of research attempting to determine if there is racial and socioeconomic bias in placement of students into special education classes will be discussed.

Heuristics

Judgmental heuristics and their use have serious implications not only for school psychologists, but for people as a whole. When discussing judgmental heuristics, three different kinds have been identified. The availability heuristic can be defined as the ease with which instance or occurrences can be brought to mind, or the incomplete nature of one's memory search for information (Fagley, 1988, Lichtenberg & Goodyear, 1999). Its use is common because it may offer somewhat accurate estimates of the likelihood of an event happening (Fagley, 1988). This is accomplished by paying attention to the most prominent features of an event or a person and ignoring other aspects that we may think of as being less important (Lichtenberg & Goodyear, 1999). The classic example of the use of this type of thinking was

demonstrated by Tversky's and Kahneman's research, which showed that words beginning with the letter R were more easily retrieved that words with R in the third position of the word. This occurred regardless of the fact that words with R in the third position outnumber words that begin with the letter R (Fagley, 1988). School psychologists need to be aware of this thinking because there is the tendency for this thought pattern to provide psychologists with an inexact notion of the frequency that a phenomenon actually occurs (Fagley, 1988). Fagley gives the example that school psychologists may think that since a student is a "funny-looking-kid" that they may be more prone to educational problems since the tendency is to believe that the occurrences of these traits come hand in hand more often than they actually may (1988).

The representativeness heuristic refers to judgments about others based on how similar they are to a prototypical example of a known category member (Fagley, 1988). A classic of the use of this heuristic is when a student's profile matches that of a typical slow learner. Even if the description of this student is not reliable or inaccurate, a school psychologist will predict with confidence that the student is indeed a slow learner (Shavelson & Stern, 1981). Judgments made by using this heuristic have the possibility to lead one to false conclusions about a person or student. This is because judgments of similarity are not affected by other important aspects that are necessary when attempting to make accurate decisions of the probability of a trait or characteristic being associated with that person (Fagley, 1988). A 1993 study examined the effect that an ADHD label and stereotypic ADHD behavior had on a teacher's first impressions of a student (Cornett-Ruiz & Hendricks, 1993.). Volunteer teachers were informed that they would be watching a video of a student who was diagnosed with ADHD or a video of an "average" student. The teachers were then shown a video of a student who displayed behaviors consistent to DSM III-R criteria for ADHD or a video of a student who displayed "normal"

behavior, afterwards completing a questionnaire of first impressions, predictions, and essay ratings. Results concluded that the ADHD label did not have an effect on the ratings of the teachers, but the actual observation (i.e. the videotape) of a student displaying ADHD behaviors had a negative impact on the teachers' first impressions of the student [$F(1,112)$ $p<.001$] (Cornett-Ruiz & Hendricks, 1993, p. 352-353).

The third heuristic is called anchoring, or adjustment, which is the tendency to allow preliminary information or impressions dictate subsequent decision making (Lichtenberg & Goodyear, 1999). Fagley gives the example in which referral information or previous test data about a student could give a school psychologist a "starting point", or an "anchor", in which to start working with (1988). There is also the tendency when presented with contrasting information about a student or client, people's decisions are rarely altered away from the "anchor" that they had prior to the new information (Lichtenberg & Goodyear, 1999). In 2002, Morrow published an article of how she conducted a classroom experiment in an attempt to explain the anchoring heuristics. Students in the her social psychology class drew numbers, or "anchors", out of a hat where half of the numbers were relatively low (340) and the other half was relatively high (340,627). They were then asked to estimate the number of people who die from strokes every year. A main effect [$F(1,38) = 15.69$, $p<.0003$] was found for the type of anchor that each student picked, meaning that students who drew a low anchor number estimated a lower number of deaths by stroke and those who picked high estimated a high number of deaths (Morrow, 2002, p. 130).

Each of these previously discussed heuristics, or mental shortcuts, help greatly in decision making in that decisions can be made more efficiently when these shortcuts or being

employed. However, one must be made aware of the biases that each heuristic has and how those biases can affect the decisions made about an individual.

Expectancy Research

Judgment heuristics have been studied by several researchers to examine their effects on decision making and expectations. Robert Rosenthal is a key figure in the area of expectancy research and was a pioneer in the studying of experimenter bias in psychological studies. He began his research in this area at Harvard while working with students enrolled in an experimental psychology course. In this experiment, he began by explaining to his students that "maze-brightness" and "maze-dullness" was a trait that could be developed in rats by successive breeding attempts (Rosenthal and Jacobson, 1968). Sixty rats were used in this maze running experiment by Rosenthal's students, where half of his students were told that their rat was "maze-bright" and the other half of his students were told that their rat was "maze-dull" (Rosenthal and Jacobson, 1968). Results from Rosenthal's experiments showed that rats that were expected to perform well did indeed, while showing a gradual increase in performance during each of the five days in the study. As for the "maze-dull" rats, these rats showed a slight improvement from day one to day three, but slowly declined in performance by the fifth day of the experiment (Rosenthal and Jacobson, 1968). After the experiment had concluded, students rated their rats in the study as well as their own attitudes towards their animals. For those students who were told they had a "maze-bright" rat, they viewed their animal as more likable and brighter compared to the "maze-dull" rats (Rosenthal and Jacobson, 1968). In a similar experiment, Rosenthal had students put "gifted" and "disadvantaged" rats in Skinner boxes and teach the rats a series of behaviors required in order to receive a piece of food. Similar to the maze experiment, if students were led to believe that their rat was "gifted," their rat performed

better on average compared to students who were led to believe that their rats were "disadvantaged" (Rosenthal and Jacobson, 1968).

When hearing about Rosenthal's work on expectancy research with rats at Harvard, Lenore Jacobson contacted Rosenthal in an attempt to apply his research on rats to students at Oak Elementary School, where she was the principle (McLeod, 1995). To begin their study, students entering kindergarten through grades six were administered the "Harvard Test of Inflected Acquisition", a test that allegedly predicted "blooming" or "spurting" of children's academic performance (Rosenthal and Jacobson, 1968). After the Harvard Test was administered, 20% of the students at Oak Elementary School were labeled as "spurters" or "late bloomers" (Rosenthal and Jacobson, 1968, McLeod, 1995). From those labeled as "spurters", it was anticipated that these children would show gains in academic competence and would be expected to score higher if given the Harvard Test again (McLeod, 1995). When given the Harvard Test again, the children in the control group of this study gained over eight IQ points on the test, while the experimental "late bloomer" group had gained over twelve points on the test (Rosenthal & Jacobson, 1968).

The Pygmalion Effect was analyzed ever further after Rosenthal and Jacobson had published their findings from the Oak Elementary School experiment. Researchers at the University of Illinois in 1971 took it a step farther by investigating teacher reactions to student labels of "gifted" and "non-gifted." In a study involving students who volunteered for teaching experience, the students were given lesson plans to teach to sixth and seventh graders. The students were also given a roster and seating chart of the students in their class, as well as IQ scores and the labels that corresponded to those IQ scores. It was hypothesized that based on the IQ scores and their corresponding labels, teachers in each class would develop different

expectations react differently to each labeled student. Results confirmed that those with labels of "gifted" had significantly more statements requested of them as compared to their "non-gifted" peers (Rubovits & Maehr, 1971). "Gifted" students were also praised significantly more than "non-gifted" peers, and there was also a significant difference in the amount of teacher-initiated interaction between the "gifted" and "non-gifted" students (Rubovits & Maehr, 1971).

As much as one would like to believe that it is as simple as biasing a teacher's view on a student in order to have that student improve academically, research has shown that Rosenthal's and Jacobson's conclusions may not generalize to other attempts at replicating their original study. William Claiborn attempted to replicate Rosenthal's and Jacobson's research by performing a similar experiment using the same school grades in Rosenthal's and Jacobson's research in a different school. Claiborn also examined the teachers' behaviors in these classes to see the differences in their behaviors before and after the bias had been introduced into the classroom (Claiborn, 1969). After performing his experiment and an analysis of the data, he concluded from questionnaires completed by the teachers that the teachers were better able to remember the names of the students who were identified being "potential bloomers", evidence that the teachers did pay some attention to the bias (Claiborn, 1969). As for significant differences between labeled and non-labeled students, Claiborn was unable to find any differences between students on their IQ scores ($F=2.12$, $df=1/101$) or their subtest scores (Claiborn, 1969). Claiborn supports his results by stating the similarities between the two studies. First, the same IQ test was used in both studies (The Test of General Abilities) and the statements that were used to bias the teachers were also identical (Claiborn, 1969). Secondly, the same percentage of students that were labeled as "bloomers" was the same for the both studies (Claiborn, 1969).

Rosenthal's and Jacobson's original study was further critiqued by Russell Grieger. In his review of research related to the Pygmalion Effect, Grieger found several methodological issues in the Rosenthal and Jacobson study. These included the use of a test, the Test of General Ability (TOGA) to assess the students' intellectual gains in the school. The TOGA, however, had a low correlation with other highly used intelligence and achievement tests, as well as being normed on children from low-SES backgrounds, partly accounting for fluctuations in score changes (Grieger, 1971). Furthermore, teachers administered the TOGA, calling to question their ability to administer standardized tests, if teachers were trained at all (Grieger, 1971). Another drawback to this research is that the bias created in Rosenthal experiment may have been due to a concept called "criterion contamination", which occurs when an experimenter, on in this case, a teacher, is asked to rate behavior when they know what the expectation is.

Besides reviewing studies that did not clearly demonstrate teacher expectancy effects, Grieger reviewed studies that did demonstrate the effect. In a study done by W.V. Beez, Head Start children were blindly assigned to either "low" or "high" ability groups (Grieger, 1971). Graduate students, given the profile of their children, then attempted to teach students teach the children as many symbols as possible within a 10-minute span (Grieger, 1971). Results concluded that those who expected a positive performance tried to teach more to their students ($p<.001$) and the children who were of "high ability" obtained more symbols than their counterparts [$p<.001$] (Grieger, 1971). Conversely, the teachers that taught "low ability" students gave a significantly more examples and spent more time on non-teaching activities that the "high ability" students (Grieger, 1971). In conclusion to his article, Grieger states that "The teacher expectancy effect, like, the experimenter expectancy effect, is more difficult to demonstrate and less pervasive that has been claimed" (1971).

Confirmation Bias

Bias on the part of the school psychologist can occur as early as when they receive a referral from a teacher. Similar to Rosenthal's and Claiborn's studies, a study was conducted with school psychologists to determine if eligibility decisions were dependent upon the referral information given to the psychologists. Participating psychologists were given a report for a student being referred for special education with information including educational and medical histories, assessment results and behavioral observations. All reports were alike with the exception of referral reason: half were referred for learning disability consideration and the other half for giftedness consideration (O'Reilly, Northcraft, & Sabers, 1989). Results concluded that the classification decision of the psychologist was significantly influenced ($p<.001$) by the referral (O'Reilly et al., 1989). Psychologists were also asked to designate which attributes of the report were most important in determining the student's eligibility classification. T-tests concluded that psychologists with a learning disability referral gave more consideration to information that was consistent with a learning disability than giftedness [$t(30)=2.04$, $p<.05$] (O'Reilly et al., 1989). Researchers also tested to see if participating psychologists were different by asking them to recall learning disabled-consistent or gifted-consistent features of the reports. A t-test concluded that memory scores for the psychologists with learning disabled referrals were higher than those with giftedness referrals (O'Reilly et al., 1989).

Attribution Bias

In the late 1970s and into the early 1980s, researcher in the area of school psychology became concerned with what factors, other than IQ and current academic performance, influenced a decision to place a student into a special education program. Matuszek and Oakland examined: 1) What characteristics of a student were used by teachers and school psychologists to

make placement decisions, 2) If characteristics differed between teachers and psychologists, and 3) If socioeconomic status and racial characteristics influence placement decisions independently of other characteristics (117). In this study, teachers and psychologists were given case mock studies and were asked to make recommendations into one of five settings: regular class, regular class plus consultation, regular class plus resource room, part-time special class, or full-time special class or special school (Matuszek & Oakland, 1979, p. 118). Results concluded that the psychologists in this study depended heavily on the student's IQ test and achievement test scores to make their decisions to refer for special education or not (Matuszek & Oakland, 120). It was also found that the decisions were also affected by socioeconomic status (SES), class achievement, and home-related anxiety (Matuszek & Oakland, 120). However, recommendations made by psychologists were not influenced by the race of the student in the case study, suggesting that children similar in terms of other characteristics but different in race will receive equal treatment (Matuszek & Oakland, 121-122). However, when making recommendations for special services (e.g. counseling/therapy, not special education), psychologists were biased in the sense that more recommendations were made for students of a higher SES than of lower SES when all other factors were held equal (Matuszek & Oakland, 122). This finding may be due to the fact that psychologists see the problems manifested by high-SES children as being more internal to that child, while problems exhibited by lower-SES children may be seen as an inconsistency between home and school lives (Matuszek & Oakland, 122). In regards to what variables teachers used to make recommendations, they considered: test and class achievement, IQ, home-related anxiety, self-concept, and adaptive behavior (Matuszek & Oakland, 122-123). In agreement with the psychologists in this study, the teachers made similar recommendations for Caucasian and African-American children who were equal on other

variables (Matuszek & Oakland, 123). Unlike the psychologists however, the same recommendations were made for children who were only different in terms of SES, suggesting that neither race, ethnicity, nor SES are considered when a teacher makes a decision about a placement for special education (Matuszek & Oakland, 123).

Additional studies have been carried out that examine the affect of social characteristics on psychoeducational decisions. Amira, Abramowitz, and Gomes-Schwartz (1977) investigated the effect that race and SES has on school psychologists' decisions and if so, whether or not the values and experience of the psychologist act as a moderator (p. 434). A mock evaluation was sent out to volunteering psychologists, which included information such as the student's Wechsler Intelligence Scale for Children-Revised (WISC-R) scores, Wide Range Achievement Test Scores (WRAT), teacher observations, educational records, and family background. The student's race and SES were the only items varied in the student's record. Volunteers were asked to assess the student in two different areas: diagnostic impressions (including severity of emotional disturbance or learning disability), and program recommendations. Subjects also completed an inventory to determine their values (more or less traditional) and demographic information to obtain their years of experience as a school psychologist. As opposed to what was hypothesized, there were no significant effects for the race of the student (Amira et al., 1977, p. 436) However, it was observed that custodial/separate care was suggested more for African-American students than Caucasian students [$F=2.88$, $df=1/201$, $p<0.9$] (Amira et al., 1977, p. 436). As for SES, there was a trend in which middle-class identified males were recommended more strongly than lower-class males for remedial classes in the same school (Amira et al., 1977, p. 436). Furthermore, a two-way interaction was observed between the student's race and the experience of the psychologist when asked about the appropriateness of a learning disability

classification [F=6.84, *df*=1/201, p,0.1] (Amira et al., 1977, p. 437). What was also discovered was that less-experienced psychologists tended to consider a learning disability diagnosis more suitable when the student was Caucasian as opposed to an African American student [F=6.84, *df*=1/201, p<.01] (Amira et al., 1977, p. 437). A three-way interaction between the variables of psychologist values, student race, and student race in regards to the determination of mental retardation [F=8.90, *df*=1/201, p<.01] (Amira et al., 1977, p. 438). The primary source of the differences was found amongst the more traditional psychologists, who tended to evaluate lower SES African-American students as less mentally retarded than middle SES African-American students (Amira et al., 1977, p. 468).

Reynolds and Kaiser summarized results of other studies attempting to determine if test bias existed. In a 1979 study, Frame concluded that there were no significant differences in the accuracy of diagnoses as a function of race or SES when race, SES, and achievement level were varied (Reynolds & Kaiser, 1982). What was significant, however, was that lower-SES students were less likely to be recommended for special education as compared to their white counterparts or higher-SES black children, with the general trend being that higher-SES students being recommended more for special education classes (Reynolds & Kaiser, 1982). Reynolds and Kaiser also discuss how bias can extend to community mental health settings as well as a school setting. In 1979, Lewis, Balla, and Shanok found that black adolescents seen in these settings with symptoms of schizophrenia, paranoia, or other psychological disorders were dismissed as "cultural aberrations" as the behaviors were considered to be coping skills with their frustrations created by white culture (cited in Reynolds & Kaiser, 1982).

Computer simulations have also been used to test if naturally-occurring characteristics have an effect on decision making for students. Ysseldyke, Algozzine, Regan, and McGue

(1981) developed a computer program that simulated a referral for special education for participants to evaluate. Each participant was arbitrarily assigned to one if sixteen different conditions based on the student's sex, SES (low SES vs. high SES), the type of referral (behavioral vs. academic) and the attractiveness of the student ("attractive vs. unattractive" based on previously judged pictures) (Ysseldyke et al., 1981). Upon review of the student, volunteers were asked to several questions regarding diagnosis, prognosis, which influence of test scores, and influence of the student's characteristics.

One variable that has also been of interest is the affect that a student's background has on psychoeducational decisions. Specifically, if the student was raised in a rural, suburban, or an urban/inner city setting and the setting of the school, be it a rural, suburban, or urban school setting. The reasoning for the examination of this variable is that rural students have a tendency to exhibit problems analogous to those of minority students who come from an urban background (Huebner, 1985). In this study, a mock case report about a student who moved to a new school included information such as the WISC-R scores (Full Scale IQ=70), adaptive behavior scores, and achievement scores, were sent out to randomly selected NASP school psychologists. Different conditions were created in this study by varying the student's background and the school setting in the study. Upon review of the case study, participants were asked to questions about appropriate programs for the student and diagnostic questions about the student. Upon analysis of the data, it was discovered that urban students in urban schools were not as likely to be diagnosed mildly mentally retarded than urban students in rural ($p<.05$) or suburban schools ($p<.05$) (Huebner, 1985, p. 240). Huebner concluded that the background variables of the mock student, school setting, and the psychologist's work setting in this study failed to produce any bias in the psychoeducational decisions made for the student (Huebner,

1985, p. 240). Also, urban students from urban schools in this study were found to be diagnosed as mildly mentally retarded less often when compared to urban students in rural or suburban schools, implying that psychologists considered the match between the student and their environment, a phenomenon called a "local norms perspective" (Huebner, 1985, p. 240).

There has also been a concern about bias in placements of students in special education, especially if students are placed due to their race, ethnicity, or their parents' socioeconomic status (SES). Attempts at finding out if there is an overrepresentation of students of a certain race/ethnicity or SES have been done. Argulewicz and Sanchez examined volunteer school districts in Arizona to see if there were any differences in rates of referrals for low- and mid-SES Anglo, Mexican-American, and African American children who were referred for learning disabilities. After performing a chi-square analysis, they found several significant differences (X^2= 9.63, $p<.05$), with the greatest inconsistency in finding fewer mid-SES Anglo students not being placed in special education and a greater number of low-SES African American children being placed in special education than expected (Argulewicz & Sanchez, 453). In this study, there was also a discrepant referral rate in low-SES schools where Anglo students made up 63.8% of the student body, but only accounted for 43.8% of special education referrals, whereas Mexican-American students made up 23.9% of the student body and 43.1% of the special education referrals (Argulewicz & Sanchez, 1983, p. 453).

A similar attempt was made by researchers in Michigan. Neer, Foster, Jones, and Reynolds (1973) hypothesized that if a student scored in the mild range of mental retardation and was from a low SES group, it would be more likely that this student would be diagnosed as mentally retarded than a similar student from a high SES family. After sending case studies with identical information with the exception of the student's SES to participating psychologists,

significant effects were found based on SES ($p<.01$) and individual cases ($p<.01$) (Neer et al., 1973). It was concluded that in cases where the student was from a low SES group, the more likely that the student would be diagnosed as being mentally retarded ($p<.01$), but no significant differences were found between students who were from middle or high SES groups (Neer et al., 1973).

Another study in the state of Michigan was conducted to determine if low-SES children were overrepresented in special education classes when compared their middle- and upper-SES peers and if there was evidence of placement bias towards low-SES children (Bernard & Clarizio, 1981). A Chi Square analysis was performed on 973 special education cases and the final placements of these students were submitted for the study and analyzed by Chi Square analysis. In one chi-square, students identified as learning disabled (LD) were compared to non-impaired children (NI), with no relationship found between placement and SES [$x^2(1)=.036$, $p<.085$] (Bernard & Clarizio, 1981, p. 180). In another chi-square, the LD group was compared to students identified as educable mentally impaired (EMI), with no significant relationship between SES and placement (Bernard & Clarizio, 1981, p. 180). Despite the non-significant differences in the chi square analyses, low-SES children made up 31.1% of LD placements, 57% of EMI placements, 54% of emotionally impaired, 36.7% of otherwise impaired, and 29% of non-impaired placements, signifying that children of low-SES are being overrepresented in special education, especially in EMI placements (Bernard & Clarizio, 1981, p. 180).

Bias can also exist not only on the basis of SES, race, or ethnicity, but bias can also stem from psychological reports for psychologists and teachers. Cummings, Huebner, and McLeskey (1986) set out to determine if the reason for a student's referral and the type of psychological data had an effect on decision making for a mock student. Volunteer psychologists were

randomly placed into four different conditions dependant on the referral reason (learning disability or behavioral problem) and the type of test data (learning disabled or normal). After viewing the student's case file, volunteers completed a questionnaire about diagnostic and future academic expectations, as well as a question about the most appropriate educational program for the student. Results concluded that the referral issue did not have an effect on the psychologists' decisions (Cummings, Huebner, & McLeskey, 1986). However, the type of assessment data did have an impact [$F(5, 46)=4.00$, $p<.05$] (Cummings et al., 1986). Specifically, those who received data about a normal student were less likely to have low academic expectations, recommend special education, or diagnose the student as handicapped (Cummings et al., 1986).

Summary

Psychologists need to be aware of mental processes and shortcuts that they use to make decisions about students that are referred to them. They should be aware of the rates at which certain phenomena occur, also known as base rates, so that decisions made about a student's academic future are made based on rates that are representative of the population and not on how often the psychologist has seen this phenomenon. School psychologists should also be aware that decisions should not be made just because the student fits a "typical" profile or based on the referral reason. Both courses of action may lead to false conclusions about the student. School psychologists should also be familiar with research that has shown what kind of information can lead to biases in placement decisions for their students. Information such as race, socioeconomic status, and even the type of referral can have, to some extent, an effect on the decisions made for a student.

Limitations

Despite of the amount of research that has been presented in this paper, a major drawback is that fact that a lot of the studies mentioned are not very current. The majority of the studies go back to the mid 1970s up to the mid 1980s, with early research in expectancy bias dating back to the 1960s or earlier. Bias and attribution in intellectual assessment and decision making for special education referrals is an issue that is worthy of attention no matter what year we are in so it can be prevented as best as we possibly can in the future.

Implications for Further Research

This research paper has been written for use in a future experimental study of attribution bias in referrals for school psychologists. A research design will be created to study the effect that certain types of information have on a school psychologist's interpretation and recommendations for a fictitious student.

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