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ABSTRACT

Because educational equity is a developing area, courts have little precedent to guide rulings. Extra-legal evidence may help in deciding what the law is. Social science evidence is also invited by the courts because educational equity law is purportedly an instrument of social change. The sophistication of social science research, as well as the qualifications of testifying experts, varies greatly. Some confusions about the role of social science in court cases may result from the fact that the bulk of expert testimony is contributed by educational practitioners drawing conclusions and making inferences rather than by social scientists testifying about their research findings. Social science has influenced the development of educational equity law by identifying and clarifying important issues, by providing consensual factual information, and by instructing the courts on how to analyze the salient issues. Legal opinions often indicate that the courts have adopted the social science mode of reasoning and the findings that follow and have chosen one social science claim over another. Even when social science research merely corroborates a judge's priori preference, such evidence can still influence a decision. In some cases, social science may provide the court with the necessary intellectual justification for a decision that cannot be justified only on legal grounds. (Author/MK)

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**SOCIAL SCIENCE RESEARCH IN SCHOOL DESEGREGATION CASES:
A CRITICAL REVIEW**

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SOCIAL SCIENCE RESEARCH IN SCHOOL DESEGREGATION CASES:

A CRITICAL REVIEW

I.

INTRODUCTION

Social science data was formally introduced into the judicial arena in 1908 by Louis Brandeis in Muller v. Oregon. Brandeis filed a 113 page brief consisting of two pages of legal opinion and 111 pages of survey data, governmental statistics, and the opinions of doctors, employers, and employees concerning the reaction of women to contemporary working conditions. This vast array of evidence indicated that women could not tolerate the same working conditions as men. Since that time, a trial brief which relies on social data has been called a "Brandeis" brief, and this style of litigation, "sociological jurisprudence." It was not until the public school desegregation cases of the 1950s, however, that academic social scientists were called upon in large numbers to present data in the judicial arena, and it is only in the last few years that the influence of social science on the law has become a matter of interest to social scientists themselves.

What is Social Science?

This paper in broad terms discusses the kinds of knowledge, uses of knowledge, and users of knowledge involved in educational equity cases. The kinds of knowledge used in these cases are legal information, social science research, and the opinions of social scientists, educators, psychologists, and others. It is important to define social science research at the outset. It is the thesis of this paper that much of what is called social science by lawyers and judges is, by the standards of the social science discipline,

nothing of the sort. Judge Craven describes William S. Smith, Doctor of Divinity and President of Randolph Macon College, as a social scientist, although his contribution to Scott v. Sandford (1856) consisted only of a copy of his lectures entitled The Philosophy and Practice of Slavery, arguing that "domestic slavery is not sinful and that slavery... is a fundamental principle of the social state," (Craven, 1975). Similarly, Judge McMillan, the author of Swann v. Charlotte-Mecklenburg Board of Education (1969) defines social science as "the study of human society, the interaction of individuals in and with groups, and the welfare of people in society," (McMillan, 1975). I believe both of the definitions implied here are in error as to what social science is and what social science research is.

Social science is a discipline which employs an accepted set of empirical, "scientific" methods in order to formulate universal or general laws which allow us to understand and predict human behavior. The scientific methods used by social scientists are intended to maximize objectivity, reliability, and generalizability. The concept of a control group, or of variation in the cause and effect variables across cases, is critical to the scientific study of any phenomena. Two other important aspects of the scientific method are sampling theory which provides guidelines for the selection of subject/respondents so that a researcher does not merely select those subjects which will verify his or her hypotheses, and statistical theory which provides the basis for the systematic acceptance of hypotheses.

We can exclude from the field of social science the study of particular cases for the purposes of understanding them in some way as in psychiatry, clinical psychology, history, law, accounting, educational administration,

business administration, and social work. We can also exclude those aspects of political science, sociology, philosophy, psychology, anthropology, and economics which do not use scientific methods, but attempt to make generalizations based on intuition, common sense, or nonsystematic observation.

Nevertheless, the fields I would exclude from the social science discipline have been used extensively in expert testimony in court cases, and hence may have led to some misunderstanding as to the role of the social sciences in the judicial arena. Although an expert witness may have gained his reputation on the basis of his social science research, unless he adheres closely to the conclusions which can be drawn from the research, he is, not acting as a social scientist.

Dworkin (1977) makes a distinction between two kinds of judgements or hypotheses, both of which he argues belong to the social sciences in the sense that they are made by people who profess to be members of some discipline called social science. The first, causal judgements, are judgements that assert a causal connection between two independently specifiable social phenomena. The example used by Dworkin is the finding that as unemployment increases, inflation decreases. Another example (from school desegregation research) is that the greater the proportion of whites reassigned to black schools, the greater the white enrollment loss. These predictions are generated by social science research which adheres to the standards discussed above.

The second type of judgements made by social scientists are called interpretive judgements because they do not assert a causal relationship between two independent and specifiable phenomena, but rather locate a particular phenomenon within a particular category of phenomena by identifying



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its meaning within the society in which it occurs. Although Dworkin uses an example drawn from anthropology, it might be more useful to use one drawn from an educational court case. In Milliken v. Bradley (1974), Karl Taeuber presented extensive material on residential segregation and its causes. The demographic analyses show 1) that there is extensive segregation by race, and 2) that less than half that segregation can be explained by income constraints. Other studies (Pettigrew, 1973; Duncan, Schuman, and Duncan, 1973; Farley, et al., 1978) show that most blacks prefer integrated housing. None of the research, however, empirically demonstrates that discrimination is the cause of the segregation of blacks from whites, and yet that is precisely the information that is needed by the Court. Hence when Taeuber testifies that in his judgement the fifty percent of segregation which is unexplained by income or choice is probably due to discrimination, he is making what Dworkin calls an interpretive judgement.

I believe that Dworkin's distinction is a useful one, but that he is mistaken in his utility ranking of these two types of judgements. He writes that because causal judgements in the social sciences rest on an arcane subject, namely statistics, and interpretive judgements draw on a technology that is not foreign to the judge, the latter is more enduring and less troublesome. He writes "... interpretive judgements study society and its practices in the same way that ordinary judgements of adjudication -- the kind of judgements judges make in hard cases all the time -- study standard legal materials. This distinction, then -- between causal and interpretive judgements -- gives us a kind of functional analysis of why the causal judgements of social science create problems in the judicial process,

but why interpretive judgements are native to that process" (Dworkin, 1977: 24).

I would argue exactly the opposite, and I believe I would have the support of most of my colleagues in the social sciences. It is the interpretive judgements that get social science and social scientists into trouble, and it is the causal judgements, resting as they do on accepted social science techniques, that make the most useful contribution to court decisions. Causal judgements, of course, involve some interpretation in order to transform correlation into causation, but as long as the method used to determine the correlation is a respected one, the correlation -- the major part of the judgement -- can be reanalyzed and refuted. It is much more difficult to refute interpretive judgements, if it can be done at all.

I would also place most statistical criticism in the category of interpretive judgement. My own experience has been that social scientists are very influenced by their own personal ideologies or viewpoints in their statistical criticisms unless they are forced to adhere to the standards of social science by demonstrating empirically that correcting the flaw would change the findings of the study. (Usually it doesn't.) Hence, I disagree with both Wolf (1976) and Katz (1971) when they argue that the most useful role of social science is to identify the logical fallacies, contradictory and inaccurate premises, faulty or inadequate techniques of research design, or confused reasoning employed by decision-makers in arriving at their views of the causal factors responsible for situations defined by them as problematic and in need of governmental intervention. In general, social scientists are no more able to be objective in their criticisms than are

knowledgeable policymakers, lawyers, and judges. In fact, the only place where social scientists are capable of objective analysis is in the conduct of their research if they adhere to the scientific standards of comparison, random sampling and statistical criterion of significance, and the research is basically quantitative.

A Framework for Understanding Educational Equity Court Cases

A majority of all court decisions on educational issues in the last two decades involve, in one way or another, alleged violations of equal educational opportunity. As an abstract principle, equal educational opportunity seems to be highly valued, but in practice there appears to be no consensus as to what it means. Yudof (1973) cites three definitions: 1) every child must have equal access to schooling resources (equal dollars or equal facilities and services) unless a compelling state interest has been demonstrated to the contrary; 2) all public school students, regardless of race or ethnic origin, must be treated in a nondiscriminatory manner; and 3) inequalities among individuals in the effectiveness of resources and the outcomes of schooling must be compensated for by the state. The courts have generally disregarded this last definition, and at different times adopted the first two definitions.

The two major categories of violations of equal educational opportunity are racial segregation and resource distribution. Violations of equal educational opportunity through unequal resource distribution include: 1) individual discrimination in the availability of educational services -- i.e. the exclusion of students for disciplinary reasons, the failure to provide education in the student's language, the failure to provide education for the handicapped, and excluding students from the regular curriculum or

high status curriculum by testing and tracking; and 2) unequal distribution of financial resources resulting in intradistrict racial disparities (e.g. Hobson v. Hansen) or interdistrict income or class disparities (e.g. Rodriguez v. San Antonio School District). All such cases involve two parts: the determination of the violation and the determination of the remedy.

There appears to be no consistent or coherent principle which would justify the court decisions on equal educational opportunity. In many of the early desegregation decisions and in some of the most recent state court decisions, the remedial principle of individual protection seems to have been the determining factor. That is to say, intentional discrimination is the violation, and nondiscrimination the remedy. Later court decisions, however, seemed often to be conforming to what Yudof (1978) calls the group protection principle (earlier called the universalistic ethic in Yudof, 1973). This principle has as its goal the complete integration of any disadvantaged group into the mainstream of society by whatever means is necessary to accomplish this, regardless of the extent of intentional violation which can be proved. Rather than enunciating this principle, however, the courts have simply behaved as if they were abiding by it in most equal educational opportunity decisions between 1968 and 1974. Recently, they appear to be returning to the remedial principle. The outcome of this contradiction between statements and behavior, prior decisions and later decisions, is a decline in respect for legal decisions-makers and legal decisions.

This is a possible motivation for lawyers to introduce voluminous social science research and expert testimony into educational equity cases. If there is no general principle guiding a lawmaker's decisions then it is quite possible

that he or she may indeed be influenced by "social science facts." Another theory as to why voluminous social science research is introduced into educational equity cases, offered by Leubsdorf (1978), is that when courts make decisions which are instruments of social or personal change they invite empirical evidence on whether their orders can really accomplish these ends.

It is the thesis of this paper that social science research has played an important role in the development of school desegregation law. It has done so by identifying and clarifying the important issues in the resolution of social equity disputes and by instructing the Court on how to analyze these issues. Because conflicting research findings are typically presented by opposing sides, court decisions rarely cite social science testimony and often claim it to be irrelevant to their decisions. Judges do not mind choosing sides when presented with conflicting legal facts, but they are often reluctant to do so openly where conflicting social science research is concerned. Nevertheless, the structure and the causal assumptions usually asserted in school desegregation opinions indicate the Court has, consciously or unconsciously, adopted the mode of reasoning of social science and the findings which would follow from that.

THE DEVELOPMENT OF SCHOOL DESEGREGATION LAW

Southern De Jure Segregation: Determining the Violation, 1896-1964

In order for racial segregation in the public schools to be a violation of the 14th Amendment, it has to be viewed as harmful to blacks. Prior to 1950, that was not the case. Justice Brown wrote in Plessy v. Ferguson (1896):

We consider the underlying fallacy of the plaintiff's argument to consist in the assumption that the enforced separation of the two races stamps the colored race with a badge of inferiority. If this be so, it is not by reason of anything found in the act, but solely because the colored race chooses to put that construction on it.

Justice Harlan's dissent cut through Brown's suggestion that nothing malevolent was implied in the segregation law, but three years later Harlan wrote the majority opinion in Cumming v. Richmond County Board of Education (1899) upholding the right of the school board to segregate blacks from whites even when that resulted in the black children having no school. Harlan wrote: "... any interference on the part of the Federal authority with the management of such schools cannot be justified except in the case of a clear and unmistakable disregard of rights secured by the supreme law of the land. We have no such case to be determined." This was upheld again in Gong Lum v. Rice (1927).

The lack of harmfulness of racial segregation in the public schools was thus well established and consistently upheld through the first half



of the 20th century. New evidence was needed to convince lawmakers that prior courts had been mistaken and that racial segregation was in fact harmful. Most legal scholars argue that social science research did not provide this. They contend, rather, that the harmfulness of segregation was simply an idea whose time had come. World War II was the first war in which black Americans fought in large numbers. They then returned home to a segregated society that degraded and stigmatized them even though they had only recently risked their lives "to make the world free for democracy." Furthermore, a caste system was incompatible with an increasingly industrial society. These trends do not, however, establish the harm of segregation, nor preclude the possibility that social science research was important both in creating a climate of opinion, and in influencing legal decisions in specific court cases in which it was introduced.

The first recorded use of social science findings in educational equity cases was not in Brown v. Board of Education (1954), but in Sweatt v. Painter (1950), the Texas law school case. The case against school segregation as both scientifically unjustifiable and socially destructive (and hence a 14th Amendment violation) rested on the testimony of an anthropologist, Professor Robert Redfield, chairman of the department of anthropology at the University of Chicago. Redfield's testimony, as it is reported by Kluger (1975), appears to be only slightly more scientific than William A. Smith's philosophy lectures some 100 years earlier. Nevertheless, it was impressive. The court opinion in Sweatt stated that this was the first trial record containing expert testimony and other "convincing evidence" showing the lack of any reasonable basis for racial segregation at the professional school level, its inherent inequality and its effect on the

students, the school, and the state. Coincidentally, this was the first time a black applicant was ordered admitted to a white professional school although the Court steadfastly maintained (as almost all later courts were to do) that it had not been influenced by the social science testimony. They claimed the decision was made solely on the basis of the fact that the University of Texas law school was clearly superior to any other law school in the state. Hence, denying entrance to a black would relegate him to an inferior education.

As reasonable as this may sound to a legal scholar (and they all seem to believe it), it is perplexing to a social scientist because it leaves unanswered the question of why the social science evidence was introduced in the first place (was Thurgood Marshall a fool?), why justices disagree in their opinions (if facts are so obvious that would not happen), and why no earlier court had ordered such a radical remedy -- integration -- on the basis of the obvious fact that any state supported white professional school was bound to be superior to a black professional school.

It is possible that the confusion among legal scholars and lawmakers as to the influence of social science evidence stems from their unwillingness to acknowledge extra-rational (or social psychological) influences on one's perception of the facts. The social science testimony presented in Sweatt was not really germane to the issue of whether the white professional school was superior to the black professional school, and that is what the decision presumably turned on. Nevertheless, the evidence that segregation was harmful and that blacks were equal to whites motivated the Court to see the "obvious facts" which no earlier court had recognized. The social science testimony reassured them that their conclusion was intellectually and

politically respectable.

Perhaps no case has generated more controversy with regard to the proper role of social science research in court cases than Brown v. Board of Education (1954). From 1951 to 1954, more than forty psychologists, psychiatrists, educators and sociologists appeared before the trial courts as expert witnesses in three of the four school desegregation cases decided as Brown v. Board of Education (Brown v. Board of Education,⁵ on appeal from the Kansas federal district court; Briggs v. Elliott, on appeal from a federal district court in South Carolina; Davis v. County School Board, on appeal from a federal district court in Virginia; Gebhart v. Belton, on cert. to the Supreme Court of Delaware) and Bolling v. Sharpe, on cert. to the Court of Appeals for the District of Columbia, decided separately.

The social science testimony in these cases filled four volumes of the record, yet only a few legal scholars and judges believe it had any but the most trivial influence on the court decision. One exception is Fiss (1975) who advocates what is called the sociological interpretation of Brown. He argues that the constitutional case against racially imbalanced schools must rest on a claim that the educational opportunities afforded black children attending such schools is unequal to that afforded children attending other public schools. Social science research is necessary to determine this harm.

Most legal scholars and lawyers dispute this, and argue as Cahn (1955) does that the social science testimony was unnecessary because the issue was a matter of common sense -- we know that segregation is an insult to

the black community the way we know that fire burns and that colds cause the sniffles. This argument is especially weak on two grounds. First, if we know it in a common sense way, why did we not know it prior to 1954? Second, after almost four decades of social science research in the field of education, it should be clear that virtually nothing about the educational process is self-evident.

Given that most legal scholars and judges believe that the social science research had no effect on the court's decision, the question of its quality, by social science standards, may be irrelevant. Nevertheless, that too generated a debate of a vitriolic nature only achieved in a few instances since then.

Much of the criticism of the social science research in the Brown cases centered on Kenneth Clark's doll studies which were introduced into evidence through Clark's testimony in the South Carolina, Delaware, and Virginia cases. The studies purported to demonstrate black children suffered psychological damage from school segregation by demonstrating that black children tend to choose white dolls over black dolls as "nice" dolls, as well as dolls that resemble themselves. The defendants' attorney in the South Carolina case, John W. Davis, revealed that Clark had only presented the findings from half of his study. The complete study (1947) included a northern sample of black children in supposedly desegregated schools in Springfield, Massachusetts. The northern control group (i.e. not in segregated schools) actually showed greater psychological damage than the southern segregated students in that they were more likely to identify the white doll as the "nice" doll.

Most commentators believe this point is devastating to Clark's case.

In terms of its impact on the Court, however, it was probably balanced by the fact that the defendant's expert witness in the Virginia case admitted under cross-examination that racial segregation in the schools does injure black children's personalities (see Cahn, 1956: 160; Kluger, 1975: 500-504).

The fact that the northern desegregated black children showed more cross race preference than the southern segregated blacks indicates something, but not, as van den Haag (1960) argues, that segregation is less harmful to blacks than desegregation. The lack of a theory can often lead to such bizarre conclusions. It seems logical to conclude not that segregation benefits blacks and desegregation harms them, but that the causal variable affecting black cross-race preference is the stigma attached to being black, not segregation per se. Nevertheless, to say that segregation is not the causal variable is different from saying it is unimportant. That would be committing the partialling fallacy. It is quite possible to have stigma without segregation, but is it possible to have segregation without stigma when we know that the cause of segregation is the unwillingness of whites to have close, intimate contact with any more than a token number of blacks (Farley, 1978)? The elimination of segregation would seem to be a necessary, but not a sufficient condition for removing the stigma attached to being black in our society.

Although Clark may have mistakenly focused on the intervening variable, rather than the independent variable, the basic validity of the doll studies as indicators of the stigma attached to being black is corroborated by research (Winnick and Taylor, 1977) which shows that today only 36 percent of black children demonstrate cross-race preference in a variety of choice

situations (including dolls), whereas in Clark's original study (1939) it was 68 percent. Accompanying this decline in cross-race preference has been a decline in prejudiced attitudes toward blacks, as well as a decline in segregation in every phase of life. In short, as the stigma attached to being black has declined, more black children have been willing to select a black doll as "nice" or exhibit the same-race preferences in other choice situations. Hence, while Clark's studies were lacking some methodological rigor which would have increased our confidence in them, Clark's conclusions were basically correct. Had Clark's critics been required to demonstrate their assertions empirically, they undoubtedly would have withdrawn them.

A statement formally titled, "The Effects of Segregation and the Consequences of Desegregation: A Social Science Statement," was intended to summarize the plaintiff's testimony although only a handful of the 32 social scientists who signed had actually testified in the trial cases.¹ Written by Clark, Isidor Chein, and Stuart Cook, the 4,000 word statement was characterized by what Cahn (1955) calls a literary format in style, rather than in substance. In fact Myrdal was the only authority to be cited in the text itself. All other authorities were cited in 35 footnotes which, from their titles and authors alone, suggested there was an extensive body of rigorous social science research supporting the three basic contentions of the plaintiffs that black and white children's intelligence differences are primarily, if not completely, environmentally caused; that segregation and presumably school segregation, was harmful to black children; and that desegregation can be carried out without violence.

Although much has been made of the fact that the social science statement was not cited by the Court, Clark (1959) points out that all but one of the

five references cited in footnote 11 of the court's opinion were references in the statement. The one reference not listed in the social science statement included a summary of Clark's White House conference manuscript (1950).

While Clark's doll studies bore the brunt of the criticism directed at the social science research, they were probably some of the more methodologically rigorous studies cited in the social science statement. The weakest study, backed up by the live testimony of Chein, is the 1948 survey of 512 anthropologists, psychologists, and sociologists conducted by Deutscher and Chein.

Deutscher and Chein were attempting to use as evidence the opinions of knowledgeable social scientists to determine the harmful effects of enforced segregation, even if equal facilities were provided. Miller and Kavanagh (1975) correctly note that the authors were violating a basic assumption of social science research when they relied on authority as the basis for determining their conclusions. According to the standards of social science, the opinions of other social scientists can be used only to develop hypotheses to be empirically tested. To use them as evidence of an empirical finding is to commit the fallacy of affirming the consequent. It is instructive to note that this so-called study, the worst of the dozens cited in the social science statement, is one of the five noted in footnote 11 of the Supreme Court decision in Brown. In doing so, the Court demonstrated its preference for expert opinion, rather than social science research.

Brown was not the last time that social science testimony on the reasonableness of race as a classification was introduced into a court case

or cited in a trial. Wisdom (1975) describes how in Stell v. Savannah-Chatham County Board of Education (1963) intervenor defendants (parents of the white children) introduced testimony and studies of several social scientists (including Dr. Henry Garrett, Kenneth Clark's professor at Columbia) to the effect that it would be educationally harmful to black children from disadvantaged environments to be forced into competition with white children. Although the plaintiffs argued such testimony was irrelevant, the District Judge held that the factual nature of the finding of injury through segregation in Brown opened the door to the intervenors' proof (220 F. Supp. at 678). The Court found for the intervenor defendants. The Fifth Circuit overturned this decision and reprimanded the judge for abuse of his discretionary powers.

In a similar case, Evers v. Jackson Municipal Separate School District (1964), the District Judge permitted evidence to be introduced to show that separate schools were not injurious, but instead were advantageous to pupils of both races. This testimony included that of seven "distinguished" scientists regarding the existence of differences between the two races in IQ, cranial capacity, and brain size which would constitute a rational basis for separate schooling. Evidence was also introduced that school integration was injurious. The District Judge expressed his belief in the validity of this evidence and argued that it called for a reconsideration of the findings in the Brown decision. He nevertheless upheld the plaintiffs motion for an injunction simply on the basis of precedent (232 F. Supp. at 244-255).

The importance of this case is that Judge Wisdom, speaking for the Fifth Circuit on appeal, firmly rejected any further attempts to overturn

Brown on a factual showing, declaring that the inherent inequality of segregated schools was now a legal principle no longer open to question (357 F. 2d). Since that time, although attorneys for the defendants have continued to submit evidence on this point, the courts have consistently disallowed such evidence. Hence by 1964, the harm of segregation and its inherent violation of the equal protection clause of the 14th Amendment was an established legal principle which could not be contradicted by social science evidence, although it had been established, at least in part, by social science evidence.

Determining the Remedy, 1970-1972

While social science testimony on the reasonableness of race as a classification device was never again admitted into evidence, social science research relevant to the appropriate remedy began to play an important, and eventually a critical, role in court decisions. Indeed, most commentators believe that the most useful role social science can play is during the remedy stage because the courts are not equipped to draw up a desegregation plan sensitive to educational issues and policy questions (Yudof, 1973, 1978; Levin and Moise, 1975; Wisdom, 1975; Doyle, 1977).

In this section, I will discuss the first school segregation cases in which social science played a role in devising a remedy. This occurred during the period from 1970 to 1972 in the South when the courts were moving away from allowing open enrollment and the rescinding of the state law to suffice for a remedy, and moving toward affirmative desegregation, and ultimately racial balance. One of the first remedy disputes in which social scientists played an important role was the determination of a "viable racial mix." The debate centered on the determinants of white flight,

and the educational consequences for minority students.

In Brewer v. School Board of the City of Norfolk (1970) the district court had, in a manner similar to earlier courts, ruled that testimony from experts in education, social sciences, and psychology was appropriate because it had provided the basis for the Brown Court's repudiation of Plessy v. Ferguson (1896). The Court heard testimony on the educational benefits of a particular racial mix from Thomas Pettigrew, a Harvard University social psychologist who largely based his conclusions on the findings of the U.S. Commission on Civil Rights 1967 reanalysis of the Coleman Report (1965). The research evidence from that study suggests that all children perform best in middle-class schools. Pettigrew went on to testify that educational achievement would be maximized in schools with a 70-30 ratio of white to black students.

Pettigrew's testimony regarding the exact racial proportion is probably the least defensible aspect. Neither the Coleman Report (1965) nor the U.S. Commission on Civil Rights (1967) study convincingly demonstrate that 70-30 is the correct mixture to maximize benefits. Indeed, to the present day there is no solid social science evidence as to what the optimum mix is with regard to educational benefits.

Nevertheless, the Court relied heavily on this part of Pettigrew's testimony when it concluded 1) that integration was educationally beneficial only where white students were in the overwhelming majority in a student body, and 2) accepted the school district's plan which left 76 percent of the black students in all-black schools in order to achieve a 70-30 mix in the desegregated schools. The district court saw the choice as one between a system in which every school was inferior because it was majority black

and one in which some schools were superior and the rest not demonstrably worse than they would have been under a more extensive plan (see Yudof, 1973).

The Fourth Circuit reversed the district court's order without evaluating the expert testimony or questioning its admissibility. Yudof (1973) sees the Fourth Circuit's disregard of the social science testimony as evidence for the Court's independence from social science research. It seems, however, that this independence, if it does exist, does not extend to the trial court where live testimony is presented.

In Brunson v. Board of Trustees of School District No. 1 of Clarendon County (1970), the Fourth Circuit directly confronted the issue of white flight and its educational consequences. In separate opinions by Judges Craven and Sobeloff, the relevance of such testimony as that of Professor Pettigrew was hotly debated, with Sobeloff arguing in the majority that social science evidence on optimal racial mixes was both irrelevant and implicitly racist because it assumes white children are a precious resource to be fairly apportioned.

Pettigrew's contention that 70-30 was the most viable racial mix was introduced again in Bradley v. School Board of the City of Richmond (1972). The Richmond city school district, over 70 percent black, proposed a metropolitan plan merging the city school system with two surrounding county school systems (Henrico and Chesterfield) over 90 percent white. The Court, convinced by Pettigrew's argument, ordered the three school systems merged in order to obtain a "viable racial mix" of at least 70 percent white in every school. It did not require proof either that the county boundaries had been intentionally drawn so as to maintain school segregation or that the counties had acted in such a way as to be responsible for the city's school segregation (338 F. Supp. at 100). The metropolitan plan was ordered solely because the social science testimony indicated such a plan would maximize the educational and social benefits of

school desegregation.

Relating the Remedy to the Violation

The Richmond case marks the beginning of the introduction of social science housing segregation research in determining the scope of the remedy. This line of inquiry was important in determining a remedy not only in metropolitan desegregation proposals, but in northern "de facto" cases and southern, second generation, de jure cases as well.

In the face of a lack of evidence of intentional school segregation on the part of the suburban county school districts, the plaintiffs in the Richmond case called Karl Taeuber, a demographer from the University of Wisconsin, to show that the counties were indirectly responsible for the city's school segregation because they contributed to housing segregation. Proving the counties' culpability depends on demonstrating that housing segregation is the result of intentional discrimination. One can only infer, however, that the unexplained portion of the variance in Taeuber's racial segregation equations is due to discrimination. In fact, there are respected sociologists who believe, on the basis of their analysis of white ethnic segregation in northern cities and their interpretation of opinion surveys, that a good part of racial and ethnic residential segregation is due to an individual's preference to have most of his neighbors be of the same race or ethnicity (Kantrowitz, 1976; Wolf, 1980).

The Fourth Circuit may have understood that Taeuber was making an educated guess, because they concluded in their opinion that the root causes of the concentration of blacks in the inner cities of America are not known and thus the district court could not realistically hold the counties

responsible for it. Judge Craven (1975), one of the authors of that opinion argues, "if it is so perfectly clear that restrictive racial covenants and discriminatory housing policies created the ghetto, whether in New York or Boston or Richmond, why is it that years after Shelly v. Kraemer (1948) and reported changes in such policies, the ghettos remain virtually intact?" To a political scientist, this seems like a terribly naive question, but by the same token social science research has not provided an unequivocal answer which would satisfy a skeptical court. The web of discriminatory housing policies and individual actions, and the social patterns they produce are simply too complex to be untangled by scientific analysis given the state of the art to date.

Determining the Violation: Northern De Facto-De Jure Segregation, 1973-1979

Most of the court action occurred in the South until the early 1970's if for no other reason than that the existence of a state law mandating racial segregation made the cases relatively easy to win compared to the North. There were some early attempts in Springfield, Massachusetts, Gary, Indiana and Cincinnati, Ohio to have de facto segregation declared unconstitutional, but these proved fruitless. The result is that in the North, plaintiffs bringing suit in federal district courts either had to find an ancient state or local law which had once mandated segregation and then demonstrate that the dual system had not been dismantled, or collect detailed school by school information on intentional segregation by school authorities.

Von Euler (1977) presents a list of such school violations: choosing the site and size of new schools for racially discriminatory purposes or

with full knowledge that the action will result in one-race schools, channeling students into segregated classrooms within schools, using mobile classrooms to increase racial isolation, busing entire classes of minority children intact to white schools and teaching them separately for an entire semester or more, manipulating transfer policies, optional zones, and feeder patterns to keep the races apart, and employing transportation for discriminatory purposes. In addition, discriminatory teacher hiring and assignment, segregatory tracking and unequal resource allocation have been found to be violations.

I believe Von Euler errs in calling the detection of such violations social science. Most of it is not. Social science does not encompass all studies that seek to understand the causes of social phenomena, as she argues. It includes only those studies that seek to analyze the causes of social phenomena by scientific methods which can rule out competing hypotheses in an objective manner. That is not the case with most of the violation fact collecting that occurs in northern cases. A detective is not a social scientist.

Keyes v. School District No. 1 (1973) was the first northern de jure segregation case the Supreme Court was willing to hear. Like the southern cases where metropolitan merger was sought, the plaintiffs collected school by school violations data of the sort described above. Because intentional discrimination was proven in a "significant" portion of the Denver school district, the burden then shifted to the school board to prove they did not intentionally segregate the rest of the school system.

Although some observers thought the Supreme Court would take the opportunity in Keyes to resolve the rather arbitrary distinction between de facto and de jure segregation by finding de facto segregation unconstitutional,

it did not. It simply stretched the definition of de jure segregation so that it encompasses almost every action a school board might take which results in racially imbalanced schools, and every instance where they failed to desegregate. Unless one can demonstrate that school authorities are responsible for residential segregation (which has never been done), the courts are distorting the normal meaning of the law when they conclude that because school personnel failed to desegregate this or that school, they segregated it. This is analagous to convicting a person of first degree murder because they failed to come to the aid of an injured person who subsequently died.

Many legal scholars argue that the result of this convoluted logic is a growing disrespect for the law (Yudof, 1978; Fiss, 1975). Two solutions to this problem come to mind. The first, which I favor, is that the courts should drop their pretense and declare de facto segregation unconstitutional. If school segregation is harmful, it should be harmful whether it is directly caused by school authorities or indirectly by housing discrimination practiced by individuals and other governmental bodies. One possible reason why the courts have not done this is that it would mean a greater or more explicit reliance on social science evidence of the harm of segregation. As long as the research is as complex and divergent as it is, the courts will find it less distasteful to distort the law. The second solution is that the courts should simply stop redefining de facto segregation as de jure segregation. Such logical consistency would drastically curtail northern school desegregation, however, since these school districts are usually convicted on very little truly de jure evidence.

Wolf's (1976) analysis of the Detroit case Bradley v. Milliken, (1971) discusses many of these problems. The only expert witness on housing

segregation who was a social scientist in the sense I have defined above was Karl Taeuber. The weakest part of Taeuber's testimony, because it is not based on any empirical data analysis, is his discussion of the relationship between housing and school segregation. He describes three ways in which school attendance zones may affect patterns of residence. First, residential neighborhoods rarely have precisely defined boundaries and schools provide local administrative boundaries which are widely known and which determine choice of residence. Second, those with young school age children are the most mobile families and most likely to be influenced by the racial composition of the neighborhood. Third, schools, their staffs, and attendance zones, are subject to direct administrative control and observed changes are highly visible because of it and hence very influential. Finally, he concludes that at one time (after World War I) the black population in Detroit was so small that there were no all black neighborhoods nor all black schools. The patterns of residential segregation and school segregation evolved together. Either pattern, without the other, would have been much more difficult to foster and sustain.

These are interpretive judgements -- the conclusions of a sociologist, not a social scientist. Moreover, I am not sure these point to an indictment of the school board, which was after all the defendant.

While Taeuber argues convincingly for the importance of school segregation

in influencing residential segregation, he does not demonstrate that the school board was guilty of anything other than failing to desegregate their schools as they became segregated by neighborhood patterns.

Wolf (1976) and Wisdom (1975) believe Judge Roth was greatly influenced by the social science research and expert testimony in the Detroit case because he went through a significant metamorphosis during the course of the trial. Wolf characterizes him as a conservative who had only recently ruled against an extremely limited mandatory plan in favor of a voluntary effort. Later during the hearings he was presented with a social science consensus, not only on housing segregation and its causes, but on the educational consequences of desegregation. He was told that race and class integration had positive effects upon minority academic achievement, self-concept, motivation, aspirations, racial attitudes, and race relations. After hearing this, he ordered a panel to prepare the most extensive desegregation plan in history. The Detroit city school system was to be merged (for the purposes of school assignment) with 53 suburban school districts dispersing 780,000 students of all ages over the metropolitan area. Despite the apparent influence of the social science testimony, the court's opinion cited only the evidence on constitutional violations within the school system. Karl Taeuber's unacknowledged influence is evident, however, in the Court's discussion of housing segregation and its relationship to school segregation.

Wolf (1976) contends the school board did not adequately defend itself during the trial because of their liberal or pro-integration inclinations. Moreover, they presented a desegregation plan to the Court that was far more extensive than the one finally adopted. Thus, it was left to the suburban school districts to

introduce evidence against busing during the remedy hearings through the testimony of David Armor. Although Armor has done only one study on the subject, a case study of the MERICCO voluntary city-suburban desegregation program, he is often cited by judges (e.g. Wisdom, 1975: 144) and legislators as the author of several studies of the effects of mandatory desegregation or forced "busing". In fact, if his case study shows anything it is the negative effects of voluntary desegregation where small, isolated numbers of inner city blacks attend virtually all white, high income, suburban schools with no special preparation on the part of the schools.

Judge Roth allowed the suburban school boards to take Armor's statement, but later refused to admit it into evidence on the grounds that it was irrelevant, and represented "a new rationale for a return to the discredited 'separate but equal' policy" (345 F. Supp. at 921). Indeed, Roth excluded all evidence questioning the value of metropolitan or cross district desegregation. This was criticized by Judge Weick in the Sixth Circuit Court of Appeals (which upheld the district court's decision). He argued in his dissent, as other lawmakers had done earlier, that sociological opinions and evidence should be admitted because the Supreme Court had rested its decision in Brown on sociological data. Thus the sociological interpretation of Brown still had supporters among the legal profession.

The Supreme Court reversed the appellate court and hence the district court on the grounds that the evidence did not justify a metropolitan plan. Yudof (1978) finds the Supreme Court's holding that the scope of

the remedy should not exceed the scope of the violation to be in direct contradiction to earlier decisions (e.g. Swann) in which no attempt was made to adhere to this principle. He is wrong. It is consistent with all of their previous rulings in metropolitan cases involving independent city and suburban school districts. The unspoken principle seems to be this: the scope of the remedy may exceed the scope of the violation, but it may not extend past the boundaries of previously independent political entities unless some evidence, often trivial, of collusion to intentionally segregate the city school system and the affected suburban school systems is found. Once this is found, the scope of the remedy can exceed the violation but again it may not extend past the boundaries of the districts where collusion was found.

Three years later, in 1977, the Supreme Court remanded the Dayton case (1977) to the district court because there was insufficient evidence of a violation as great as the remedy ordered. This was followed two days later by their remanding of the Omaha and Milwaukee school desegregation cases for reconsideration. In each instance, the Supreme Court asked the lower courts to determine the degree of school segregation attributable to school district actions. David Armor was then commissioned by the school boards to conduct studies of the incremental effects of segregatory acts committed by the school systems (United States of America and Webb v. the School District of Omaha, 1978; Armstrong v. O'Connell, 1979). In these cases, Armor calculated yearly segregation indices (using the index of dissimilarity² and the relative exposure index)³ from a starting point prior to court cited violations up until the present time. These actual segregation indices were then compared to hypothetical segregation

indices without court cited violations (open enrollment transfers, boundary changes, and feeder patterns), calculated after all students were returned to their pre-violation home school.

The most unsatisfactory part of the analysis is the estimation of the effects of new school openings if the school had been opened elsewhere, and the effect of school closings if the students had been reassigned elsewhere. The degree of personal judgement which enters into this is enormous and substantially reduces the reliability of the analysis.

The most criticized aspect of the analysis is that it does not directly measure the extent of segregation which results when individuals refuse to move into a particular attendance zone because of the segregative actions of the school district, or when they move out of such neighborhoods because of school district segregative actions. In other words, it assumes a unidirectional relationship between housing and school segregation with no evidence that this is indeed the case and in the face of demographers' statements that it is not.

Nevertheless, both Armor's analysis and Karl Taeuber's opposing testimony served a useful function in this court case and in the development of school desegregation law. The social scientists directed the Court's attention to the issues that needed to be analyzed and to the feasibility of determining how much of present school segregation is a result of the past intentional segregative acts of the school system. The Milwaukee court decision is one of the few which openly acknowledges the influence of the social science research, even going so far as to admit (463 F. Supp. at 1301-1302) that in the "battle of the experts" it had been forced into the role of

evaluating almost entirely contradictory sociological and urban geography theories, and in so doing had had to rely on the qualifications and the persuasiveness of the expert witnesses in reaching its own conclusions on the ultimate issue of present segregatory effects.

In reading the Court's criticisms of Armor's method, the unacknowledged influence of the plaintiffs' expert, Karl Taeuber, is apparent. The opinion argues that no court in any school case will ever be able to say with any assurance where people would have been located or how much integration would have been obtained without officially imposed discrimination. Furthermore, the Court specifically noted three defects in Armor's analysis. First, his analysis failed to take into account that the individual violations set forth in the June 1, 1978 decision were not the only violations which the Court found to have occurred: there were also systemwide violations. Second, Armor's analysis assumed that had the individual intentionally discriminatory acts not occurred, no other neutral or nondiscriminatory action would have been taken. Third, his analysis ignored the possible psychological and attitudinal effects of the acts. Finally, his analysis failed to take into account that a single act of discrimination may have an effect beyond that felt by the persons, or in the schools or districts of immediate impact. The Court also noted (at 1304) criticisms of Armor's work in two earlier court decisions, United States v. Board of School Commissioners of the City of Indianapolis, Indiana (1974) at 85 and Northcross v. Board of Education of Memphis (1972) at 890 and 894.

The issue of whether one can determine incremental segregative effects by simply analyzing the level of segregation with and without the violation was raised again in the Columbus and Dayton Supreme Court decisions when the first Social Science Statement since Brown was attached as an

appendix to the respondents (original plaintiffs) brief to the Supreme Court. Titled "School Segregation and Residential Segregation: A Social Science Statement", it was signed by 38 "experts" many of whom are not social scientists.⁴ The major focus of the statement was the relationship between school segregation and residential segregation. (It also included a brief summary of what is known about how to achieve positive academic achievement and race relations outcomes in a desegregated school.) The basic argument made was that school segregation and racially discriminatory pupil assignment and open transfer policies promote racially identifiable neighborhoods which then contributes to further school segregation.

The statement noted that it was not possible, given the state of social science research and the available data to measure this reciprocal relationship, thus implying that research such as Armor's which assumes the relationship is one-way is simplistic and misleading. Of course, this criticism cuts both ways. If the social science research cannot measure this reciprocal relationship, how do we know it exists?

Negative Research Findings and the Effect on Remedies: 1970-1975

Many legal observers (Yudof, 1978; Taylor, 1978) feel that the 1974 M decision marked the beginning of a period of retreat from the universalistic ethic. In contrast to Yudof, Taylor believes that the Court has not repudiated directly or by implication any doctrine that it had adopted before 1973 to define constitutional violations or determine remedies. Rather, Taylor argues, the majority has exhibited a reluctance to extend previously announced legal principles to claims for new remedies and has used various braking devices, such as the requirement that lower court judges make more careful and detailed findings (e.g. Dayton, 1977, and

Austin, 1976), to slow the pace of desegregation. The latter is not the same thing as repudiation since it allows the Court the option of accelerating desegregation without seeming to be entirely inconsistent.

One can speculate on why there appears to be this retreat from the universalistic ethic. One plausible explanation is that the contradictory findings of social science research studies on the effect of school desegregation on black children's achievement, self-esteem, motivation, life chances, and inter-racial contact with whites, along with new research findings on the acceleration of white flight by school desegregation, have influenced the judiciary's decisions. Even if such evidence is not introduced into a court case, judges are citizens and they undoubtedly read social commentary on the research findings and are aware of the controversy. In order to find districts guilty on the weak evidence usually produced, and to order sweeping remedies extending the scope of previous decisions, it seems to me that one would have to believe in the essential benefit of the remedy. As the benefit of the remedy is called into question by experts and social commentators in the field, we might expect the courts to exercise caution in their decisions.

Many students of school desegregation research would argue, however, that the findings of social science research are not as uncertain and inconclusive as such social scientists as Wolf (1972, 1976), St. John (1975), and Armor (1972) would have us believe, and as many legal scholars (Yudof, 1973, 1978; Goodman, 1972) and judges seem to believe. It does not seem unwarranted to conclude that if social scientists such as Slavin (1977, 1979), Cohen, et al. (1976) and DeVries, et al. (1974) can obtain significant, sometimes spectacular, results in laboratory and field experiments, it

is not the principle itself which is faulty, but its application. The appearance of inconsistency in desegregation effects is due, in part, to the failure of most researchers to delineate the contextual environmental variables in their outcome analyses. But to conclude that the principle of school desegregation is defective, as many have done, that black students will have similar or higher achievement, self-esteem, racial attitudes, motivation, etc. if they remain segregated -- is to confuse problems of implementation with problems of theory.

Federal courts have not been preoccupied with implementing school desegregation in a manner consistent with the findings of the experimental research. Indeed, the thousands of educational administrators who have testified in school desegregation cases in the last two decades probably fall into one of two categories: those that are not even aware of the research, and those that are aware of it but either do not know how to translate it into policy or do not care. As for the social scientists, few are willing to make anything other than broad, and often exaggerated, claims in support of or in opposition to school desegregation with vague references to in-service training. Almost none mention specifics regarding the kind of training and the kind of organizational/classroom changes which are necessary.

In the last four years, school desegregation court cases have been characterized by a reversal of the traditional roles of defendant and plaintiff. The plaintiffs are now on the defensive and the defendants are on the offensive. The issue which is probably most responsible for this is white flight from school desegregation. Certainly, the secular trend of white enrollment decline is an important consideration for any educational planner regardless of its cause.

Although the courts have rather consistently held that the threat of white flight should not be used as a "smokescreen" to avoid the constitutional duty to eliminate segregation, numerous courts have done exactly that (see Levin, 1978). White flight has become one of the most important issues in northern school desegregation cases since James S. Coleman's 1975 presentation at the American Educational Research Association meeting. It is also an issue on which typically only social scientists testify, usually those who have conducted their own study. The media publicity on this issue has been extraordinary, particularly because of severe criticism directed at the Coleman study by other social scientists, as well as civil rights activists. (See Rossell, 1975, 1978b, 1978c; Ravitch, 1978; Reinhold, 1975).

The statistical critiques on both sides of this debate have been characterized to a great extent by the exaggeration of both the importance of small and ultimately insignificant flaws in opposing research, as well as the exaggeration of the scientific perfection of one's own research. This has occurred both in and out of the legal arena. What is most important because of its implications for the validity of social science criticism is that one of the most widely criticized findings -- that school desegregation accelerates white enrollment decline in the year of the implementation of a plan -- is now one of the more consistent relationships observed in aggregate data. The research indicates that any school district which implements a city-wide, two-way reassignment plan can expect, in the year of implementation, at least a doubling of the normal loss rate. Under certain conditions, this implementation year loss could be as great as a four-fold increase.

The analytical problem facing the social scientist is how to isolate the policy impact from the long term suburbanization and declining birth rate trends which have caused white enrollment declines nationwide since 1968. Although most social scientists understand this, our methods for isolating policy impact from secular trends are not so developed that even a well designed study is impervious to criticism.

Three social scientists have consistently presented analyses of school desegregation and white flight in court cases: James Coleman, myself and David Armor. Armor has been assisted from time to time by Michael Ross of Boston University. In the San Diego case, Carlin v. Dan Diego Unified School District (1977) both Armor and myself compared San Diego to a sub-sample of school districts from our larger sample.

I compared San Diego to a small number of southwestern school districts with the same proportion minority, the same predesegregation percentage white enrollment decline, and extensive desegregation plans involving white reassignments. The implementation year loss predicted by my sub-sample analysis was a little more than a doubling of San Diego's percentage white enrollment decline, a prediction fully consistent with Coleman's (1975b) prediction equations.

Armor, on the other hand, chose nine northern court ordered school districts with 2½ times San Diego's predesegregation percentage white enrollment decline. This made for the largest predicted white flight in the history of the United States (a six-fold increase in the predesegregation trend) in a school district which was only 14 percent black and another 12 percent Hispanic.

Because the Judge had no knowledge of social science research on this

subject, he did not understand that the bulk of the research was with a prediction of a two-fold increase. His common sense told him that the truth must lie somewhere between the two predictions. Herein lies the difficulty in presenting social science research to a court. The Court has no idea whether two arguments are equal or where the weight of research falls. Common sense may tell you that school desegregation causes at least some white flight, but it is of little use in predicting how much white flight will be produced by a given school desegregation plan in a given school district. While it may seem reasonable to average two predictions, it is as likely to be as wrong as choosing one.

After the initial hearing in the San Diego case, Armor adopted a new method of analysis which bears little resemblance to the first. In each of 23 northern and southern school districts (chosen because they had the greatest potential for extensive white flight), he determines a school age cohort retention rate for births to estimate the "normal" white enrollment loss rate. This method is similar to that used by many school districts to project kindergarten or first grade enrollments. There are numerous problems with this method which are discussed elsewhere (Rossell, 1978b). What is most interesting is how few laymen understand the limitations of even relatively simple statistical analyses such as this.

For example, few judges and lawyers have been able to grasp that Armor's demographic projection method cannot predict a school district's future enrollment with desegregation. Since the projections are from pre-desegregation birth rates, only the normal white enrollment loss can be predicted for the future. Yet, Armor forecasts the white enrollment loss with

extensive mandatory desegregation for every case in which he testifies. Because he is rather vague about his method, every judge and lawyer I have discussed this with has believed it came from the white birth and cohort retention rate analysis of their own city. Even after repeated and belabored explanations, few lawyers and probably fewer judges understand that it could not have been derived by this method.

Yet, the possibility of their understanding the competing methodology, cross-sectional multiple regression analysis, using a quasi-experimental design, is at least as remote. Nor is it even possible at this point in time to say absolutely whether the competing methodology and its divergent finding gives us a more accurate prediction of the long term trend with school desegregation, since we can only test the model's validity on what has happened.

The white flight research is very important for the San Diego (Carlin v. San Diego) and Los Angeles (Crawford v. Los Angeles) cases because the California Supreme Court held in the Crawford decision (1976) that a school district may leave some schools segregated if there is a danger of white flight, the distance is too great, or there is some other problem.

There is, however, no guideline as to what constitutes prohibitory white flight. In the second phase of the San Diego case (1979), I attempted to calculate benefit/cost ratios for various alternative plans by solving equations generated by my 113 school district study (Rossell, 1978a). The benefit was the increase in racial balance and the proportion white in the average black child's school (the absolute measure of interracial exposure)⁵ and the cost was the additional white enrollment loss (above the

normal decline). These data indicated the most extensive plan had the greatest cost, but also the greatest net benefit. Again, these predictions are similar to those generated by Coleman, et al. (1975).

Assuming the Court's goal was the greatest amount of interracial exposure (net benefit), the most rational choice would be the most extensive plan. Instead, it chose the least extensive plan although the defendant's expert, David Armor, did not contradict or refute these b/c ratios. There can be only two reasons for selection of the least rational choice. The San Diego Court does not have the goal of maximizing desegregation or Judge Welsh simply has so little faith in social science predictions of benefits and costs, that he believes it prudent to choose the alternative with the intuitively obvious least costs: no additional desegregation.

Evidence for the second interpretation (although I do not rule out the first) can be seen in Judge Welsh's response to Karl Taeuber's testimony. After spending much time demonstrating the different outcomes which could be obtained from Armor's analysis of Seattle, Washington's school desegregation plan (entered as evidence) depending on whether one analyzed the full set of data or the last few years before desegregation, the Court responded as follows (Reporter's transcript, July 2, 1979):

THE COURT: I don't really know why we wastethe Court's time with this. I'm not addressing myself to you, Dr. Taeuber. Back in 1977 in my opinion, I wrote -- in fact I said the obvious which is that White Flight is or any of the statistics is more or less depending upon how you figure it; and this is why I was somewhat intolerant at the outset to have a number of experts. I've listened to experts for 32 years on various subjects. Now, I just don't know. It just seems like an awful waste of time to me, really. Do you have any other evidence to bring out from Dr. Taeuber? (Transcript, p. 34-35)

PLAINTIFFS' ATTORNEY: Other evidence than what?

THE COURT: Other than to show that his expertise and everybody else's expertise is worthless. That you can make figures do what you want with them. I mean, we all know that, don't we? It's just that it's painful. Really, you should try to sometimes change places with me. (Transcript, p. 35)

The Plaintiffs' then argued that since the Court had no faith in social science testimony, the testimony of the defendant's expert, David Armor, should be stricken. The Court responded:

THE COURT: ... You all know how I feel about this. I don't think you need to have an expert to tel. me that experts are not to be taken at face value. If you want to put in some contrary evidence, you may do so. I will not strike the evidence of Dr. Armor. I know that these things -- I don't like to use the work "contrived" because it sounds as though it's malicious: but we rationalize, calling it a science when it isn't... You know, years ago we used to decide things on the basis of our gut reactions; and somehow or other we got the idea that that was naughty and that we should be more rational. So, I don't know how many billions of dollars a year are spent in this nation and probably every other nation on the education, training, and employment of people who spend their lives rationalizing gut feelings on the basis of statistics. (Transcript, p. 36)

Thus the outcome of Taeuber's attempt to delineate the problems inherent in social science predictions and to point out the possible biases in Armor's research was to reinforce this judge's already significant skepticism rather than to diffuse it. Yudof (1978: 73) personifies this skepticism when he writes "desegregation research is characterized by dissensus, inconclusiveness, indeterminacy, and su activity... Under such circumstances, the claims of social science to legitimacy are no more compelling than the claims of law."

Thus a not uncommon legal reaction to the divergent social science research on school desegregation effects is that social science is not a science. Yet the benefit/cost analyses presented the San Diego Court were scientifically derived and made, I believe, an important contribution to the legal discussion. If Judge Welsh read my analysis, his thinking about the issue should have

been clearer even if he did not trust the statistical predictions.

The rejection of the social sciences as a science is inspired by two handicaps we have that physical scientists, whose methods we have borrowed and to whom we are unfavorably compared, do not have. First, the phenomena we are studying are so complex that our methods would have to be many times more advanced than those used in the physical sciences in order to yield the same reliability in findings. Second, we are dealing with a phenomena that people do have "gut reactions" about and of which they have formed folk theories. Although biomedical research continually yields conflicting findings (which are even reported in the newspapers), I have never heard anyone say that biology is not a science. This is because the average layman has no gut reaction to most biomedical findings, nor a competing "folk theory." For example, few of us have a "common sense" theory about the causes of cancer and hence the contradictory findings in biomedical research over these causes do not discredit biology as a science. Few of us have a common sense theory about "black holes" and hence the continual disagreement over their existence, their nature, and origin does not discredit physics as a science. We do have "gut reactions" and competing folk theories of social phenomena, and so in the face of contradictory findings are eager to denounce all and fall back on our feelings.

In spite of these handicaps, social science research on school desegregation effects has influenced the decisions of judges and the development of school desegregation law. Judges resist this notion. They often fail to acknowledge the source of their causal statements, and sometimes openly repudiate social science research. Most would begrudgingly admit only that they spend a good deal of their time considering and deciding school desegregation remedy issues which have been created by social science research.

CONCLUSIONS

This article has reviewed the use of social science research and expert testimony in school desegregation court cases. The extensive use of social science evidence has been motivated by two factors. First, educational equity law is a new and developing area. At least at the outset, the courts have had little precedent or legislative history to guide them in their rulings. Under such circumstances, they are vulnerable to extra-legal evidence which might help them decide what the law is. Furthermore, since this law purports to be an instrument of social change, the courts invite evidence on whether their decisions will in fact accomplish their goals. Social science research can provide such evidence.

Over time, the continual use of social science testimony in school desegregation cases has created the expectation among lawyers that, as a matter of course, it will be used to resolve legal issues. Even when there is no social science evidence to buttress a particular claim, most lawyers will find an expert willing to lend an authoritative air to their case or criticize the scientific evidence being presented by the opposing side. Thus, social science evidence and expert testimony account for a substantial portion of the trial time in school desegregation cases.

The sophistication of the social science research introduced in these cases varies enormously, as do the qualifications of the experts testifying. In general, few social scientists actually testify in school desegregation cases. The bulk of expert testimony is contributed by educators or other practitioners who draw conclusions and make inferences on the basis of opinion, personal observation, hearsay, and what they believe to be a professional census. Unfortunately, few judges make

a distinction between this kind of testimony and the testimony of social scientists as to the findings of their research. This may contribute to some confusion over the role of social science in court cases.

The school segregation cases have utilized an extensive amount of relatively sophisticated research. In determining a violation, findings from experimental and quasi-experimental research were introduced into the early cases to determine the inherent equality of the races, and the harm of segregation. In later cases, multiple regression analysis was used to determine the causes of segregation in housing and schools. Findings from experimental, quasi-experimental and cross-sectional multiple regression analysis on the effects of various remedies on student achievement, race relations, self-esteem, motivation, and life chances have been used to argue for one remedy over another. In addition, various time series analyses (pooled cross-sectional analysis, interrupted time series, trend analysis, demographic projections, etc.) have been used to demonstrate that one remedy will produce more white flight or less interracial contact than another remedy.

Although few legal scholars or judges will agree, I believe that social science research has influenced the development of educational equity law, and the outcome of educational equity cases in which it has been presented. It has done so by identifying and clarifying the important issues in the resolution of social equity disputes, by providing a certain amount of consensual, "factual" information (i.e., agreed upon by both sides) to the Court, and by instructing the Court on how to analyze these issues. Legal decisions rarely acknowledge the influence of the social science testimony, in part because in the face of their own ignorance of social science methods, most judges are reluctant to openly admit they chose one social science claim over

another. In some cases, the judge may have simply internalized the social science research presented in the case and come to believe that the knowledge he or she now has about a particular educational equity problem is "common sense". Nevertheless, the causal statements asserted in school desegregation legal opinions often indicate the Court has, consciously or unconsciously, adopted the mode of reasoning of social science and the findings which would follow from that. In effect, while they seldom acknowledge the source for their causal statements, it often appears they have chosen one social science claim over another.

Finally, I would argue that even when the social science research or expert testimony simply corroborates a judge's priori preference, as many legal scholars argue, such evidence can still critically influence a decision. In some cases social science may provide the Court with the necessary intellectual justification for a decision which cannot be made if justified solely on legal grounds.

ACKNOWLEDGING FOOTNOTE

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FOOTNOTES

¹The statement was signed by the following 32 sociologists, anthropologists, psychologists, and psychiatrists who have worked in the field of race relations: Floyd H. Allport, Gordon W. Allport, Charlotte Babcock, Viola W. Bernard, Jerome S. Bruner, Hadley Cantril, Isidor Chein, Kenneth B. Clark, Mamie P. Clark, Stuart W. Cook, Bingham Dai, Allison Davis, Else Frenkel-Brunswik, Noel P. Gist, Daniel Katz, Otto Klineberg, David Krech, Alfred McClung Lee, R. M. MacIver, Robert K. Merton, Gardner Murphy, Theodore M. Newcomb, Robert Redfield, Ira DeA. Reid, Arnold M. Rose, Gerhart Saenger, R. Nevitt Sanford, S. Stanfield Sargent, M. Brewster Smith, Samuel A. Stouffer, Wellman Warner, and Robin M. Williams. Reprinted in the Minnesota Law Review, 1953, 37, Pp. 427-439.

²The index of dissimilarity is used to measure the extent of residential or school segregation. This measure takes as its standard the racial composition of the larger unit being studied (e.g. a school district or a city), and then compares the racial composition of the individual school or city block to the racial composition of the whole school district or city. In each city block (i) suppose there are w_i whites and n_i blacks (or any other two groups such as WASPs versus first or second generation white ethnics). The entire city contains W whites and N blacks. The index of dissimilarity is calculated as follows:

$$D = 1/2 \sum_{i=1} \left| \frac{w_i}{W} - \frac{n_i}{N} \right|$$

The higher the score, the more segregated the city. A score of 100 means perfect segregation, or 100 percent of the blacks have to be reassigned in order to have perfect racial balance -- the same proportion in each block as in the whole city. A score of 0 means perfect integration. (See Taeuber and Taeuber, 1965: 236-238).

³The relative level of interracial exposure measures the degree to which segregation between schools is responsible for the proportion black in the average white child's school or the proportion white in the average black child's school. In each school (k) there are n_w whites and p_b blacks where n is the number and p is the proportion. In the entire school district there are P_b blacks where P is the proportion. This measure can be calculated as follows:

$$r = \frac{P_b - \frac{\sum_k n_{kw} p_{kb}}{\sum_k n_{kw}}}{P_b}$$

⁴The signers of the statement are Andrew Billingsley, James Blackwell, Ernst Borinski, Everett Cataldo, Kenneth Clark, Paul Courant, Robert Crain, Robert Dentler, G. Franklin Edwards, Edgar Epps. Reynolds Farley, Joe Feagin, John Hope Franklin, Eli Ginzburg, Robert Green, Charles Grigg, Amos Hawley, Joyce Ladner, James Loewen, Cora Marrett, James McPartland, Dorothy Newman, Gary Orfield, Diana Pearce, Thomas Pettigrew, Ray Rist, Christine Rossell, Juliet Saltman, Julian Samora, M. Brewster Smith, Michael Stolee, Garth Taylor, Karl Taeuber, Phyllis Wallace, Robert Weaver, Robin Williams, Franklin Wilson, Milton Yinger. It is dated March 21, 1979.

⁵Each school (k) has n_b blacks and n_w whites where n is the number and p is the proportion. This measure includes or reflects white flight in its measure of the proportion white in the average black child's school. It is thus a measure of net benefit. It is calculated as follows:

$$S_{bw} = \frac{\sum_k n_{kb} p_{kw}}{\sum_k n_{kb}}$$

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