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ABSTRACT

Applications for admission were sent to a random sample of 240 American colleges and universities. For three different student ability levels, forms that were identical in all respects, save race and sex, were prepared. Each college was sent a single application with a randomly assigned race, sex, and ability level.

Contrary to our expectations, white applicants were accepted more frequently than black. In accordance with our predictions, males received preference over females. However, in both cases, the data did not quite reach the .05 level of significance.

In addition there was an unpredicted and statistically significant sex-by-ability interaction: Males were markedly preferred over females at the low ability level, but this difference disappeared at the higher levels. Since there are more students, both male and female, at the lowest of our ability levels, it is clear that overall women are discriminated against in college admissions.

# THE EFFECT OF RACE AND SEX ON COLLEGE ADMISSION

Whether being black is an advantage or disadvantage for a college applicant is more debatable at present than it might have been a few years ago. The increased college enrollment of blacks has been perceived by some as a reduction of racial bias, but others have seen it as a change in the direction of the bias. There is certainly less controversy regarding the effect of sex on college admission; most observers agree that it is a handicap to be a woman. However, we have no experimental evidence regarding the effect of race and sex.

This experiment was designed to test the hypothesis that both race and sex affect a candidate's likelihood of being admitted to college. Assuming that most colleges are anxious to increase the representativeness of their student bodies, and mindful that many are actively recruiting competent black scholars, we predicted that a black candidate, male or female, would be preferred to a comparable white candidate. Furthermore, whether the candidate was black or white, it was predicted that sex would also affect an applicant's chance of admission, with preference given to male candidates.

The design of the experiment was a simple one. Applications for admission should be identical in all respects, except the race and sex of the applicant must be randomly varied. One quarter of the time the applicant should be said to be a black male, a black female, a white male, or a white female. Whether the applicant is accepted or rejected by the college would be the dependent variable.

Although the main purpose of our experiment was to test this race and sex hypothesis, we were also interested in exploring the relationship between several additional variables and patterns of admission.

Specifically, we were interested in differences between:

large and small schools;
public and private institutions;
religious and secular schools;
small-town colleges and those in metropolitan areas;
southern institutions and those in other regions of the country;
junior colleges and four-year colleges.

*Procedure*[1]

A sample of 240 schools was randomly selected from Lovejoy's College Guide (1968).[2] All schools in Wisconsin were excluded because a number of local admissions officers and administrators were used as consultants. Also excluded were colleges that required examinations other than the College Board tests or the American College Test (ACT). Some nursing schools, music colleges, and art institutes were thus eliminated.

In addition to race and sex, three levels of applicant ability were included to insure that our applicants would be neither accepted nor rejected by all colleges. The three levels of ability were used only as a safeguard: significance of the ability main effect were considered uninteresting because expected and because no interactions between ability and race or sex were predicted.

Thus a 2 x 2 x 3 design was used for this experiment: the sample of 240 colleges was divided into 12 cells of 20 observations each.

*Independent Variables*

The race, sex, and ability level of the candidate was randomly assigned and one application was prepared for each of the sample colleges.

In order to generate the materials required for the college applications, we secured the school records of three real high school seniors with

different ability levels and with names that did not reveal their sex. The manipulation of the two major independent variables, race and sex, was accomplished with the use of photographs which were attached to the application and also appeared on the xeroxed copy of the transcript supposedly sent by the high school. The sex code was appropriately changed whenever it appeared.

The distinctions between the three ability levels were determined by students' actual records: The Low Ability candidate ranked 268 in a class of 414 and had a high school transcript on which this rank and appropriate course grades were recorded. He had an ACT composite score of 10 (09 in English, 18 in Mathematics, 07 in Social Science, and 06 in Natural Science). His College Board results were an SAT Verbal score of 404, an SAT Mathematics score of 382, and achievement scores of 451 in English, 442 in American History, and 356 in Mathematics.

The Average Ability candidate ranked 135 in a class of 414. He had an ACT composite score of 21 (19 in English, 16 in Mathematics, 26 in Social Science, and 22 in Natural Science). His College Board results were an SAT Verbal score of 504, an SAT score of 482 in Mathematics, and achievement scores of 531 in English, 522 in American History, and 436 in Mathematics.

The High Ability candidate ranked 55 in a class of 414. His ACT composite was 25 (23 in English, 222 in Mathematics, 29 in Social Science, and 27 in Natural Science). His College Board results were an SAT Verbal score of 604, an SAT Mathematics score of 582, and achievement scores of 591 in English, 582 in American History, and 526 in Mathematics.

To insure that applications would be as standard as possible, a master form was prepared. This form attempted to provide answers to any

question that a college might ask. Included in this master application was basic information about the student's background, education, and interests. Also included were essays on his interests and hobbies, and his religious experiences. Letters of reference, appropriate for students of any race or sex, were prepared. These recommendations were presumably from a minister, teacher, counselor, an employer, and a neighbor. The necessary medical records were prepared by a cooperating physician.

All applications were completed by referring to the master form. When the various documents were prepared, cooperating individuals signed and notarized them when necessary.

The personal interviews requested by some colleges posed an obvious problem. In most instances, however, we were able to plead inconvenience. Since we did not include Wisconsin colleges, most schools were relatively far from the applicant's home. In the one instance in which a personal interview had to be scheduled, the interviewer's cooperation was gained, and he based his evaluation on the information provided in the candidate's master application. In a second instance, an interviewer arrived unexpectedly at the high school. Fortunately, this interviewer was delighted to discover that his college had been chosen to participate in a research project. This school was considered as an "acceptance" since the admissions officer assured us that the high ability girl was definitely scheduled for acceptance.

The supplementary independent variables for post hoc analyses were obtained by letters to the colleges and from reference material. The letter, sent several months after the applications, asked the schools

for the total day class enrollment and the number of males and females enrolled for either the Spring semester 1967-68 or for Fall 1968-69. For the 16 schools which did not respond to the letter, the data were taken from the college catalog, Lovejoy's College Guide (1968), and the College Blue Book (1967).

The same sources (i.e., college catalogs and Lovejoy's) were used to secure information on the type of school (i.e., religious or secular, public or private) and years of instruction offered. The urban population associated with the location of each school was obtained from 1960 census data.

We were especially interested in determining whether southern schools differed in their pattern of admissions from schools in other regions of the country. We divided schools into four districts--Western, North Central, North Eastern, and Southern--on the basis of the U.S. Census classification. Schools located in Alabama, Arkansas, Delaware, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, and West Virginia were designated as "southern" schools.

*Dependent Variables*

The main dependent variable was the acceptance or rejection of the candidate by the institution. The responses of the colleges were scored on a five-point scale:

1. Rejection;
2. Rejection with the possibility of reconsideration at a later date;
3. Qualified acceptance in which a program or course-work adjustment was stipulated;
4. Acceptance;

5. Acceptance with encouragement by a personal letter or an offer of unrequested financial aid.

In addition to this major dependent variable, three other measures were collected: the time between the candidate's initial request for application materials and the school's response; the nature of the reply; and the time between the mailing of the application and the school's decision. In the postcard sent to the school requesting application materials, the student indicated both his sex and race. A school, by neglecting to send the application forms, could delay or prevent a student's admission. Thus, the date on which the application request went out and the number of days it took before the school forwarded an application were tabulated. If the application form had not arrived by January 1, collaborators in other states secured application forms from the institution so that the school could be included in the experiment.

Although most of the institutions responded by simply sending a catalog, applications forms, and brochures of interest, a personal cover letter expressing either encouragement or discouragement was sometimes included.

*Results*

Tables I and II contain the results of the analysis of variance on the main dependent variable, the measure of acceptance. Contrary to our expectation, neither the race nor the sex main effect was significant. (The F statistic testing the hypothesis that both main effects are null is 2.92, 2 and 228 d.f., $p < .06$.) Indeed, the race effect was not even in the predicted direction: blacks were accepted <u>less</u> frequently than were whites. (Even looking at the F statistic, which is a liberal test, $F = 2.30$, $p < .13$.) The data certainly provide no support for

the notion that American colleges are actively recruiting Negro scholars. The sex effect was in the predicted direction. Males were preferred over females, but this difference was not significant ($F = 3.54$, $p. < .06$).

A significant result that was not expected was found in the joint test of interactions (See Figure 1 and Table II). At the low ability level, males were preferred over females. At the higher ability level, this difference disappeared ($S = 2.39$, $p. < .05$). Since, in the actual high school population, there are more students, both male and female, at the lowest of our ability levels than at the higher levels, it is clear, that, overall, women are discriminated against in college admission.

The significant sex-by-ability interaction is in accord with the Feminist observation (and complaint) that only a truly exceptional woman can ever hope to transcend sexual stereotypes and to be judged on an objective basis. A woman with more modest abilities continues to be judged as first and foremost a woman, and thus as an "inferior."

The supplementary dependent measures were essentially uncorrelated among themselves or with the acceptance measure. In addition, significant results were obtained with them no more frequently than would be expected by chance alone.

The failure to secure a different pattern of admissions in the South and the Non-South was surprising to us. In view of their historical practices, we had assumed that Race and Region might strongly interact in determining one's chances of admission. We speculated that, while blacks might be actively recruited in non-southern institutions, recruitment efforts would be much weaker in the South. The data indicate, however, that blacks are no more enthusiastically received in non-southern

institutions than they are in southern ones. The Race-Region interaction is clearly nonsignificant ($F = 1.00$, 1 and 216 d.f.,), as are the Race-Ability-Region and the four-way interaction (Fs = 2.12 and 1.30 respectively).

Table 1

The Effect of Race, Sex, and Ability Level
on an Applicant's Chances of Admission to College

| APPLICANT'S SEX | RACE | ABILITY LEVEL | ADMISSION LEVEL* |
|---|---|---|---|
| Male | Black | Low | 2.75 |
| Male | Black | Medium | 3.40 |
| Male | Black | High | 3.80 |
| Male | White | Low | 3.25 |
| Male | White | Medium | 3.55 |
| Male | White | High | 3.70 |
| Female | Black | Low | 1.85 |
| Female | Black | Medium | 3.20 |
| Female | Black | High | 4.05 |
| Female | White | Low | 2.00 |
| Female | White | Medium | 3.75 |
| Female | White | High | 4.05 |

*The higher the number, the greater enthusiasm with which *S* was accepted for admission.

Table II

Analysis of Variance for Admission Experiment

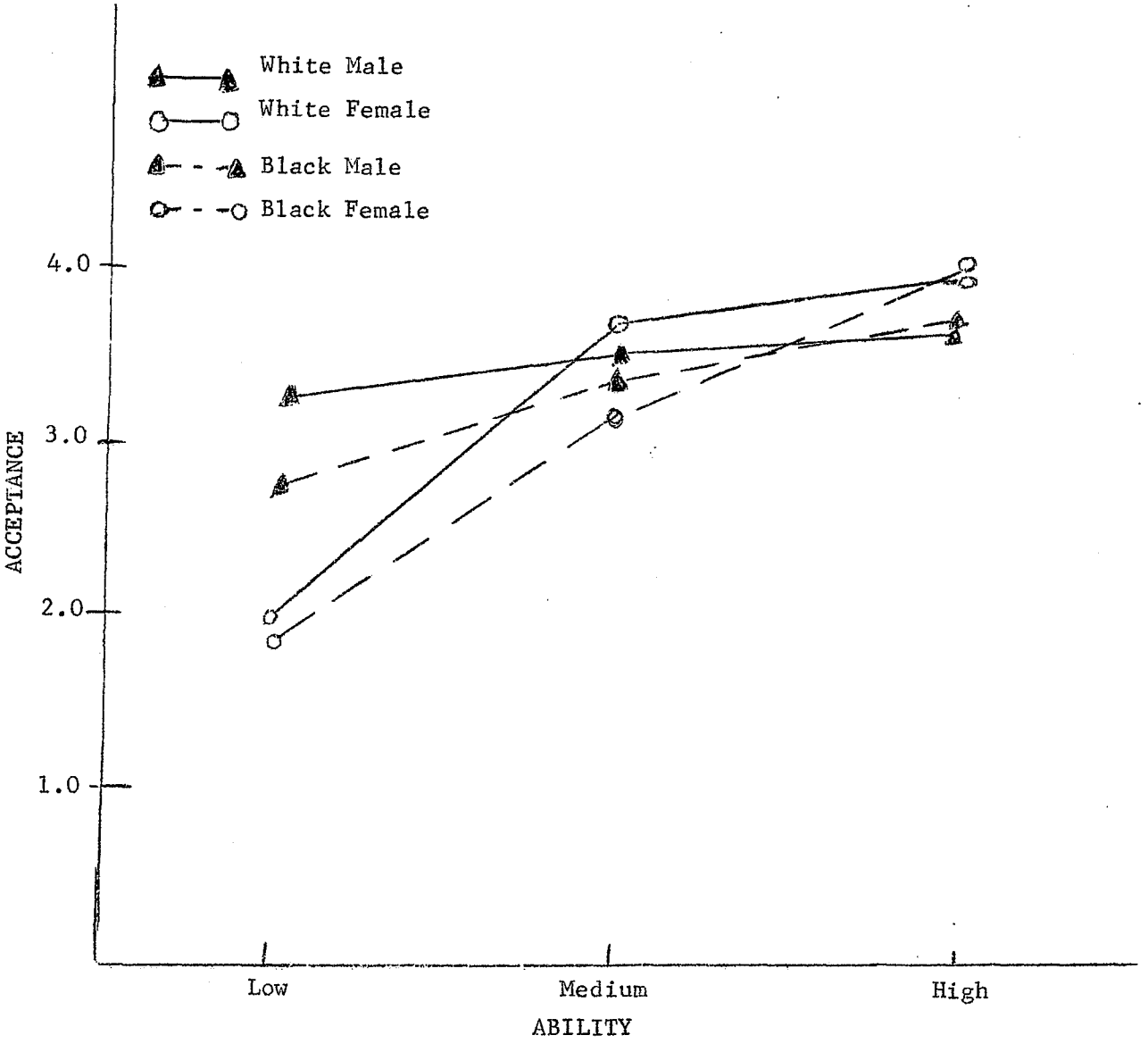
| Main Effects | df | F-Test | S-Test | Critical Value |
|---|---|---|---|---|
| A & B (Sex & Race) | 2 | 2.92 | | 3.04 |
| A (Sex) | 1 | 3.54 | | |
| B (Race) | 1 | 2.30 | | |
| $C_L$ (Linear Ability) | 1 | 73.03 | | |
| **Interactions** | | | | |
| AB, AC, BC, & ABC | 7 | 3.08* | | 2.05 |
| $AC_L$ (Sex x Linear Ability) | 1 | 16.70 | 2.39* | 2.05 |

1. S-Test refers to the value of Scheffe's statistic for the a posteriori analysis of a significant source of variation.

* ($P < .05$)

Figure 1

The Effect of an Applicant's Sex, Race, and Ability Level on His Chance of College Admission



FOOTNOTES

[1]We would like to thank Dr. Oluf M. Davidsen, Vice President, Program Operations, American College Testing Program, Iowa City, Iowa; William Coffman, University of Iowa; Lee Wilcox, Director of Admissions, The University of Wisconsin; James Speerschneider, Counselor at James Madison Memorial High School, Madison; and Henry Appel, Principal of the Oregon High School, Oregon, Wisconsin; for their insightful advice as to the problems we might expect to encounter in conducting this research.

[2]Although it is generally known that sample size can markedly affect the probability of obtaining statistical significance, until recently researchers have had to design studies without having any guidance in determining what sample size to use. Recently a usable procedure has been developed for choosing sample size so that statistical significance can be rationally used as a decision rule (see Walster and Cleary, in press). This procedure enables a researcher to specify magnitudes of effects that are either important or unimportant, and control the probabilities of making correct decisions by solving for the sample size and critical value of the variance ratio statistic. In this study we decided that a mean difference relative to underlying variability of 0.53would be important to detect with a probability of .90. In addition $\alpha$ was set at .05. Specifying these parameters led to the choice of a sample size of 240.

# REFERENCES

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