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ABSTRACT

Using data obtained from 51 male and 133 female undergraduates enrolled in six classes in educational psychology, the authors obtained evidence supporting the existence of slight sex differences in descriptions or appraisals of instruction and also suggesting a relationship between the overall past achievement of the males and their perceptions of the quality of classroom interpersonal relations. No relationships were found between students' life histories and their perceptions of instruction or between their level of creativity and perceptions of instruction. These results support some previous studies cited and do not support others, also cited. This study lends some support to those who question the internal validity of the claim that differences in students' perceptions of instruction necessarily reflect differences in the effectiveness of instruction. (Author)

Student Characteristics Associated with Student Perceptions of College Instruction[1]

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Significance of the Study

Current trends in using student appraisals and descriptions of instruction to compare instructors for purposes related to tenure, salary raises, and promotions support the need for studies investigating the relationship of students' characteristics to students' appraisals and descriptions of instruction. Since students usually are not randomly assigned to instructors or to classes, differences among students across classes may constitute a threat to internal validity if differences in instructor effectiveness are claimed to account for differences in the appraisals. To the extent that specific differences among students are found not to be associated with differences in appraisals or descriptions of instruction, these differences may be ruled out as probable threats to internal validity.

The Problem

The purpose of the study was to ascertain relationships between selected student characteristics and student perceptions of six aspects of college instruction--relevance of instructional objectives, quality of class-

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room interpersonal relations, use of instructional resources, student motivation, meaningfulness of subject matter content, and procedures for measuring and evaluating attainment of instructional objectives. The student characteristics selected were sex, creativity, life history, and academic achievement status. The subjects were 51 male and 133 female undergraduates enrolled in six Educational Psychology classes.

Instruments and Procedures

End-of-quarter responses for each of the following were obtained: (1) the Torrance Tests of Creative Thinking yielding seven measures--verbal fluency, flexibility, and originality and non-verbal fluency, flexibility, originality and elaboration; (2) the "What Kind of Person Am I?" inventory (Torrance and Khatena, 1970) yielding a measure of "the individual's disposition to function in creative ways"; (3) the Bio-Data Booklet, Form B (Owens, 1968) yielding 15 life history factors for female and 13 for males; and (4) the Inventory of Student Perceptions of Instruction (ISPI) (Scott, 1955; Scott and Veal, 1970; and Scott, 1973) measuring perceptions of the six aspects of instruction identified above. In addition, the student's sex, overall grade point average (GPA), and final grade in Educational Psychology (five point scale) were recorded. Data were "pooled" across classes and the ISPI measures were expressed as linearly transformed within-classroom standard scores ($100z_i + 500$). The .05 significance level was used in each test of statistical signifi-

cance. The number of variables relative to the number of subjects necessitated a separate analysis for each kind of student attribute-sex, creativity, life history, and achievement status. The specific statistical techniques used are reported below.

Results

Student Sex. Multivariate analysis of variance (MANOVA), discriminant analysis and univariate analyses of variance (ANOVAs) were used in this phase of the study. Table 1 summarizes the results of the MANOVA and the discriminant analysis. The MANOVA F was statistically significant and the structure

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correlation coefficients obtained with the discriminant analysis indicated that differences in perceptions of motivation and of content meaningfulness made the largest relative contributions to the discrimination. The female undergraduates perceived their motivation more favorably and content meaningfulness less favorably than did the male undergraduates.

Empirical data reported by Hummel and Sligo (1971) suggest that in one-way MANOVA it is reasonable to follow up with ANOVAs. Table 2 summarizes the results of the ANOVAs run for each of the six aspects of instruction.

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Only one statistically significant F was obtained-that for student motiva-

tion. The F for content meaningfulness approached but did not reach statistical significance.

Student Creativity. Canonical correlation was used to ascertain the relationship of the eight measures of creativity and perceptions of the six aspects of instruction. Canonical correlation coefficients were computed for each sex separately and for the composite group collapsed across sex. None of the canonical correlation coefficients was statistically sig-

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nificant.

Life History. Canonical correlation coefficients were computed for each sex separately, with the summary data contained in Table 4. For fe-

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males, the life history factors were warmth of maternal relationship, social leadership, self-perceived academic status, parental control, cultural-literary interests, athletic participation, scientific-artistic interests, conformity to female role, maladjustment, expression of negative emotions, social maturity, popularity with the opposite sex, positive academic attitude, and close relationship with father. For males, the life history factors were warmth of parental relationship, self-perceived academic achievement, social introversion, athletic interest, pseudointellectualism, verbal aggressiveness, socioeconomic status, parental control, positive

adjustment response bias, scientific interest, positive academic attitude, religious activity, and sibling friction. None of the canonical correlations was statistically significant.

Academic Achievement Status. Canonical correlations were computed for each sex and for the composite group collapsed across sex. With respect to perceptions of instruction, seven measures rather than six were used with perceptions of classroom interpersonal relations subdivided into human relations-values and human relations-student participation in decision making. Table 5 reports the results of these analyses. For males, the first

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canonical correlation was statistically significant. Inspection of the standardized canonical weights makes it clear that cumulative grade point average and perceptions of human relations-values made the largest relative contribution to the relationship. For the females, none of the canonical correlations was statistically significant.

For the males, multiple correlation coefficients were also computed with GPA and course grade as predictors and each of the seven measures of perceptions of instruction as the criterion. The data are summarized in Table 6. The only statistically significant correlation was that with human relations-values as the criterion, GPA being the statistically significant predictor.

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Insert Table 6 about here
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Discussion

The difference between the sexes in their perceptions of some aspects of classroom instruction is in agreement with the results of a number of

previous studies (see e.g., McKeachie, Lin and Mann, 1971; Costin, Greenough and Menges, 1971; Granzin and Painter, 1973). In the present study, differences in perceptions of motivation and content meaningfulness were found; in other studies, the differences pertained to other aspects of instruction. The point is that when students of both sexes describe or appraise instruction, sex differences of some kind may exist.

Insofar as the writer could ascertain, the present study is unique in looking at the relationship between students' creativity and their perceptions of instruction. In this study no relationship was found, highly creative students, as measured by the instruments used, viewing the instruction much like the less creative students. In the classes in which these data were obtained, overt statements of instructional objectives did not include the development of creativity. It is interesting to speculate what relationship would be found in classes which do stress such development.

The lack of relationship between life history and perceptions of instruction suggested by this study was something of a surprise. The researchers had posited that certain of the life factors such as "positive academic attitude", "pseudointellectualism", "self-perceived academic achievement", and "socioeconomic status" would be related to perceptions of instruction. However, the data did not support claims for such relationships. These results do not agree with those obtained in some other studies (see, e.g., Walberg and Ahlgren, 1970; Walberg, Sorenson and Fishback, 1972) in which statistically significant relationships were found between selected aspects of life experience, attitudes and past accomplishments and perceptions of the school social environment and in which relationships

were also found between socioeconomic status and perceptions of four dimensions of school life-satisfaction, goal direction, competitiveness and academic toughness or difficulty.

The findings of the present study that for the male students there was a relationship between academic achievement and perceptions of one aspect of instruction (using academic achievement to estimate such perceptions reduced the variance error of estimate by about 15 percent) are in agreement with the results of a number of previous studies (see, e.g., Bausell and Magoon, 1972; Costin, Greenough and Menges, 1971; Granzin and Painter, 1973). What was surprising was that the relationship was found for the males but not for the females. For the males in this study, their perceptions of their relations with the instructor and with other students were colored by their levels of past academic achievement as reflected by their cumulative grade point averages.

Conclusion

The study included a large number of variables (30 for males, 32 for females) and a large number of analyses -- 11 for the collective group of males and females (n=184), 3 of which produced significant results; 10 for the males (n=51), 2 of which produced significant results; and 3 for the females (n=133), none of which produced significant results. Obviously, the number of variables and of analyses were sources of invalidity, internal and external. The results, therefore, are suggestive only and should be so interpreted. Nonetheless, this study and previous ones do convey the message that some individual characteristics may influence students' perceptions of instruction. In addition to the characteristics of sex,

achievement and, possibly, life history, there are other attributes which probably exercise such influence; e.g., the student's expectation of the grade to be received in the course and the discrepancy between overall past achievement and expectancy (Bausell and Magoon, 1972). In the judgment of the authors much additional research is needed in order to use student appraisals of instruction appropriately in evaluating effectiveness of instruction.

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TABLE 1

Sex Differences in Perceptions of Instruction-Results of the Multivariate Analysis of Variance and of the Discriminant Analysis*

$F_{(7,176)} = 3.03^{**}$

ISPI Section	Structure-r
A. Instructional Objectives	.15
B. Human Relations	.19
C. Use of Instructional Resources	.10
D. Motivation	-.43
E. Content Meaning	.36
F. Measurement & Evaluation	-.05
Total ISPI	.09

*Data were obtained from 51 males and 133 females. Linearly transformed within-classroom standard scores ($100z_i + 500$) were used in the computation.

**Statistically significant at 05

TABLE 2

Sex Differences in Perceptions of Instruction-Results of the Analyses of Variance*

ISPI Section	F**	Level of Statistical Significance
A. Instructional Objectives	0.53	N.S.
B. Human Relations	0.76	N.S.
C. Use of Instructional Resources	0.21	N.S.
D. Motivation	4.00	.05***
E. Content Meaning	2.89	N.S.
F. Measurement & Evaluation	0.56	N.S.
Total ISPI	0.18	N.S.

*A separate analysis of variance was run for each ISPI section and for total ISPI. Linearly transformed within-classroom standard scores ($100z_i+500$) was used in each analysis. Data were obtained from 51 males and 133 females.

**For each analysis, the degrees of freedom were 1 and 182, respectively.

***Females perceived the motivation more favorably than did the males (523 vs. 490).

TABLE 3

Relationship of Student Creativity and Perceptions of Instruction for Males, Females, and Both Sexes Collectively*

Group	n	Canonical-r	Statistically significant at
Females	133	.37	N.S.
Males	51	.57	N.S.
Total	184	.31	N.S.

*The creativity measures were verbal fluency, verbal flexibility, verbal originality, figural fluency, flexibility, originality, and elaboration (measured by the Torrance Tests of Creativity) and "psychological creativity" (measured by the "What Kind of Person Am I?" inventory).

TABLE 4

Relationship of Biographical Factor and Perceptions of Instruction for Males And for Females*

Group	n	Canonical-r	Statistically Significant at
Females	133	.50	N.S.
Males	51	.73	N.S.

*Biographical data were collected using Bio-Data Booklet, Form B, devised by Dr. W. A. Owens. This inventory yields 15 biographical factors for females and 13 for males. These factor scores were used in the analyses.

TABLE 5

Relationship of Academic Achievement Status and Perceptions of Instruction For Females, for Males, and for Both Sexes Collectively

Group	n	Canonical Correlation	X^2*
Females	133	.27	13.2
Males	51	.57	24.0**
Total	184	.22	14.7

*14 degrees of freedom.
**statistically significant at .05 the standardized canonical weights were:

Variable	Weight	Variable	Weight
Instructional Objectives	-.61	Grade in Ed. Psy.	-.30
Human Relations-Values	1.18	GPA	1.04
Human Relations-Stud. Parti.	-.53		
Use of Instruc. Resources	.03		
Motivation	.33		
Content Meaning	-.30		
Measurement & Evaluation	-.04		

TABLE 6

Multiple Correlation Coefficients with Cumulative Grade Point Average (GPA) and Course Grades as Predictors and IGPI Section Scores as Criteria - Male Students

(n=51)

Criterion	Multiple-R	F
Instructional Objectives	.15	N.S.
Human Relations-Values	.38	4.12*
Human Relations-Student Partic.	.22	N.S.
Use of Instruc. Resources	.19	N.S.
Motivation	.30	N.S.
Content Meaning	.13	N.S.
Measurement & Evaluation	.13	N.S.

*$F_{(2,48)}$ at .05 = 3.19 Of the two predictions only GPA contributed significantly to the prediction, the correlation being .38.