DOCUMENT RESUME

ED 070 032 CG 007 761

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TITLE A Comparative Analysis of the Conjunctive Effects of Instructor Race, Instructor Sex, and Peer Group Evaluations of Student Assignments on Student Attitudes and Achievement. Final Report.
INSTITUTION Central Missouri State Coll., Warrensburg.
SPONS AGENCY Office of Education (DHEW), Washington, D.C. Regional Research Program.
BUREAU NO BR-2-G-027
PUB DATE Jul 72
GRANT OEG-7-72-0007(509)
NOTE 50p.

EDRS PRICE MF-$0.65 HC-$3.29
DESCRIPTORS Achievement; College Students; Motivation Techniques; *Negro Teachers; *Peer Acceptance; Peer Groups; Peer Relationship; Racial Factors; Sex (Characteristics); Sex Differences; *Student Motivation; *Student Teacher Relationship; Teacher Background; *Teacher Characteristics

ABSTRACT

Previous research has emphasized the reliability and the validity of peer ratings. However, the cognitive and affective impacts of peer evaluations within specific academic disciplines is lacking. The present study explored the impact of peer group evaluations on student attitudes toward the basic speech course and student achievement on speech assignments. Subjects for the investigation included 160 students enrolled in the basic speech course at Central Missouri State College. Eighty of the subjects received both peer and instructor ratings of performance, while the other eighty subjects were exposed to instructor evaluation only. Eighty of the subjects were taught by white instructors (one male and one female), while the other eighty subjects were taught by black instructors (one male and one female). Three attitude surveys, scores on two objective examinations, scores on each of five speech performances and the final course grades comprised the data for the study. Although results of the analyses suggest that peer evaluations do not serve as significant achievement incentives or as initiators of more favorable student attitudes toward the course or instruction, peer ratings appear more valuable in classes taught by black male instructors.

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The research reported herein was performed pursuant to a grant with the Office of Education, U.S. Department of Health, Education, and Welfare. Contractors undertaking such projects under Government sponsorship are encouraged to express freely their professional judgment in the conduct of the project. Points of view or opinions stated do not, therefore, necessarily represent official Office of Education position or policy.

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TABLE OF CONTENTS

PROBLEM UNDER CONSIDERATION

Research completed within the last decade has established that in academic [(1), (5), (7), (8)], industrial (4), and business (6), settings peer group ratings of performance can be as reliable and as valid as the ratings of "trained observers." Additional research has implied certain benefits of peer ratings. For example, John Muma discovered a high positive correlation between peer approbation and overall academic achievement of high school students(3). In a follow-up study, Muma concluded that peer acceptance/rejection was more of an achievement determinant in performance courses (band, driver's education, etc.) than in non-performance courses (2). Taken at face value, Muma's conclusions regarding the social and psychological impact of peer pressure, coupled with empirical evidence that peers are capable of "valid" and "reliable" performance evaluations tend to support the utilization of peer ratings in the classroom as student-achievement incentives or as initiators of more favorable student attitudes toward the course or instruction. However, research designed to determine the cognitive and effective impacts of peer evaluations within specific academic disciplines is lacking. The present study was an effort to determine the influence of peer group evaluation on student attitudes and achievement in a basic speech communication course. Specifically, answers to the following questions were sought:

1. Does peer group evaluation significantly alter student attitudes and/or achievement?

2. Does peer group evaluation effect more difference in attitudes and/or achievement in classes taught by minority instructors than in classes taught by instructors whose race is shared by the majority of the students?

3. Does peer group evaluation effect more difference in attitudes and/or achievement in classes taught by females than in classes taught by males?

4. Do the conjunctive effects of the instructor race instructor sex, and peer group evaluation, significally alter student attitudes and/or achievement?

PROCEDURES

Subjects

Students enrolled in the basic speech course at Central Missouri State College comprised the subjects (N=160) for the investigation. The subjects were drawn from eight sections taught by ONE lecturer and FOUR graduate assistants (one white male, one black male, one white female & one black female). Subjects enrolled in four of the sections (N=80) were exposed to BOTH instructor (graduate assistant) and peer evaluations of each of five speech performances. Subjects enrolled in the other four sections (N=80) were exposed to instructor (graduate assistant) evaluation ONLY (See Figure 1).

Figure 1: BREAKDOWN OF TREATMENT GROUPS

Hour / Treatment	8:30 LECTURE		11:30 LECTURE	
Peer Group + Instructor Evaluation	G.A.#1 White Female N=20	G.A.#2 Black Male N=20	G.A.#3 White Male N=20	G.A.#4 Black Female N=20
Instructor Evaluation Only	G.A.#3 White Male N=20	G.A.#4 Black Female N=20	G.A.#1 White Female N=20	G.A.#2 Black Male N=20

Independent Variables

The independent variables in the investigation were instructor race instructor sex, and the utilization of peer group evaluations of student assignments.

Dependent Variables

The dependent variables in the investigation were student attitude and student achievement. Student attitude was measured toward each of eleven items on an attitude survey administered at the beginning, the middle, and the end of the term. Items on the survey included student appraisal of lecture and practicum content, lecture and practicum instruction, examinations, classroom speech evaluations, and the textbook and course syllabus as lecture and practicum aids. Student evaluations of each item were indicated on three semantic differential-type scales. A copy of the attitude survey is included as Exhibit #1 in Appendix A.

Student Achievement was derived from three sources: (1) grades on individual speech assignments, (2) grades on two objective examinations, and (3) course grades. Uniform rating sheets were used in all treatment groups. The forms required numerical grades that enhanced statistical

analysis (See Exhibit #2 and Exhibit #3 in Appendix A). In the peer group evaluation treatment, students rated one another on the same form used by the instructor. To be certain of consideration of the peer ratings, each subject was required to turn in an evaluation composit to his instructor following each assignment (See Exhibit #4 in Appendix A). However, only the instructor ratings in the two treatments were statistically compared.

The following items are indicative of those included on the two objective examinations:

1. The term in the following list which does NOT refer to part of the communication process is:
   a. receiving
   b. feedback
   c. signal
   d. induction
   e. noise

14. The primary aim of the "informational talk" is:
   a. to change belief
   b. to move the audience to action
   c. to entertain the audience
   d. to put the audience at ease
   e. to create or increase audience understanding

Administration of Treatments

On the fourth day of the term the initial attitude survey was administered to all subjects. Since the subjects had met only twice with their speech evaluator (graduate assistant) and only once with their lecturer prior to the initial survey, the word "expectation" was substituted for "appraisal" on the instrument. The following item is indicative of the change:

3. Indicate your expectation of the course lecturer.

expert	___:___:___:___:___:___:___	inexpert
qualified	___:___:___:___:___:___:___	unqualified
informed	___:___:___:___:___:___:___	uninformed

Approximately half-way through the term and again at the end of the term the eleven-item attitude survey was administered to all subjects. Serious and candid student responses were encouraged on the occasion of each attitude survey by (1) assuring the subjects that their responses would be considered in revising and up-dating the course, and (2) identifying the subjects by number rather than by name.

Graduate assistants provided the researcher with each subject's speech grades throughout the term and with each subject's course grade at the end of the term.

Two examinations were administered. The first, consisting of fifty multiple choice items, was taken by all subjects approximately half-way through the term. The second, consisting of one hundred multiple choice items, was taken by all subjects on the last day of the term.

Since all subjects were involved in a lecture-practicum instruction arrangement, no significant variations in theory exposition were encountered. Under the lecture-practicum arrangement, one-half of the subjects met jointly for theoretical instruction on each of two hours (See Figure 1: BREAKDOWN OF TREATMENT GROUPS). On performance days each of the graduate assistants met separately with his twenty assigned students on each of two hours. Consequently, each of the four graduate assistants was involved in one section with peer evaluation and one section without peer evaluation. Since the same individual delivered the mass lectures for all eight sections (four sections per hour during two class periods), lecture instruction remained constant across all sections. To minimize the effects of minor variations between the two lecture presentations, two of the four sections were involved in the peer group treatment during each of the two class periods (See Figure 1). Such an arrangement also reduced the possibility that the time of day could intervene as a variable in speech performances.

Data Analysis

Attitude scores on each of eleven variables were computed using a 3 between, 1 within analysis of variance with repeated measures design. The Between Subjects main effects were A:Group (peer vs. non peer), B:Sex (male vs. female), and C:race (black vs. white). The Within Subjects main effect was T:time (mid term vs. final). Between Subjects interactions were analyzed using the Newman-Kuels test. The .05 level was set as the minimum level for all tests. Practicum grades were analyzed using the same model. Attitude pre-test, Mid exam, final exam, and course grades were analyzed using a 2 x 2 x 2 analysis of variance model. Here too, significant interactions were analyzed using the Newman-Kuels test. In the reporting of significance levels only .05 and .01 levels are reported.

RESULTS

The data analyses provided the following answers to the research questions:

1. Does peer group evaluation significantly alter student attitudes and/or achievement?

The statistical comparisons between the four peer-group sections and the four non-peer-group sections indicated NO significant differences in any of the eleven attitude items, on any of the five speech performances, on either of the two examinations, or in the final course grades. Statistical comparisons between peer and non-peer sections may be examined in Appendix B, Tables 1-52. Those comparisons are designated as "A (Group)" under the heading "Between Subjects".

Although the peer-group and non-peer-group subjects did not differ significantly in their expressed attitudes on any one of the three surveys, subjects involved in the peer treatment expressed more negative change in their attitude toward the lecture content than did non-peer subjects (See Table 23). The difference ($F = 7.27$) was significant at the .01 level. A possible explanation for the difference is provided in the next section of this report.

2. Does peer group evaluation effect more difference in attitudes and/or achievement in classes taught by minority instructors than in classes taught by instructors whose race is shared by the majority of the students?

An examination of the tables in Appendix B will show that instructor race initiated NO significant differences between peer-groups and non-peer-groups. Those comparisons are designated as "A x C" under the heading "Between Subjects". One seemingly apparent significant difference (See Table 15) should be disregarded, since that difference materialized on the pre-test before the subjects were exposed to the peer-group treatment. The really important observation is that no significant "A x C" (peer-group by race) interactions materialized on the mid-term and final attitude surveys, the two examinations, the five speeches, or the final course grades.

When the effect of peer evaluations was examined within subjects, one significant difference did emerge (Table 29). Students enrolled in sections taught by black instructors and involved in the peer evaluation treatment were more negative in their attitudes toward examinations across time ("A x C x T"), while their counterparts enrolled in sections taught by black instructors and involved in the control groups were more positive in their attitudes toward examinations across time.

Of sociological significance (although not directly related to the utilization of peer ratings) is the fact that statistical comparisons indicated a better than average willingness of white students to accept

black instructors in a speech performance course. That willingness was expressed on the pre-test (See Table 21) when students in classes taught by black instructors were significantly more favorable toward the course (overall) than were their counterparts in sections taught by white instructors. An examination of the tables in Appendix B will reveal a number of significant differences "Between Subjects" on the "C (Race)" line and "Within Subjects" on the "C x T" line. Subjects taught by black instructors were more favorable toward the content of the mass lectures (Table 23), the theoretical material in the text (Table 25), the theoretical material in the syllabus (Table 27), examinations (Table 29), the course lecturer (Table 31) the speech assignments (Table 33), the textbook as an aid in speech preparation (Table 35), the syllabus as an aid in speech preparation (Table 37), classroom evaluations of speech performance (Table 39), the practicum instructor (Table 41), and their overall appraisal of the course (Table 43).

3. Does peer group evaluation effect more difference in attitudes and/or achievement in classes taught by females than in classes taught by males?

An examination of the tables in Appendix B will show that instructor sex initiated NO significant differences between peer-groups and non-peer-groups. Those comparisons are designated as "A x B" under the heading "Between Subjects". No significant "A x B" (peer-group by sex) interactions materialized on the mid-term and final attitude surveys, the two examinations, the five speeches, or the final course grades.

Again, of sociological significance (although not directly related to the utilization of peer ratings) is the fact that statistical comparisons (with one exception) indicated no sex discrimination toward instructors on the part of the students. An examination of the tables in Appendix B will reveal only one significant difference "Between Subjects" on the "B (Sex)" line and "Within Subjects" on the "B x T" line. As indicated in Table 47, subjects enrolled in classes taught by male instructors attained significantly higher grades on the mid-term examination than did subjects enrolled in classes taught by female instructors ($F = 5.00$). Three other surface differences (See Table 41, Table 45, and Table 51) lose their significance upon careful analysis. In all three cases the significant difference on the sex line ("B") results partially from the significant difference on the race line ("C") to create a significant "B x C" interaction. Qualitative analysis of the data indicates that the white male instructor gave somewhat lower grades than did the other instructors, thus accounting for the differences in achievement (Table 45 & Table 49) and attitude (Table 41).

4. Do the conjunctive effects of instructor race, instructor sex, and peer group evaluations significantly alter student attitudes and/or achievement?

Although two "A x B x C" (Peer-Sex-Race) interactions materialized on the pre-test (Table 5 and Table 15), the subjects had not at that time been exposed to the treatment condition. Consequently, it should be assumed that the significant differences were influenced more by the sex and race variables, and that the peer effect was due to chance.

Of greater importance were significant differences which emerged on the mid-term and final evaluation surveys, well after the subjects were exposed to the treatment condition. Subjects enrolled in the section taught by the balck male instructor and involved in the peer treatment (See Table 31) were significantly more favorable toward the course lecturer than were the other subjects (F = 5.49). Subjects enrolled in the section taught by the black female instructor and involved in the control treatment were more favorable toward the course lecturer than were the subjects taught by the same instructor and involved in the peer treatment and all subjects (peer and non-peer) taught by the white instructors (See Table 31 & Table 32). Further examination of Table 32 will reveal that non-peer-group subjects taught by the balck male instructor were more favorable toward the course lecturer than were subjects taught by the white male instructor and involved in the peer treatment. Subjects taught by the black female instructor and involved in the peer treatment were more favorable toward the course lecturer than were subjects taught by the white male instructor and involved in the peer treatment. Subjects enrolled in the section taught by the white male instructor and involved in the control treatment were more favorable toward the course lecturer than their counterparts taught by the same instructor and involved in the peer treatment. Subjects enrolled in the section taught by the white female instructor and involved in the peer treatment were more favorable toward the course lecturer than the subjects enrolled in the section taught by the white male instructor and involved in the peer treatment.

Perhaps the most important race-sex-peer conjunctive interactions were discovered in the analysis of the overall attitude toward the course (Table 43 and Table 44). Subjects enrolled in the section taught by the black male instructor and involved in the peer treatment were significantly more favorable in their appraisal of the speech course than were the other subjects (F = 5.43). Subjects enrolled in the section taught by the black female instructor and involved in the control treatment were significantly more favorable in their appraisal of the speech course than were subjects taught by the same instructor in the peer treatment and all subjects in the sections taught by white instructors. Subjects enrolled in the section taught by the white male instructor and involved in the peer treatment were more negative in their appraisal of the course than were subjects taught by the same instructor in the control treatment (See Table 44).

Race-sex-peer conjunctive interactions across time accounted for two significant differences (Table 29 & Table 35). In student attitude toward examinations and toward the textbook, subjects enrolled in the section taught by the balck female and involved in the control treatment expressed MORE FAVORABLE attitudes, while all other subjects expressed more negative attitudes across time ("A x B x C x T").

CONCLUSIONS

The most obvious conclusion which can be expressed on the basis of the present study is that peer group evaluations in a speech classroom do not result in significant attitudinal or achievement differences. The one difference across time in student attitude toward lecture content (Table 23) could be interpreted in two very different lights. The fact that non-peer subjects experienced less negative change in their attitude toward the lecture content could mean that peer subjects were so content with their practicum sessions (where peer evaluations were experienced) that they saw less value in the lecture sessions. On the other hand, the more negative attitudes expressed by peer subjects could have denoted a negative effect of peer group evaluations. Since such a difference emerged on only one variable, no firm conclusion is possible at this time.

Although subjects enrolled in sections taught by black instructors expressed significantly more favorable attitudes than did their counterparts in sections taught by white instructors, the utilization of peer evaluations was not a significant factor in the development of those favorable attitudes.

Subjects receiving the peer treatment in sections taught by male instructors did not differ significantly in attitude or achievement from their counterparts taught by female instructors.

Interestingly enough, the peer treatment resulted in significant differences only when examined in conjunction with instructor race AND instructor sex. Subjects enrolled in the section taught by the black male and involved in the peer treatment were significantly more favorable toward the course lecturer and in their overall appraisal of the course than were other subjects. Subjects enrolled in the section taught by the black female and involved in the control treatment were more favorable toward the textbook and toward examinations than were other subjects and were more favorable in their overall attitude toward the course than their peer-group counterparts. Although further research will be necessary before definitive conclusions can be reached, the present investigation points toward the utilization of peer ratings in sections taught by black males and indicates that such ratings have little or no positive effect in other sections.

Although the results of this investigation suggests that peer evaluations do NOT serve as significant achievement incentives or as initiators of more favorable student attitudes toward the course or instruction, it is interesting to note that the additional work required in the peer treatment (rating fellow students and filling out the composit evaluation form) did not significantly impair the instructors status in the classroom, the attitude toward the classroom evaluations, or the overall appraisal of the course. Consequently, if for any reason instructors might desire to obtain peer ratings of performance, the results of this study clearly indicate that such ratings may be required without significant reduction of students' appraisals of coursework or instruction.

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APPENDIX A

Exhibit #1:

Communication 1000 Evaluation
Winter, 1971

Your instructor is cooperating with the communication department in an evaluation of Communication 1000, Public Speaking. This information will be confidential and will be used to make necessary improvements in the course. Today, information is needed concerning your evaluations of Communication 1000. Below are sets of descriptive scales on which you can express your evaluations of this course.

For example, you might be asked to describe your classroom facilities. If these are very closely related to one end of the scale, you should place X marks as follows:

valuable X : : : : : : worthless
good X : : : : : : bad
fair : X : : : : : unfair

or

valuable : : : : : X : worthless
good : : : : : : X bad
fair : : : : : X : unfair

In some cases you may have no evaluation, or you may be neutral, or you may feel the scale is irrelevant. In this case mark the middle space. There are three scales following each item. Please mark each one of the three scales. All three scales need not be marked the same. In every case, please mark every scale.

valuable : : : X : : : worthless
good : : : X : : : bad
fair : : : X : : : unfair

Please work quickly. Your first impressions are most important. In addition, at the top of your evaluation sheet please record your section number in the appropriate place. Remember, these results are confidential and can in no way affect your grade in this course.

Student Number

Section

1. Indicate your appraisal of the content of the lectures.

valuable___:___:___:___:___:___:___worthless
good ___:___:___:___:___:___:___bad
fair ___:___:___:___:___:___:___unfair

2.a. Indicate your appraisal of the theoretical material in the textbook.

valuable___:___:___:___:___:___:___worthless
good ___:___:___:___:___:___:___bad
fair ___:___:___:___:___:___:___unfair

2.b. Indicate your appraisal of the theoretical material in the course syllabus.

valuable___:___:___:___:___:___:___worthless
good ___:___:___:___:___:___:___bad
fair ___:___:___:___:___:___:___unfair

2.c. Indicate your appraisal of the exams covering theoretical material.

valuable___:___:___:___:___:___:___worthless
good ___:___:___:___:___:___:___bad
fair ___:___:___:___:___:___:___unfair

3. Indicate your appraisal of the course lecturer.

expert ___:___:___:___:___:___:___inexpert
qualified___:___:___:___:___:___:___unqualified
informed ___:___:___:___:___:___:___uninformed

4. Indicate your appraisal of the content of the practicum session (classroom speeches).

valuable___:___:___:___:___:___:___worthless
good ___:___:___:___:___:___:___bad
fair ___:___:___:___:___:___:___unfair

5.a. Indicate your appraisal of the textbook as an aid in preparing classroom speeches.

valuable___:___:___:___:___:___:___worthless
good ___:___:___:___:___:___:___bad
fair ___:___:___:___:___:___:___unfair

5.b. Indicate your appraisal of the syllabus as an aid in preparing classroom speeches.

valuable___:___:___:___:___:___:___worthless
good ___:___:___:___:___:___:___bad
fair ___:___:___:___:___:___:___unfair

5.c. Indicate your appraisal of the classroom evaluations of speech assignments.

valuable___:___:___:___:___:___:___worthless
good ___:___:___:___:___:___:___bad
fair ___:___:___:___:___:___:___unfair

6. Indicate your appraisal of the instructor who listens to and evaluates your speeches.

expert ___:___:___:___:___:___:___inexpert
qualified___:___:___:___:___:___:___unqualified
informed ___:___:___:___:___:___:___uninformed

7. Indicate your over-all appraisal of Comm 1000, Public Speaking.

valuable___:___:___:___:___:___:___worthless
good ___:___:___:___:___:___:___bad
fair ___:___:___:___:___:___:___unfair

Exhibit #2
Comm. 1000: Rating Sheet #1
Peer Group Evaluation
Informative Speech

Student_____

Topic_____

	Superior	Above Average	Average	Below Average	Weak	COMMENTS
1. Introduction (caught attention, thematic statement, initial summary)	15	12	9	6	3	
2. Vocal Delivery (pitch, rate, volume, diction, pronounciation, and enthusiasm)	10	8	6	4	2	
3. Physical Delivery (poise, gestures, eye-contact, mannerisms)	10	8	6	4	2	
4. Language Use(Clarity, vividness, appropriate)	5	4	3	2	1	
5. Organization of Major Points (logic, clarity, suitability, coherence)	20	16	12	8	4	
6. Supporting Materials (adequacy, relevance, variety)	20	16	12	8	4	
7. Conclusion (summary, close)	15	12	9	6	3	
8. Subject (originality, informative approach, worthwhile)	5	4	3	2	1	
TOTAL SCORE			100			

Exhibit #3
Comm. 1000: Rating Sheet #2
Peer Group Evaluation
Persuasive Speech

Student _____

Topic _____

	Superior	Above Average	Average	Below Average	Weak	COMMENTS
1. Subject (Originality, Persuasive approach, worthwhile)	5	4	3	2	1	
2. Effective opening remarks; caught attention and focused it on speaker's ideas.	10	8	6	4	2	
3. Supporting Material (adequacy relevance, variety)	15	12	9	6	3	
4. Motive Appeals: Degree to which speaker made the problem relevant to the audience's needs.	15	12	9	6	3	
5. Organization: arrangement of issues made speech easy to follow and gave impression of progress toward predetermined goal; Motivated sequence utilized.	15	12	9	6	3	
6. Development of Conclusion: Audience knew exactly what the speaker wanted them to believe/do.	10	8	6	4	2	
7. Vocal Delivery (pitch, rate, volume, diction, pronounciation, and enthusiasm)	10	8	6	4	2	
8. Physical Delivery (poise, gestures, eye-contact, mannerisms)	10	8	6	4	2	
9. Language Uses (Clarity, vividness, appropriate)	5	4	3	2	1	
10. Attitude: concern with audience reactions; ability to talk with instead of to the audience.	5	4	3	2	1	
TOTAL SCORE			100			

Exhibit #4

SYNTHESIS OF COMMUNICATION EVALUATIONS

Name_____Section_____Date_____

SPEECH TOPIC_____

I. INSTRUCTOR'S EVALUATION (In the space below list both strong and weak points which your instructor noticed in your speech.)

STRONG POINTS	WEAK POINTS
A.	A.
B.	B.
C.	C.
D.	D.
E.	E.

II. PEER EVALUATIONS (In the space below list both strong and weak points which your classmates noticed in your speech).

A.	A.
B.	B.
C.	C.
D.	D.
E.	E.

III. SYNTHESIS (As a result of your instructor's evaluation and peer group evaluations, list what appear to be your major communication problems AND list several positive steps which you plan to take in your next speech to improve your communication effectiveness.)

APPENDIX B

Student Attitudes: Pre-test

Variable: Content of the lectures

Source of Variation	SS	df	MS	F	p
A (Group)	0.01	1	0.01	.00	> .05
B (Sex)	2.34	1	2.34	.33	> .05
C (Race)	5.51	1	5.51	.77	> .05
A x B	3.01	1	3.01	.42	> .05
A x C	1.26	1	1.26	.18	> .05
B x C	19.26	1	19.26	2.69	> .05
A x B x C	0.26	1	0.26	.04	> .05
Error	630.08	88	7.16		
Total	661.74	95			

F 95 (88,1)= 3.95
F 99 (88,1)= 6.93

ANALYSIS OF VARIANCE SUMMARY
TABLE 1

		Peer Group	Non-Peer Group
Black	Male	5.50	5.50
	Female	5.17	4.67
White	Male	4.75	5.42
	Female	6.42	6.17

3= most positive attitude
21= most negative attitude

TREATMENT MEANS
TABLE 2

Student Attitudes: Pre-test

Variable: Theoretical material in the textbook

Source of Variation	SS	df	MS	F	p
A (Group)	1.50	1	1.50	.11	> .05
B (Sex)	28.17	1	28.17	1.98	> .05
C (Race)	45.38	1	45.38	3.18	> .05
A x B	0.17	1	0.17	.01	> .05
A x C	7.04	1	7.04	.49	> .05
B x C	1.04	1	1.04	.07	> .05
A x B x C	22.04	1	22.04	1.55	> .05
Error	1254.50	88	14.26		
Total	1359.84				

F 95 (88,1)= 3.95
F 99 (88,1)= 6.93

ANALYSIS OF VARIANCE SUMMARY
TABLE 3

		Peer Group	Non-Peer Group
Black	Male	8.00	7.75
	Female	8.25	10.08
White	Male	9.17	9.75
	Female	10.92	9.75

3= most positive attitude
21= most negative attitude

TREATMENT MEANS
TABLE 4

Student Attitudes: Pre-test

Variable: Theoretical material in the course syllabus

Source of Variation	SS	df	MS	F	p
A (Group)	5.51	1	5.51	.48	> .05
B (Sex)	8.76	1	8.76	.76	> .05
C (Race)	27.09	1	27.09	2.36	> .05
A x B	4.59	1	4.59	.40	> .05
A x C	3.76	1	3.76	.33	> .05
B x C	6.51	1	6.51	.57	> .05
A x B x C	68.34	1	68.34	5.95	< .05
Error	1010.91	88	11.49		
Total	1135.49				

F 95 (88,1)= 3.95
F 99 (88,1)= 6.93

ANALYSIS OF VARIANCE SUMMARY
TABLE 5

		Peer Group	Non-Peer Group
Black	Male	7.33	6.00
	Female	6.17	7.33
White	Male	6.58	7.83
	Female	9.83	6.83

3= most positive attitude
21= most negative attitude

TREATMENT MEANS
TABLE 6

Student Attitudes: Pre-test

Variable: Exams covering theoretical material

Source of Variation	SS	df	MS	F	p
A (Group)	2.67	1	2.67	.22	> .05
B (Sex)	1.50	1	1.50	.13	> .05
C (Race)	6.00	1	6.00	.50	> .05
A x B	30.38	1	30.38	2.55	> .05
A x C	1.04	1	1.04	.09	> .05
B x C	22.04	1	22.04	1.85	> .05
A x B x C	0.17	1	0.17	.01	> .05
Error	1049.16	88	11.92		
Total	1112.96				

F 95 (88,1)= 3.95
F 99 (88,1)= 6.93

ANALYSIS OF VARIANCE SUMMARY
TABLE 7

		Peer Group	Non-Peer Group
Black	Male	12.50	10.75
	Female	10.08	10.75
White	Male	11.75	10.58
	Female	11.42	12.33

3= most positive attitude
21= most negative attitude

TREATMENT MEANS
TABLE 8

Student Attitudes: Pre-test

Variable: Course lecturer

Source of Variation	SS	df	MS	F	p
A (Group)	5.51	1	5.51	.93	>.05
B (Sex)	3.76	1	3.76	.64	>.05
C (Race)	11.34	1	11.34	1.92	>.05
A x B	2.34	1	2.34	.40	>.05
A x C	1.76	1	1.76	.30	>.05
B x C	8.76	1	8.76	1.48	>.05
A x B x C	0.51	1	0.51	.09	>.05
Error	520.25	88	5.91		
Total	554.24				

F 95 (88,1)= 3.95
F 99 (88,1)= 6.93

ANALYSIS OF VARIANCE SUMMARY
TABLE 9

		Peer Group	Non-Peer Group
Black	Male	4.58	3.92
	Female	4.33	4.58
White	Male	6.00	5.08
	Female	4.83	4.25

3= most positive attitude
21= most negative attitude

TREATMENT MEANS
TABLE 10

Student Attitudes: Pre-test

Variable: Content of the practicum session

Source of Variation	SS	df	MS	F	p
A (Group)	12.76	1	12.76	1.20	> .05
B (Sex)	19.26	1	19.26	1.82	> .05
C (Race)	3.01	1	3.01	.28	> .05
A x B	0.01	1	0.01	.00	> .05
A x C	4.59	1	4.59	.43	> .05
B x C	0.84	1	0.84	.08	> .05
A x B x C	27.09	1	27.09	2.55	> .05
Error	933.42	88	10.61		
Total	1000.99				

F 95 (88,1)= 3.95
F 99 (88,1)= 6.93

ANALYSIS OF VARIANCE SUMMARY
TABLE 11

		Peer Group	Non-Peer Group
Black	Male	7.50	5.25
	Female	5.33	5.25
White	Male	6.17	6.92
	Female	6.50	6.17

3= most positive attitude
21= most negative attitude

TREATMENT MEANS
TABLE 12

Student Attitudes: Pre-test

Variable: Textbook as an aid in preparing classroom speeches

Source of Variation	SS	df	MS	F	p
A (Group)	36.26	1	36.26	1.58	>.05
B (Sex)	8.76	1	8.76	.38	>.05
C (Race)	27.09	1	27.09	1.18	>.05
A x B	3.02	1	3.02	.13	>.05
A x C	0.01	1	0.01	.00	>.05
B x C	12.76	1	12.76	.56	>.05
A x B x C	31.50	1	31.50	1.38	>.05
Error	2015.25	88	22.90		
Total	2134.65				

F 95 (88,1)= 3.95
F 99 (88,1)= 6.93

ANALYSIS OF VARIANCE SUMMARY
TABLE 13

		Peer Group	Non-Peer Group
Black	Male	11.75	9.75
	Female	10.83	10.42
White	Male	8.83	9.08
	Female	11.67	8.92

3= most positive attitude
21= most negative attitude

TREATMENT MEANS
TABLE 14

Student Attitudes: Pre-test

Variable: Syllabus as an aid in preparing classroom speeches

Source of Variation	SS	df	MS	F	p
A (Group)	0.67	1	0.67	.06	> .05
B (Sex)	2.67	1	2.67	.24	> .05
C (Race)	0.00	1	0.00	.00	> .05
A x B	1.50	1	1.50	.14	> .05
A x C	54.00	1	54.00	4.86	< .05
B x C	37.50	1	37.50	3.38	> .05
A x B x C	150.00	1	150.00	13.51	< .01
Error	977.00	88	11.10		
Total	1223.34				

F 95 (88,1)= 3.95
F 99 (88,1)= 6.93

ANALYSIS OF VARIANCE SUMMARY
TABLE 15

		Peer Group	Non-Peer Group
Black	Male	7.42	6.83
	Female	4.25	8.17
White	Male	5.17	6.58
	Female	9.50	5.42

3= most positive attitude
21= most negative attitude

TREATMENT MEANS
TABLE 16

Student Attitudes: Pre-test

Variable: Classroom evaluations of speech assignments

Source of Variation	SS	df	MS	F	p
A (Group)	0.09	1	0.09	.01	> .05
B (Sex)	0.84	1	0.84	.06	> .05
C (Race)	23.01	1	23.01	1.78	> .05
A x B	12.76	1	12.76	.92	> .05
A x C	0.51	1	0.51	.04	> .05
B x C	12.76	1	12.76	.92	> .05
A x B x C	19.26	1	19.26	1.38	> .05
Error	1226.25	88	13.93		
Total	1295.49				

F 95 (88,1)= 3.95
F 99 (88,1)= 6.93

ANALYSIS OF VARIANCE SUMMARY
TABLE 17

		Peer Group	Non-Peer Group
Black	Male	7.25	5.83
	Female	5.08	6.92
White	Male	6.75	6.83
	Female	7.83	7.58

3= most positive attitude
21= most negative attitude

TREATMENT MEANS
TABLE 18

Student Attitudes: Pre-test

Variable: Instructor who listens to and evaluates your speeches

Source of Variation	SS	df	MS	F	p
A (Group)	1.50	1	1.50	.12	> 05
B (Sex)	13.50	1	13.50	1.07	> .05
C (Race)	10.67	1	10.67	.84	> .05
A x B	0.17	1	0.17	.01	> .05
A x C	0.00	1	0.00	.00	> .05
B x C	66.67	1	66.67	5.26	< .05
A x B x C	2.67	1	2.67	.21	> .05
Error	1114.67	88	12.67		
Total	1209.84				

F 95 (88,1)= 3.95
F 99 (88,1)= 6.93

ANALYSIS OF VARIANCE SUMMARY
TABLE 19

		Peer Group	Non-Peer Group
Black	Male	6.00	5.50
	Female	6.67	6.67
White	Male	8.00	8.17
	Female	6.00	5.33

3= most positive attitude
21= most negative attitude

TREATMENT MEANS
TABLE 20

Student Attitudes: Pre-test

Variable: Overall appraisal of Comm 1000

Source of Variation	SS	df	MS	F	p
A (Group)	15.04	1	15.04	1.41	> .05
B (Sex)	4.17	1	4.17	.39	> .05
C (Race)	42.67	1	42.67	4.01	< .05
A x B	4.17	1	4.17	.39	> .05
A x C	0.67	1	0.67	.06	> .05
B x C	2.04	1	2.04	.19	> .05
A x B x C	9.38	1	9.38	.88	> .05
Error	937.50	88	10.65		
Total	1015.64				

F 95 (88,1)= 3.95
F 99 (88,1)= 6.93

ANALYSIS OF VARIANCE SUMMARY
TABLE 21

		Peer Group	Non-Peer Group
Black	Male	6.58	4.92
	Female	4.83	5.25
White	Male	7.17	6.42
	Female	7.25	6.08

3= most positive attitude
21= most negative attitude

TREATMENT MEANS
TABLE 22

Student Attitudes: Mid-term and Final Measures

Variable: content of the lecture

Source of Variation	SS	df	MS	F	p
Between Subjects					
A (Group)	47.00	1	47.00	3.01	> .05
B (Sex)	6.38	1	6.38	.41	> .05
C (Race)	214.63	1	214.63	13.73	< .01
A x B	7.13	1	7.13	.46	> .05
A x C	6.38	1	6.38	.41	> .05
B x C	11.51	1	11.51	.74	> .05
A x B x C	49.00	1	49.00	3.13	> .05
Error	1375.71	88	15.63		
Within Subjects					
T (Time)	128.38	1	128.38	23.69	< .01
A x T	39.43	1	39.43	7.27	< .01
B x T	6.38	1	6.38	1.18	> .05
C x T	64.18	1	64.18	11.84	< .01
A x B x T	5.67	1	5.67	1.05	> .05
A x C x T	10.54	1	10.54	1.94	> .05
B x C x T	1.17	1	1.17	.22	> .05
A x B x C x T	10.54	1	10.54	1.94	> .05
Error	477.21	88	5.42		
Total	2461.25				

F 95 (88,1)= 3.95
F 99 (88,1)= 6.93

ANALYSIS OF VARIANCE WITH REPEATED MEASURES SUMMARY
TABLE 23

			Peer group	Non-Peer Group
Mid-term	Black	Male	5.42	5.08
		Female	6.33	4.83
	White	Male	6.42	6.67
		Female	5.58	6.83
Final	Black	Male	5.00	5.42
		Female	8.58	4.58
	White	Male	10.50	7.75
		Female	9.83	8.56

3= most positive attitude
21= most negative attitude

TREATMENT MEANS
TABLE 24

Student Attitudes: Mid-term and Final Measures

Variable: theoretical material in the textbook

Source of Variation	SS	df	MS	F	p
Between Subjects					
A (Group)	4.38	1	4.38	.14	>.05
B (Sex)	23.38	1	23.38	.75	>.05
C (Race)	584.50	1	584.50	18.78	<.01
A x B	35.88	1	35.88	1.15	>.05
A x C	2.30	1	2.30	.07	>.05
B x C	112.55	1	112.55	3.62	>.05
A x B x C	3.79	1	3.79	.12	>.05
Error	2738.55	88	31.12		
Within Subjects					
T (Time)	106.50	1	106.50	8.00	<.01
A x T	6.38	1	6.38	.48	>.05
B x T	5.67	1	5.67	.43	>.05
C x T	66.51	1	66.51	5.00	<.05
A x B x T	0.25	1	0.25	.02	>.05
A x C x T	45.04	1	45.04	3.38	>.05
B x C x T	27.75	1	27.75	2.08	>.05
A x B x C x T	5.68	1	5.68	.43	>.05
Error	1171.70	88	13.31		
Total	4940.83				

F 95 (88,1)= 3.95
F 99 (88,1)= 6.93

ANALYSIS OF VARIANCE WITH REPEATED MEASURES SUMMARY
TABLE 25

			Peer group	Non-Peer Group
Mid-term	Black	Male	8.08	10.08
		Female	7.83	8.08
	White	Male	10.75	10.50
		Female	12.17	9.92
Final	Black	Male	9.83	11.17
		Female	7.92	6.42
	White	Male	12.08	13.67
		Female	13.50	14.75

3= most positive attitude
21= most negative attitude

TREATMENT MEANS
TABLE 26

Student Attitudes: Mid-term and Final Measures

Variable: theoretical material in the course syllabus

Source of Variation	SS	df	MS	F	p
Between Subjects					
A (Group)	30.08	1	30.08	2.21	>.05
B (Sex)	25.52	1	25.52	1.88	>.05
C (Race)	208.33	1	208.33	15.33	<.01
A x B	11.02	1	11.02	.81	>.05
A x C	2.09	1	2.09	.15	>.05
B x C	0.02	1	0.02	.00	>.05
A x B x C	13.02	1	13.02	.96	>.05
Error	1195.59	88	13.59		
Within Subjects					
T (Time)	16.33	1	16.33	1.79	>.05
A x T	3.00	1	3.00	.33	>.05
B x T	31.69	1	31.69	3.48	>.05
C x T	44.09	1	44.09	4.85	<.05
A x B x T	7.52	1	7.52	.83	>.05
A x C x T	6.75	1	6.75	.74	>.05
B x C x T	6.02	1	6.02	.66	>.05
A x B x C x T	1.02	1	1.02	.11	>.05
Error	800.58	88	9.10		
Total	2402.67				

F 95 (88,1)= 3.95
F 99 (88,1)= 6.93

ANALYSIS OF VARIANCE WITH REPEATED MEASURES SUMMARY
TABLE 27

			Peer group	Non-Peer Group
Mid-term	Black	Male	5.50	5.08
		Female	7.67	6.67
	White	Male	7.17	6.33
		Female	7.92	8.00
Final	Black	Male	6.42	5.75
		Female	5.75	5.50
	White	Male	10.33	7.17
		Female	9.08	9.00

3= most positive attitude
21= most negative attitude

TREATMENT MEANS
TABLE 28

Student Attitudes: Mid-term and Final Measures

Variable: Exams covering theoretical material

Source of Variation	SS	df	MS	F	p
Between Subjects					
A (Group)	5.67	1	5.67	.21	>.05
B (Sex)	41.25	1	41.25	1.56	>.05
C (Race)	879.80	1	879.80	33.34	<.01
A x B	97.75	1	97.75	3.70	>.05
A x C	6.38	1	6.38	.24	>.05
B x C	24.80	1	24.80	.94	>.05
A x B x C	41.27	1	41.27	1.56	>.05
Error	2322.29	88	26.39		
Within Subjects					
T (Time)	125.13	1	125.13	13.27	<.01
A x T	1.88	1	1.88	.20	>.05
B x T	12.51	1	12.51	1.33	>.05
C x T	41.25	1	41.25	4.37	<.05
A x B x T	7.13	1	7.13	.76	>.05
A x C x T	45.05	1	45.05	4.78	<.05
B x C x T	32.50	1	32.50	3.45	>.05
A x B x C x T	55.25	1	55.25	5.86	<.05
Error	829.79	88	9.43		
Total	4569.70				

F 95 (88,1)= 3.95
F 99 (88,1)= 6.93

ANALYSIS OF VARIANCE WITH REPEATED MEASURES SUMMARY
TABLE 29

			Peer group	Non-Peer Group
Mid-term	Black	Male	6.58	9.00
		Female	6.92	6.00
	White	Male	10.50	12.00
		Female	10.92	8.50
Final	Black	Male	7.67	9.92
		Female	8.75	4.92
	White	Male	12.00	12.92
		Female	12.17	15.00

3= most positive attitude
21= most negative attitude

TREATMENT MEANS
TABLE 30

Student Attitude : Mid-term and Final Measur ;

Variable: course lecturer

Source of Variation	SS	df	MS	F	p
Between Subjects					
A (Group)	6.38	1	6.38	.53	>.05
B (Sex)	6.38	1	6.38	.53	>.05
C (Race)	190.00	1	190.00	15.66	<.01
A x B	0.13	1	0.13	.01	>.05
A x C	3.26	1	3.26	.27	>.05
B x C	7.93	1	7.93	.65	>.05
A x B x C	66.50	1	66.50	5.49	<.05
Error	1067.29	88	12.13		
Within Subjects					
T (Time)	100.63	1	100.63	19.20	<.01
A x T	14.63	1	14.63	2.79	>.05
B x T	16.93	1	16.93	3.23	>.05
C x T	14.63	1	14.63	2.79	>.05
A x B x T	5.00	1	5.00	.95	>.05
A x C x T	13.55	1	13.55	2.59	>.05
B x C x T	1.17	1	1.17	.22	>.05
A x B x C x T	1.50	1	1.50	.29	>.05
Error	461.46	88	5.24		
Total	1977.37				

F 95 (88,1)= 3.95
F 99 (88,1)= 6.93

ANALYSIS OF VARIANCE WITH REPEATED MEASURES SUMMARY
TABLE 31

			Peer group	Non-Peer Group
Mid-term	Black	Male	3.67	4.67
		Female	5.08	3.92
	White	Male	5.75	5.58
		Female	4.33	6.42
Final	Black	Male	4.00	5.25
		Female	6.58	5.08
	White	Male	8.58	6.25
		Female	8.67	7.58

3= most positive attitude
21= most negative attitude

TREATMENT MEANS
TABLE 32

Student Attitudes: Mid-term and Final Measures

Variable: content of the practicum session

Source of Variation	SS	df	MS	F	p
Between Subjects					
A (Group)	4.08	1	4.08	.21	>.05
B (Sex)	13.02	1	13.02	.66	>.05
C (Race)	93.52	1	93.52	4.74	<.05
A x B	3.00	1	3.00	.15	>.05
A x C	0.34	1	0.34	.02	>.05
B x C	54.19	1	54.19	2.74	>.05
A x B x C	21.33	1	21.33	1.08	>.05
Error	1737.34	88	19.74		
Within Subjects					
T (Time)	1.69	1	1.69	.27	>.05
A x T	2.08	1	2.08	.34	>.05
B x T	1.02	1	1.02	.16	>.05
C x T	20.02	1	20.02	3.23	>.05
A x B x T	5.34	1	5.34	.86	>.05
A x C x T	24.09	1	24.09	3.89	>.05
B x C x T	9.19	1	9.19	1.43	>.05
A x B x C x T	6.75	1	6.75	1.09	>.05
Error	544.83	88	6.19		
Total	2541.81				

F 95 (88,1)= 3.95
F 99 (88,1)= 6.93

ANALYSIS OF VARIANCE WITH REPEATED MEASURES SUMMARY
TABLE 33

			Peer group	Non-Peer Group
Mid-term	Black	Male	5.42	5.58
		Female	7.42	5.83
	White	Male	7.33	8.17
		Female	5.75	6.00
Final	Black	Male	5.00	6.25
		Female	5.92	5.25
	White	Male	9.50	7.08
		Female	7.08	6.92

3= most positive attitude
21= most negative attitude

TREATMENT MEANS
TABLE 34

Student Attitudes: Mid-term and Final Measures

Variable: textbook as an aid in preparing classroom speeches

Source of Variation	SS	df	MS	F	p
Between Subjects					
A (Group)	22.00	1	22.00	.59	>.05
B (Sex)	112.55	1	112.55	3.03	>.05
C (Race)	550.13	1	550.13	14.80	<.01
A x B	59.63	1	59.63	1.60	>.05
A x C	5.68	1	5.68	.15	>.05
B x C	45.05	1	45.05	1.21	>.05
A x B x C	14.63	1	14.63	.39	>.05
Error	3270.21	88	37.16		
Within Subjects					
T (Time)	170.63	1	170.63	14.90	<.01
A x T	1.18	1	1.18	.10	>.05
B x T	26.26	1	26.26	2.29	>.05
C x T	49.01	1	49.01	4.28	<.05
A x B x T	1.16	1	1.16	.10	>.05
A x C x T	0.88	1	0.88	.08	>.05
B x C x T	19.38	1	19.38	1.69	>.05
A x B x C x T	53.12	1	53.12	4.64	<.05
Error	1007.87	88	11.45		
Total	5409.37				

F 95 (88,1)= 3.95
F 99 (88,1)= 6.93

ANALYSIS OF VARIANCE WITH REPEATED MEASURES SUMMARY
TABLE 35

			Peer group	Non-Peer Group
Mid-term	Black	Male	9.67	10.75
		Female	9.00	9.17
	White	Male	11.00	13.50
		Female	12.00	11.58
Final	Black	Male	11.00	13.92
		Female	10.00	7.17
	White	Male	14.92	15.58
		Female	13.92	15.25

3= most positive attitude
21= most negative attitude

TREATMENT MEANS
TABLE 36

Student Attitudes: Mid-term and Final Measures

Variable: syllabus as an aid in preparing classroom speeches

Source of Variation	SS	df	MS	F	p
Between Subjects					
A (Group)	11.02	1	11.02	.84	$>.05$
B (Sex)	0.08	1	0.08	.01	$>.05$
C (Race)	238.52	1	238.52	18.17	$<.01$
A x B	2.09	1	2.09	.16	$>.05$
A x C	0.19	1	0.19	.02	$>.05$
B x C	0.09	1	0.09	.01	$>.05$
A x B x C	5.33	1	5.33	.41	$>.05$
Error	1155.50	88	13.13		
Within Subjects					
T (Time)	75.00	1	75.00	6.61	$<.05$
A x T	10.08	1	10.08	.89	$>.05$
B x T	2.52	1	2.52	.22	$>.05$
C x T	161.33	1	161.33	14.21	$<.01$
A x B x T	0.19	1	0.19	.02	$>.05$
A x C x T	5.34	1	5.34	.47	$>.05$
B x C x T	9.19	1	9.19	.81	$>.05$
A x B x C x T	0.20	1	0.20	.02	$>.05$
Error	999.17	88	11.35		
Total	2675.81				

F 95 (88,1)= 3.95
F 99 (88,1)= 6.93

ANALYSIS OF VARIANCE WITH REPEATED MEASURES SUMMARY
TABLE 37

			Peer group	Non-Peer Group
Mid-term	Black	Male	5.58	5.83
		Female	6.00	5.17
	White	Male	5.58	5.83
		Female	6.25	6.50
Final	Black	Male	4.92	4.92
		Female	5.75	4.67
	White	Male	10.25	8.67
		Female	9.33	8.25

3= most positive attitude
21= most negative attitude

TREATMENT MEANS
TABLE 38

Student Attitudes: Mid-term and Final Measures

Variable: classroom evaluations of speech assignments

Source of Variation	SS	df	MS	F	p
Between Subjects					
A (Group)	9.63	1	9.63	.32	>.05
B (Sex)	7.13	1	7.13	.24	>.05
C (Race)	178.25	1	178.25	5.97	<.05
A x B	9.63	1	9.63	.32	>.05
A x C	11.51	1	11.51	.39	>.05
B x C	15.76	1	15.76	.53	>.05
A x B x C	0.13	1	0.13	.00	>.05
Error	2627.79	88	29.86		
Within Subjects					
T (Time)	4.38	1	4.38	.38	>.05
A x T	14.63	1	14.63	1.26	>.05
B x T	23.38	1	23.38	2.02	>.05
C x T	0.26	1	0.26	.02	>.05
A x B x T	0.41	1	0.41	.04	>.05
A x C x T	0.62	1	0.62	.05	>.05
B x C x T	4.37	1	4.37	.37	>.05
A x B x C x T	2.29	1	2.29	.20	>.05
Error	1021.13	88	11.60		
Total	3931.33				

F 95 (88,1)= 3.95
F 99 (88,1)= 6.93

ANALYSIS OF VARIANCE WITH REPEATED MEASURES SUMMARY
TABLE 39

			Peer group	Non-Peer Group
Mid-term	Black	Male	6.67	6.25
		Female	7.33	6.75
	White	Male	7.92	9.25
		Female	8.58	8.67
Final	Black	Male	7.42	6.75
		Female	7.92	5.83
	White	Male	10.08	9.83
		Female	8.50	7.50

3= most positive attitude
21= most negative attitude

TREATMENT MEANS
TABLE 40

Student Attitudes: Mid-term and final measures

Variable: Instructor who listens to and evaluates your speeches

Source of Variation	SS	df	MS	F	p
Between Subjects					
A (Group)	4.69	1	4.69	.58	≥ .05
B (Sex)	310.08	1	310.08	38.05	< .01
C (Race)	336.02	1	336.02	41.24	< .01
A x B	0.75	1	0.75	.09	≥ .05
A x C	0.19	1	0.19	.02	≥ .05
B x C	363.00	1	363.00	44.54	< .01
A x B x C	2.08	1	2.08	.26	≥ .05
Error	717.17	88	8.15		
Within Subjects					
T (Time)	0.19	1	0.19	.06	≥ .05
A x T	0.19	1	0.19	.06	≥ .05
B x T	0.75	1	0.75	.23	≥ .05
C x T	17.52	1	17.52	5.31	< .05
A x B x T	4.09	1	4.09	1.24	≥ .05
A x C x T	4.69	1	4.69	1.42	≥ .05
B x C x T	6.75	1	6.75	2.05	≥ .05
A x B x C x T	0.33	1	0.33	.10	≥ .05
Error	290.50	88	3.30		
Total	2058.98				

F 95 (88,1)= 3.95
F 99 (88,1)= 6.93

ANALYSIS OF VARIANCE WITH REPEATED MEASURES SUMMARY
TABLE 41

			Peer group	Non-Peer Group
Mid-term	Black	Male	4.75	5.17
		Female	5.25	4.58
	White	Male	8.92	9.83
		Female	4.42	4.75
Final	Black	Male	3.67	4.42
		Female	4.25	4.75
	White	Male	10.58	10.25
		Female	4.33	4.92

3= most positive attitude
21= most negative attitude

TREATMENT MEANS
TABLE 42

42

Student Attitudes: Mid-term and Final Measures

Variable: Overall appraisal of Comm 1000.

Source of Variation	SS	df	MS	F	p
Between Subjects					
A (Group)	11.50	1	11.50	.51	>.05
B (Sex)	47.00	1	47.00	2.09	>.05
C (Race)	497.30	1	497.30	22.13	<.01
A x B	1.51	1	1.51	.07	>.05
A x C	10.55	1	10.55	.47	>.05
B x C	214.63	1	214.63	9.55	<.01
A x B x C	121.91	1	121.91	5.43	<.05
Error	1976.96	88	22.47		
Within Subjects					
T (Time)	47.00	1	47.00	10.47	<.01
A x T	2.30	1	2.30	.51	>.05
B x T	3.80	1	3.80	.85	>.05
C x T	29.30	1	29.30	6.53	<.05
A x B x T	0.88	1	0.88	.20	>.05
A x C x T	4.38	1	4.38	.98	>.05
B x C x T	9.63	1	9.63	2.14	>.05
A x B x C x T	2.76	1	2.76	.61	>.05
Error	395.46	88	4.49		
Total	3376.87				

F 95 (88,1)= 3.95
F 99 (88,1)= 6.93

ANALYSIS OF VARIANCE WITH REPEATED MEASURES SUMMARY
TABLE 43

			Peer group	Non-Peer Group
Mid-term	Black	Male	4.67	4.67
		Female	7.00	4.92
	White	Male	10.25	9.08
		Female	4.75	6.92
Final	Black		4.58	5.50
			7.33	4.67
	White	Male	11.92	9.50
		Female	7.67	9.00

3= most positive attitude
21= most negative attitude

TREATMENT MEANS
TABLE 44

Student Achievement: Speech Grades

Source of Variation	SS	df	MS	F	p
Between Subjects					
A (Group)	21.00	1	21.00	.08	> .05
B (Sex)	9980.00	1	9980.00	39.43	< .01
C (Race)	1538.00	1	1538.00	6.08	< .05
A x B	399.00	1	399.00	1.58	> .05
A x C	4.00	1	4.00	.02	> .05
B x C	14018.00	1	14018.00	55.39	< .01
A x B x C	245.00	1	245.00	.97	> .05
Error	26322.00	104	253.10		
Within Subject					
T (Time)	3286.00	4	821.50	5.29	< .05
A x T	768.00	4	192.00	1.24	> .05
B x T	811.00	4	202.75	1.31	> .05
C x T	1846.00	4	461.50	2.97	> .05
A x B x T	1143.00	4	285.75	1.84	> .05
A x C x T	249.00	4	62.25	.40	> .05
B x C x T	6551.00	4	1637.75	10.55	< .01
A x B x C x T	3101.00	4	775.25	4.99	< .05
Error	64569.00	416	155.21		
Total	134851.00				

F (104,1) = 3.94 F (416,1) = 3.84
F (104,1) = 6.90 F (416,1) = 6.63

ANALYSIS OF VARIANCE WITH REPEATED MEASURES SUMMARY
TABLE 45

Student Achievement: Speech Grades

			Peer Group	Non-Peer Group
Speech 1	Black	Male	78.79	76.79
		Female	83.00	80.43
	White	Male	72.50	68.71
		Female	90.14	91.00
Speech 2	Black	Male	84.79	85.36
		White Female	86.36	81.79
	White	Male	77.29	71.93
		Female	88.93	87.00
Speech 3	Black	Male	77.93	81.57
		Female	89.29	85.29
	White	Male	79.00	75.64
		Female	90.36	88.50
Speech 4	Black	Male	87.79	86.36
		Female	81.57	83.71
	White	Male	71.29	74.07
		Female	88.93	86.79
Speech 5	Black	Male	89.43	87.64
		Female	72.57	76.79
	White	Male	44.50	68.29
		Female	93.50	82.57

100= highest possible grade, 0= lowest possible grade

TREATMENT MEANS
TABLE 46

Source of Variation	SS	df	MS	F	p
A (Group)	0.31	1	0.31	.00	> .05
B (Sex)	416.56	1	416.56	5.00	< .05
C (Race)	0.00	1	0.00	.00	> .05
A x B	9.19	1	9.19	.11	> .05
A x C	120.31	1	120.31	1.44	> .05
B x C	180.25	1	180.25	2.15	> .05
A x B x C	12.94	1	12.94	.15	> .05
Error	8712.19	104	83.77		
Total	9451.75				

F 95 (104,1)= 3.94
F 99 (104,1)= 6.90

ANALYSIS OF VARIANCE SUMMARY
TABLE 47

		Peer Group	Non-Peer Group
Black	Male	57.14	56.43
	Female	52.00	48.79
White	Male	53.14	55.21
	Female	51.71	54.00

TREATMENT MEANS
TABLE 48

Student Achievement: Final exam

Source of Variation	SS	df	MS	F	p
A (Group)	6.00	1	6.00	.05	$\geq$ .05
B (Sex)	26.00	1	26.00	.22	$\geq$ .05
C (Race)	155.44	1	155.44	1.32	$\geq$ .05
A x B	5.75	1	5.75	.05	$\geq$ .05
A x C	111.69	1	111.69	.95	$\geq$ .05
B x C	120.31	1	120.31	1.02	$\geq$ .05
A x B x C	2.44	1	2.44	.02	$\geq$ .05
Error	12242.13	104	117.71		
Total	12669.75				

F 95 (104,1)= 3.94
F 99 (104,1)= 6.90

ANALYSIS OF VARIANCE SUMMARY
TABLE 49

		Peer Group	Non-Peer Group
Black	Male	73.79	76.07
	Female	73.43	74.21
White	Male	76.36	74.07
	Female	79.57	76.93

TREATMENT MEANS
TABLE 50

Student Achievement: Course Grade

Source of Variation	SS	df	MS	F	p
A (Group)	1.08	1	1.08	2.30	> .05
B (Sex)	6.51	1	6.51	13.85	< .01
C (Race)	3.94	1	3.94	8.38	< .01
A x B	0.08	1	0.08	.17	> .05
A x C	0.08	1	0.08	.17	> .05
B x C	3.22	1	3.22	6.85	< .05
A x B x C	0.01	1	0.01	.02	> .05
Error	48.07	104	.47		
Total	62.99				

F 95 (104,1)= 3.94
F 99 (104,1)= 6.90

ANALYSIS OF VARIANCE SUMMARY
TABLE 51

		Peer Group	Non-Peer Group
Black	Male	4.14	4.07
	Female	4.36	4.14
White	Male	3.50	3.29
	Female	4.36	4.07

A = 5.00

TREATMENT MEANS
TABLE 52

APPENDIX C

TEST-RETEST RELIABILITY COEFFICIENTS ON ATTITUDE TEST

Var.	r	p
1	.52	< .005
2	.46	< .005
3	.25	< .01
4	.55	< .005
5	.48	< .005
6	.51	< .005
7	.56	< .005
8	.09	NSD
9	.46	< .005
10	.69	< .005
11	.74	< .005

r_{95} (df=94)=.20

This analysis is based upon all scores combined for all treatments. Correlations were obtained for each treatment group. However, they show no differences which would alter my interpretation of these results. With the exception of item 8 this appears to be a very reliable test. The p value is the probability that this r=0, or, in other words, how many times out of 100 one would get this high a correlation due to chance alone.