EFFECT OF DIFFERENT SPEECH PATHOLOGY COURSE INSTRUCTORS ON GRADES AND THEIR RELATIONSHIP TO OVERALL ACADEMIC AND CLINICAL ACHIEVEMENTS

by

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ABSTRACT

The relationship between individual-course academic achievement when taught by different instructors, and later overall academic and clinical achievement in an undergraduate speech pathology program was investigated. The same course content was used by each of two pairs of instructors. Correlations and differences between the grades of 44 students in two courses and their overall performance measures for three subsequent years of full-time study were examined. Results suggested that different instructors in certain required courses did not affect later overall grade point averages or clinical performance measures. No group showed significantly higher overall academic or clinical achievement with any instructor, nor did regression analysis yield more accurate prediction of overall academic or clinical performance based on predictor variables from different instructors.

A review of recent literature in the fields of speech and hearing and education failed to locate any reference to the effects of instructor differences on academic achievement measures in university students. Similar investigations have been conducted using public school children and their classroom teachers as subjects. The education literature is replete with such studies. Coleman *et al.* (1966) found teacher characteristics to account for more variation in student achievement than all other school factors combined, except student body characteristics. Other researchers delineated "effective teachers" in terms of pupil gains. Cooper (1967) used fourth grade teachers and their students. The results of his study, measuring teaching characteristics with a personality inventory, supported the paradigm that teacher personality causes teacher behavior which, in turn, causes pupil behavior. Young (1979) also measured teacher effectiveness in terms of student achievement and found only one significant behavior: effective teachers had a higher percentage of time-on-task than less effective ones.

These studies represent a small sample of this area in the education literature. While they seem remote, at best, and probably bear little relationship to similar variables in a university educational system, they lend credibility to the notion of "instructor effect" in the educational process.

Hagler (in press) examined the predictive qualities of pre-admission academic performance measures as they related to clinical and academic achievement in an undergraduate speech pathology program. One of the relationships measured was that between the introductory clinical course grade and the mean of the first two clinical practicum scores. The obtained r value was .28 (p = .01). Shriberg *et al.* (1977) made essentially the same comparison and obtained a .49 correlation coefficient. The different r values for the same relationship were especially interesting, as the same clinical evaluation tool was used in both studies. Three possible explanations seemed to exist. Relationships may have been affected by instructor differences, differences in course content, or method of evaluation. It was also found that course grades in pre-professional courses tended to show decreasing strengths of relationship with overall grades as students moved through successive years of training (Gough, 1963; Hagler, in press; Pickles, 1977; Schofield/Merwin, 1966; Schwartzman *et al.*, 1962).

This retrospective study examined relationships and differences between student performance in two courses, each having two different instructors, and later academic and clinical performance while holding course content and method of evaluation constant. It was hypothesized, based on earlier correlation studies, that different course instructors might affect later student performance, and that grades in certain courses, when taught by different instructors, would have different predictive qualities.

METHOD

Subjects

The sources of data were the records of 44 female graduates of the B.Sc. program in speech pathology at the University of Alberta.

Procedure

Grades for the following courses were listed by instructor: SPA 281 – Survey of Speech Pathology and Audiology, and SPA 384 – Clinical Procedures. These courses were chosen because extensive efforts had been made to retain sameness in course content as instructors changed. In the Clinical Procedures course instructor C temporarily replaced the regular instructor, D, while he was away on study leave. The regular instructor left his lecture notes, a detailed course outline, and numerous teaching materials to be used in his absence. In addition, the two instructors met and discussed these materials prior to instructor D's departure. The intention of instructor C was to duplicate course content as nearly as possible. Instructor C also taught the Survey course to a small class of 16 students during the intensive spring session. Instructor B regularly taught the Survey course to large, open-enrollment classes. As this course was used by the department in determining acceptability of new applicants to the program, instructors collaborated extensively on course content and organization. Course examinations had many questions in common but were not identical. The same clinical evaluation tool, the Wisconsin Procedure for Appraisal of Clinical Competence (W-PACC) (Shriberg *et al.*, 1975) was used on all subjects.

Performance measures with which to compare those above were the yearly grade point average (GPA), the overall GPA, and the overall clinical achievement measure, which is

TABLE 1
Basic Statistics on Ten Variables

Variable	Cases	Mean	Std Dev
A280	44	8.1136	0.6893
B281	28	7.5000	0.7454
C281	16	7.5625	0.7274
C384	22	6.8636	0.5602
D384	22	7.3182	0.5679
Y2GPA	44	7.2705	0.6611
Y3GPA	44	7.1886	0.8387
Y4GPA	44	7.8000	0.5225
OGPAAA	44	7.3523	0.6117
OCLIN	44	78.4318	4.0255

the mean of five W-PACC evaluations. The required pre-admission course, Introduction to Normal Human Communication, which has been taught almost exclusively by the same instructor for the past six years, was included to provide additional assurance that resulting trends in the analyses were similar to those in previous studies (Gough, 1963; Hagler, in press; Pickles, 1977; Schofield/Merwin, 1966; Schwartzman *et al.*, 1962) discussed above. The following variable labels were used:

A280 – Grade in Introduction to Normal Human Communication taught by instructor A;

B281 – Grade in Survey of Speech Pathology and Audiology, taught by instructor B;

C281 – grade in Survey of Speech Pathology and Audiology, taught by instructor C;

C384 – grade in Clinical Procedures, taught by instructor C;

D384 – grade in Clinical Procedures, taught by instructor D;

Y2GPA – grade point average for the second year (only) of university

Y3GPA – grade point average for the third year (only) of university;

Y4GPA – grade point average for the fourth year (only) of university;

OGPAAA – overall GPA after admission; and,

OCLIN – mean overall clinical performance score from five W-PACCs.

Analysis of Data

Analysis of the data was done with the Statistical Package for the Social Sciences (SPSS). Basic statistics for ten variables are displayed in Table 1.

Pearson correlation coefficients were calculated for each variable with itself and each of the other nine variables. Results are shown in Table 2.

Correlation coefficients were not computed for B281 and C281 because this course, taught by different instructors, had no subjects in common. The same conditions existed for C384 and D384. To test whether the independent groups taking each course were from the same population, the Mann-Whitney U test was used. The same test was then applied to OGPAAA using 281 course instructor as the independent variable and again to OCLIN using 384 course instructor as the independent variable.

Regression analyses were carried out on two dependent variables, OGPAAA and OCLIN, to select the best predictor variables and determine whether different instructors in the courses used as predictor variables influenced the amount of variance in the end-of-program performance measures.

RESULTS

Correlation coefficients in Table 2 show the strength of relationship among all variables. The variables A280, B281, C384, and D384, with comparatively larger numbers of cases than C281, tended to show successively smaller r values for their relationship with GPA in each year of the program. This suggested that the relatively small number of cases used in this study performed much like those in larger studies from a variety of disciplines.

A comparison of the r values for OGPAAA with B281, r = .57 (p = .002), and OGPAAA with C281, r = −.13 (p = .64), in the absence of other analyses, indicated that different instructors for the same course, 281, affected its relationship with overall GPA after admission. Students' grades in the clinical procedures courses, C384 and D384, showed little difference in their relationship with OGPAAA (r = .67, p = .001 and r = .50, p = .02, respectively), but C384 correlated better (r = .26, p = .25), with OCLIN than D384

TABLE 2
Pearson Correlation Coefficients

	B281	C281	C384	D384	Y2GPA	Y3GPA	Y4GPA	OGPAAA	OCLIN
A280	0.4661 (28) P = 0.012	−0.3516 (16) P = 0.182	0.6596 (22) P = 0.001	0.4637 (22) P = 0.030	0.7680 (44) P = 0.000	0.5212 (44) P = 0.000	0.7361 (44) P = 0.000	0.7302 (44) P = 0.000	0.2585 (44) P = 0.090
B281		99.0000 (0) P = *****	0.4677 (15) P = 0.079	0.1436 (13) P = 0.640	0.6417 (28) P = 0.000	0.4196 (28) P = 0.026	0.3429 (28) P = 0.074	0.5660 (28) P = 0.002	0.1989 (28) P = 0.310
C281			0.0913 (7) P = 0.846	−0.0981 (9) P = 0.802	−0.2504 (16) P = 0.350	0.0808 (16) P = 0.766	−0.3550 (16) P = 0.177	−0.1254 (16) P = 0.643	0.1240 (16) P = 0.647
C384				99.0000 (0) P = *****	0.8020 (22) P = 0.000	0.5440 (22) P = 0.009	0.3365 (22) P = 0.126	0.6700 (22) P = 0.001	0.2560 (22) P = 0.250
D384					0.5584 (22) P = 0.007	0.3995 (22) P = 0.065	0.5566 (22) P = 0.007	0.5013 (22) P = 0.017	0.1074 (22) P = 0.634
Y2GPA						0.6592 (44) P = 0.000	0.6544 (44) P = 0.000	0.8953 (44) P = 0.000	0.1954 (44) P = 0.204
Y3GPA							0.6363 (44) P = 0.000	0.9096 (44) P = 0.000	0.3762 (44) P = 0.012
Y4GPA								0.7836 (44) P = 0.000	0.3826 (44) P = 0.010
OGPAAA									0.3571 (44) P = 0.017

(Coefficient / (Cases) / Significance)   (A value of 99.0000 is printed if a coefficient cannot be computed)

($r = .11, p = .63$). This was another, albeit weaker, indication that different instructors for a given course may influence the extent to which those course grades relate to later student performance.

Results of the Mann-Whitney U tests, Table 3, did not give causal confirmation to the different relationships yielded by Pearson correlation analysis.

No difference ($z = -1.63, p = .10$) was observed between students' performance in B281 and C281, but students grades in D384 were significantly higher ($z = -2.50, p = .01$) than those of students in C384. However, when the overall GPAs of students who took B281 together were compared to the overall GPAs of those who took C281 together, there was no significant difference ($z = -1.18, p = .24$). Likewise, when overall clinical scores of students who took C384 together were compared with those of students who took D384, no significant difference was found ($z = -1.13, p = .26$).

Regression analyses shown in Tables 4A and 4B were run on OGPAAA first, using A280 and B281 as predictor variables, and again, using A280 and C281 as predictor variables. The R square value of .62 in Table 4A indicated that A280 and B281 combined to account for 62 percent of the variance in OGPAAA. The B281 variable entered on step two only accounted for an additional 6 percent of the variance after A280 (R square = .56). Overall goodness of fit was tested for this regression, yielding an F value of 20.47 (p = .00).

The R square value of .46 in Table 4B indicated that A280 and C281 combined to account for 46 percent of the variance in OGPAAA. The C281 variable entered on step two only accounted for an additional 2 percent of the variance after A280 (R square = .44). Overall goodness of fit for this regression yielded an F value of 5.44 (p = .02).

Regression analyses shown in Tables 5A and 5B were run first on OCLIN, using C384, Y2GPA, and Y3GPA as predictor variables, and again, using D394, Y2GPA, and Y3GPA as predictor variables. In both regressions, the 384 course marks were selected last. When C384 was entered, it accounted for an additional 1 percent of the variance in OCLIN (F = 1.52, p = .24). When D384 was entered, it accounted for an additional .5 percent of the variance in OCLIN (F = .76, p = .53).

TABLE 3A

Mann-Whitney U Tests on Student Grades in Two Courses, Each Taught by Different Instructors

Grade by Course (B281, C281)		**B281**	**C281**
	mean rank	20.36	26.25
	N	28	16
	U = 164.0	corrected for ties	
		Z = -1.6313	
		P = .0128	(2-tailed)
Grade by Course (C384, D384)		**C384**	**D384**
	mean rank	18.36	26.64
	N	22	22
	U = 151.0	corrected for ties	
		Z = -2.5028	
		P = .0123	(2-tailed)

TABLE 3B

**Mann-Whitney U Tests on Two Overall Performance Measures of Students Grouped
on the Basis of Course Instructor in Two Courses**

OGPAAA by Group (B281, C281)

		B281	C281
	mean rank	20.79	25.50
	N	28	16
	U = 176.0	corrected for ties	
		Z = −1.1766	
		P = .2393	(2-tailed)

OCLIN by Group (C384, D384)

		C384	D384
	mean rank	24.68	20.32
	N	22	22
	U = 194.0	corrected for ties	
		Z = −1.1307	
		P = .2582	(2-tailed)

DISCUSSION

There were substantial differences in the relationships between students' grades in the Survey of Speech Pathology and Audiology course and their overall GPA after admission to the program, when the course was taught by different instructors. Students in instructor B's survey course did not receive significantly different grades in that course than students in instructor C's survey course. Neither was there any difference in the overall academic performance of these two groups of students.

Grades of students who took the Clinical Procedures course from instructor C were significantly lower than those of students who took the same course from instructor D and correlated better with overall clinical performance. However, there was no significant difference in the overall clinical achievement of the two groups.

The assumption that larger correlation values would substantially improve the predictive qualities of individual courses when regressed on later, overall variables was not supported. The difference in the amount of variance in OGPAAA accounted for by B281 was only 4 percent more than that accounted for by C281 when regression values were compared. The slightly improved predictability of OGPAAA, 16 percent more variance accounted for, when grades of instructor B were used in the regression, may have been partially a function of a larger N. Other differences may have existed in the subjects themselves, or the course.

Most students who took 281 from instructor B were recently graduated from high school and enrolled in their first semester of university study, which was a thirteen-week term. All students who took 281 from instructor C had graduated from high school at least one year earlier. Many had taken other university courses in the interim and a few had other degrees. They took the course during a three-week intensive spring session.

These differences did not apply to the Clinical Procedures courses, but neither of the regressions on OCLIN yielded significant goodness of fit tests, making comparison of their relative predictive qualities meaningless.

TABLE 4A

Multiple Regression

Dependent Variable ... OGPAAA						
		Summary Table				
Variable	Multiple R	R Square	RSQ Change	Simple R	B	Beta
A280	0.74881	0.56071	0.56071	0.74881	0.5338809	0.61963
B281	0.78793	0.62083	0.06012	0.56595	0.2219850	0.27713
(Constant)					1.347418	

TABLE 4B

Multiple Regression

Dependent Variable ... OGPAAA						
		Summary Table				
Variable	Multiple R	R Square	RSQ Change	Simple R	B	Beta
A280	0.66487	0.44206	0.44206	0.66487	0.7156251	0.70831
C281	0.67486	0.45544	0.01338	−0.12545	0.1062501	0.12356
(Constant)					0.7093735	

TABLE 5A

Multiple Regression

Dependent Variable ... OCLIN

Summary Table

Variable	Multiple R	R Square	RSQ Change	Simple R	B	Beta
Y3GPA	0.43227	0.18685	0.18685	0.43227	3.316769	0.60241
Y2GPA	0.43677	0.19076	0.00391	0.32426	−2.168011	−0.33251
C384	0.44999	0.20249	0.01173	0.25601	1.533601	0.19496
(Constant)					59.63580	

TABLE 5B

Multiple Regression

Dependent Variable ... OCLIN

Summary Table

Variable	Multiple R	R Square	RSQ Change	Simple R	B	Beta
Y3GPA	0.31431	0.09879	0.09879	0.31431	0.7637189	0.18982
Y2GPA	0.32908	0.10829	0.00951	0.30448	1.509506	0.20408
D384	0.33608	0.11295	0.00466	0.10739	−0.5201762	−0.08241
(Constant)					64.68450	

SUMMARY

It was concluded that two groups of students who took the same course content from different instructors could be graded the same or differently in that course without the different instructor or grades affecting their later overall performance. Multiple regression analyses on overall clinical and academic achievement measures using grades from different instructors of the same course as one of the predictor variables yielded regression equations accounting for negligible differences in the amount of variance in the dependent variables.

Generalization of these findings to the education process in a professional training program suggests that a course can be taught by different instructors, who may even grade differently, without an effect on overall performance, as long as some consistency in course content is maintained between instructors. Committees on curriculum planning and admissions may welcome such findings as assurance that their usual criteria do not require adjustments or re-examination every time there is a staff change or a staff member goes on sabbatical leave.

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