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ABSTRACT

The purpose of this two-year study was twofold: (1) to examine the reading and study skills gains of the high school graduates, college students, and college graduates participating in the 1983 Health Careers Opportunity Program (HCOP) at the University of Tennessee Center for the Health Sciences; and (2) to compare the 1983 results with those for 1982. (HCOP was a summer program designed to reach academically talented minority or educationally disadvantaged students interested in pursuing careers in the health-care professions and to help them attain their educational goals.) Analysis of pre- and post-test results for 1983 showed that gains were made by all levels of participants. Comparison of 1982 and 1983 results revealed superior student performance levels in 1983, a phenomenon attributed to the larger pool of applicants in 1983 and to staff awareness of the assessment data for 1982, which facilitated better program focus in 1983. (RDN)

A Two-Year Analysis of Reading and Study Skills Gains During an Intensive Educational Summer Program

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INTRODUCTION

Minority and disadvantaged groups are underrepresented in the health professions (Blackwell, 1981; Curtis 1971; Hutchins et al., 1967). Even when admitted to professional schools, minority students typically experience difficulty in completing basic science course work--difficulty that creates emotional stresses (Boyle & Coombs, 1971; Fogleman & Vander Zwagg, 1981). Difficulties encountered by these students are attributed in part to the underdevelopment of study and learning skills such as time management, study-reading, notetaking, and test taking (Moore & Pentecost, 1979). The Health Careers Opportunity Program (HCOP) at the University of Tennessee Center for the Health Sciences was designed to reach academically talented minority or educationally disadvantaged students interested in pursing carreers in the health-care professions and to help them attain their educational goals. In 1982 and 1983, intensive eight-week summer HCOPs provided enrichment courses in biology, chemistry, mathematics, and English for academically talented minority and disadvantaged students selected from an applicant pool representing a nine-state region. Each summer's program also included instruction in effective learning and study methods, reading development, and test-taking strategies. The purpose of this study was twofold: first, to examine the reading and study skills gains of participants in the 1983 program and, second, to compare the reading and study skills assessment data for 1982 and 1983.

METHOD

Subjects. A total of 124 students enrolled in the HCOP particpated in the study. Of the 124 participants, 55 were enrolled in the 1982 program. The remaining 69 were participants in the 1983 program. For instructional purposes, participating students in each summer's program were divided into three levels. Levels I and II consisted of recent high school graduates and college undergraduates respectively. Level III was composed of college graduates who were anticipating immediate entry into professional schools.

Procedures and Instruments. During the first week of each summer's program a comprehensive assessment battery was administered to all students in group sessions. Included in the pre-program assessment battery were the Nelson-Denny Reading Test (N-D), Form E, and the Survey of Study Habits and Attitudes (SSHA), each of which provides norms covering the range of grade levels represented by HCOP participants. The post-program assessment battery, administered during the final week of each summer's sessions, included the SSHA and the N-D, Form F. The N-D, which measures reading skills, yields scores on three subtests: Vocabulary, Comprehension, and Reading Rate. A fourth, or "total score", combines Vocabulary and Comprehension scores. The SSHA is a 100-item inventory which measures study methods, motivation for studying, and attitudes toward important instruction-related classroom activities. The 100 items of the SSHA are grouped into four basic scales: Delay Avoidance, Work Methods, Teacher Approval, and Education Acceptance. In addition to the four basic scales, the SSHA yields three combined scores: Study Habits subtotal, Study Attitudes subtotal, and total Study Orientation.

In the six-week period between pre- and post-program assessment, all students in each summer session received instruction in the development of effective reading and study skills. As part of the standard summer curriculum, Levels I and II completed a course in English, in which vocabulary development received emphasis. Levels I and II also completed a short course in medical terminology during each summer session. The medical terminology course was not made available to Level-III students during the summer of 1982, but was added to their program of study in 1983.

Data Analysis. Scores yielded by the pre- and post-program administrations of the N-D and the SSHA were recorded for each student and subsequently converted to percentile ranks. Percentile means and standard deviations were calculated and correlation coefficients for changes between instrument administrations were computed. Finally, t-tests were performed to determine the significance of changes.

RESULTS

Table I summarizes the pre- and post-program mean percentiles of the four N-D areas for the 1983 students. Analysis of mean percentile ranks reveals the pre-program needs of the students--particularly of students in Level II--for reading instruction and indicates gains in Reading Rate between test administrations at all levels.

Table 2 displays the correlations and t-tests for changes between administrations in the four N-D areas. The t-tests show statistically significant increases in Reading Rate for all levels in the 1983 program and in Comprehension and Total score for Level II. Other gains were not statistically significant.

Table 3 presents a comparison of the N-D performance of the 1982 and 1983 HCOP participants. A noteworthy finding is that performance of the 1983 group was higher in all areas except one--the pre-program Reading Rate for Level III. Statistically significant differences were found for pre- and post-Reading Rate as well as for Comprehension in Level I. Level II had the highest pre- and post-Vocabulary and Total mean scores. Finally, Level III had the highest pre-Vocabulary and pre-Total means.

Tables 4, 5, and 6 present similar data for the SSHA. Analysis of mean percentile ranks for 1983 (Table 4) shows that, as a group, students scored above the median in the areas of Study Habits and Delay Avoidance upon entry into the summer program. After completing the program, all levels showed increases in Study Orientation, although only Level I's gains reached statistical significance (Table 5).

Comparison of the SSHA performance of 1982 and 1983 groups (Table 6) shows that the 1983 group was higher in all areas except two: post-Delay Avoidance and post-Education Acceptance. Most of the statistically significant gains were made in Level I and included pre- and post-Work Methods, post-Study Habits, post-Education acceptance, and post-Study Orientation.

INTERPRETATION

The 1983 N-D and SSHA data show that gains were made by all levels of participants between administrations. Some gains were statistically significant. More important for continued program development, however, is the fact that student performance levels in the 1983 program exceeded those of 1982. The superior performance of the 1983 group may be attributed in

part to two conditions. First, because the applicant pool in 1983 was substantially larger than that of 1982, the HCOP selections committee was able to select a highly talented group of participants for the 1983 program. Second, although the curricula of both programs were essentially the same, staff awareness of the assessment data for 1982--the first year of the HCOP's operation--probably contributed to a more appropriate program focus in 1983.

This two-year analysis shows the gains made in reading and study skills by talented minority and disadvantaged students in an intensive summer program. Further, it demonstrates the continuing development of the program over a two-year period.

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Table 1

Means and Standard Deviations of Percentiles for Pre-Program and Post-Program Administrations of the Nelson-Denny Reading Test for Three HCOP Levels (1983)

	Reading Rate		Comprehension		Vocabulary		Total	
Level	Pre	Post	Pre	Post	Pre	Post	Pre	Post
I								
M	51.3	86.6	70.0	78.6	71.9	74.9	72.8	77.4
SD	23.5	13.4	22.3	17.9	26.4	22.1	24.5	19.8
II								
M	48.6	70.1	48.3	66.1	56.5	63.3	52.7	65.7
SD	27.9	24.6	28.3	24.4	28.3	27.6	27.6	23.6
III								
M	36.3	70.7	62.5	64.3	70.2	65.2	69.2	67.1
SD	28.9	26.6	27.3	27.1	20.0	18.8	23.4	21.6

Table 2

Correlations and t-Tests of Percentiles between Pre-Program and Post-Program Administrations of the Nelson-Denny Reading Test for Three HCOP Levels (1983)

	Reading Rate		Comprehension		Vocabulary		Total	
Level	r	t	r	t	r	t	r	t
I	.16	5.53**	.61	1.28	.88	.38	.89	.62
II	.68	3.22**	.65	2.58**	.89	1.01	.90	1.99*
III	.39	4.11**	.74	.23	.83	-.85	.89	-.31

* Significant at the .05 level

** Significant at the .01 level

Table 3

T-tests Comparing 1982 and 1983 HCOP Student Performance on Pre-Program and Post-Program Administrations of the Nelson-Denny Reading Test for Three HCOP Levels

	Reading Rate		Comprehension		Vocabulary		Total	
Level	Pre	Post	Pre	Post	Pre	Post	Pre	Post
I	2.36*	4.64**	2.13*	1.78	1.54	.81	1.84	1.00
II	.93	.39	.85	2.33*	3.18**	3.88**	2.41*	3.42**
III	-.44	1.70	1.21	.55	2.71**	1.53	2.62**	1.36

NOTE: A positive t-test indicates the 1983 mean is greater than the 1982 mean.

* Significant at the .05 level

** Significant at the .01 level

Table 4

Means and Standard Deviations of Percentiles for Pre-Program and Post-Program Administration of the Survey of Study Habits and Attitudes for Three HCOP Levels (1983)

	Delay Avoidance		Work Methods		Study Habits		Teacher Approval		Education Acceptance		Study Attitudes		Study Orientation	
Level	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post
I														
M	67.5	84.1	78.5	93.2	75.0	90.8	70.0	85.8	81.1	92.4	77.9	90.8	78.9	93.3
SD	23.8	17.9	17.8	7.6	19.1	10.5	19.5	18.1	15.0	8.1	16.6	13.3	15.0	8.1
II														
M	68.9	77.1	76.8	87.0	74.4	84.6	58.5	70.4	67.7	74.7	63.0	73.9	71.8	81.7
SD	27.6	23.8	20.9	16.3	25.5	18.6	29.7	28.0	21.6	20.8	25.5	23.1	25.0	20.8
III														
M	54.8	64.6	62.6	77.1	60.7	72.7	62.3	69.1	61.5	69.5	62.2	69.8	63.5	73.8
SD	22.6	28.1	27.8	23.2	24.0	24.4	29.3	28.0	24.6	26.5	27.2	26.3	25.7	25.3

Table 5

Correlations and t-Tests of Percentiles Between Pre-Program and Post-Program Administrations of the Survey of Study Habits and Attitudes for Three HCOP Levels (1983)

	Delay Avoidance		Work Methods		Study Habits		Teacher Approval		Education Acceptance		Study Attitudes		Study Orientation	
Level	r	t	r	t	r	t	r	t	r	t	t	t	r	t
I	.56	2.37*	.04	3.21**	.40	3.08**	.75	2.52*	.56	2.82**	.75	2.57**	.28	3.59**
II	.70	1.25	.32	2.14*	.62	1.79	.69	1.63	.42	1.29	.62	1.77	.58	1.70
III	.71	1.28	.75	1.88	.73	1.65	.56	.74	.76	1.04	.65	.95	.73	1.34

* Significant at the .05 level

** Significant at the .01 level

Table 6

T-Tests Comparing 1982 and 1983 HCOP Student Performance on Pre-Program and Post-Program Administrations of the Survey of Study Habits and Attitudes for the Three HCOP Levels

	Delay Avoidance		Work Methods		Study Habits		Teacher Approval		Education Acceptance		Study Attitudes		Study Orientation	
Level	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post
I	.36	1.24	2.57**	3.48**	1.36	2.47*	.92	1.29	1.86	2.25*	1.31	1.93	1.72	2.38*
II	1.73	.08	2.78**	1.08	2.22*	.50	.46	.41	1.36	-.36	.88	.07	2.03*	.18
III	.41	-.12	.56	.62	.84	.33	2.70**	1.59	1.19	.15	2.13*	.91	1.66	.66

NOTE: A positive t-test indicates the 1983 mean is greater than the 1982 mean.

* Significant at the .05 level

** Significant at the .01 level