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ABSTRACT

A study was conducted at Butte College to determine the effectiveness of the college's assessment and placement program. Between January 1981 and summer 1982, the Nelson-Denny Reading Test and a writing sample were used in placement; while after summer 1982, the Stanford Task Tests of English and Reading Abilities were used. The primary file of data collected for the study contained information on all 3,497 students who had taken freshman composition (Eng 210) between winter 1979 and fall 1983, while the secondary file contained information on all 191 developmental English (Eng 102) classes taught from fall 1975 through summer 1983. Statistical analyses of variance revealed: (1) student achievement had significantly increased since the college instituted its basic literacy skills assessment program in January 1981; (2) assessment by writing sample seemed to be particularly effective in increasing student achievement in freshman composition and least effective in increasing achievement in developmental writing; (3) the Stanford Task instruments seemed more effective in increasing student achievement in developmental writing than in freshman composition; (4) basic skills abilities, as measured by high school grade point averages (GPA's), of students entering the college before and after assessment began were not significantly different; however, college GPA's increased significantly under both assessment programs. (AYC)

The Effect of Basic Skills Assessment on Student Achievement and Persistence at Butte College

A Research Report

March, 1984

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The Effect of Basic Skills Assessment on Student Achievement and Persistence at Butte College

Introduction

In January 1981, Butte College began a program of assessing basic literacy skills abilities for all students who wanted to register for freshman composition (ENG 210). Assessment instruments included the Nelson-Denny Reading Test and a writing sample. Scores were used to place students into appropriate levels of writing classes.

By Summer of 1982, the assessment program was expanded to include all students who wanted to register for any English or Reading class. The assessment instruments were changed to the Stanford Task Tests of English and Reading Abilities. Effective with the start of the Fall quarter, 1983, all new students who wanted to register for 9 units or more, as well as those who wanted to register for any English or Reading class, were given the assessment tests. Students are now placed into various levels of English classes based upon these scores. Further, counselors use assessment data to guide students into courses which are commensurate with student abilities.

Although conventional wisdom would indicate that an assessment and placement program should positively affect student achievement and persistence, questions are often asked about the effectiveness of both the assessment program and developmental classes into which students are

placed. This study addresses the concern of evidence of effectiveness.

Data Collection

Data were collected to form two data files. The primary file contains data on every student who has taken freshman composition (ENG 210) at Butte College between Winter quarter 1979 and Fall quarter 1983 (20 instructional terms). This file, consisting of 3497 student enrollment cases, includes: student identification number, student gender, ENG 210 class master number, the quarter ENG 210 was taken, the year ENG 210 was taken, the time of day that the ENG 210 class began, the ENG 210 class meetings per week, the location of the ENG 210 class, the ENG 210 class size, the ENG 210 teacher identification number, the ENG 210 teacher gender, part- or full-time status of the ENG 210 teacher, the grade the student received in ENG 210, the units the student completed while taking ENG 210, the units completed at Butte College as of Summer 1983, the student's Butte College grade point average as of Summer 1983, the high school the student last attended, the student's high school grade point average, the student's ACT English score, the student's SAT verbal score, the student's score on the Nelson-Denny reading assessment test, and the student's score on the Stanford Task English and Reading assessment tests.

If the student took a previous developmental writing (ENG 102) class, data were recorded including ENG 102 master number, the quarter the student took ENG 102, the year the student took ENG 102, the time of day the ENG 102 class began, the ENG 102 class meetings per week, the location of the ENG 102 class, the ENG 102 teacher identification

number, the ENG 102 teacher gender, part- or full-time status of the ENG 102 teacher, and the units the student completed while taking ENG 102.

The secondary data file contains data on every ENG 102 class taught at Butte College from Fall 1975 through Summer 1983 (32 instructional terms). This file, consisting of 191 class cases, includes the ENG 102 master number; the quarter the class was offered; the year the class was offered; the time of day the class began; the number of class meetings per week; the location where the class was taught; the teacher identification number; the teacher gender; the part- or full-time status of the teacher; and the number of credit (CR) grades, no-credit (NC) grades, withdraw (W) grades, and incomplete (I) grades assigned by the teacher.

Data for the two files were collected from grade sheets, student personnel files, assessment office records, student transcripts, schedules of classes, and microfilmed records. As such, the data are properly classified as archival. With the exception of grade point averages, placement and achievement test scores, class size, units completed, and terms between courses, the data are categorical. Data structures for the two files are shown in Tables 1 and 2 on pages 4 and 5.

Primary Data File

Data were recorded on 3497 cases of student enrollments in ENG 210 from Winter quarter 1979 through Fall quarter 1983. Student name and identification number; student gender; ENG 210 class master

TABLE 1

Primary Data File Structure

1. STID - student identification number
2. SSEX - student gender
3. CON210 - ENG 210 class master number
4. QTR210 - quarter the ENG 210 class was taken
5. YR210 - year the ENG 210 class was taken
6. TIM210 - time of day the ENG 210 class began
7. MT210 - ENG 210 class meetings per week
8. LOC210 - ENG 210 class location
9. SIZ210 - ENG 210 class enrollment
10. INS210 - ENG 210 instructor code
11. SEX210 - ENG 210 instructor gender
12. TYP210 - ENG 210 instructor part- or full-time status
13. GR210 - student grade in ENG 210
14. UNI210 - units completed while taking ENG 210
15. CON102 - ENG 102 class master number
16. QTR102 - quarter the ENG 102 class was taken
17. YR102 - year the ENG 102 class was taken
18. TIM102 - time of day the ENG 102 class was taken
19. MT102 - ENG 102 class meetings per week
20. LOC102 - ENG 102 class location
21. SIZ102 - ENG 102 class enrollment
22. INS102 - ENG 102 instructor code
23. SEX102 - ENG 102 instructor gender
24. TYP102 - ENG 102 instructor part- or full-time status
25. UNI102 - units completed while taking ENG 102
26. BCUNIT - units completed at Butte College as of Summer Session 1983
27. BCGPA - Butte College grade point average as of Summer Session 1983
28. HS - code for last high school attended
29. HSGPA - high school grade point average
30. ACT - score on English section of the ACT
31. SAT - score on verbal section of the SAT
32. NEL - score on the Nelson-Denny reading assessment examination
33. ENGPL - score on the Stanford Task English assessment examination
34. RDGPL - score on the Stanford Task Reading assessment examination
35. TRM210 - term the student enrolled in ENG 210
36. TRM102 - term the student enrolled in ENG 102

TABLE 2

Secondary Data File Structure

1. CON102 - ENG 102 class master number
2. QTR102 - quarter the ENG 102 class was scheduled
3. YR102 - year the ENG 102 class was scheduled
4. TRM102 - term the ENG 102 class was scheduled
5. TIM102 - time of day the ENG 102 class began
6. MT102 - ENG 102 class meetings per week
7. LOC102 - ENG 102 class location
8. INS102 - ENG 102 instructor code
9. SEX102 - ENG 102 instructor gender
10. TYP102 - ENG 102 instructor part- or full-time status
11. CR - number of credit grades assigned in the class
12. NC - number of no-credit grades assigned in the class
13. W - number of withdraw grades assigned in the class
14. I - number of incomplete grades assigned in the class

number; the quarter, year, and time of day of the ENG 210 class; the ENG 210 instructor name, identification number, gender, and part- or full-time status; and the student's grade in ENG 210 were recorded from the ENG 210 grade sheets. Student transcripts were then examined to determine whether the student had taken a previous ENG 102 class and to record the units completed while taking ENG 210, the units completed at Butte College as of Summer 1983, and the student's Butte College grade point average as of Summer 1983. Student personnel files were examined to record which high school the student had last attended; the high school grade point average; and the student's scores on the ACT English test, the SAT verbal test, and the Nelson-Denny reading test. Stanford Task English and Reading assessment test scores were recorded from assessment office records. Class location and beginning times were recorded from archival class schedules. Microfilm records were used to record data on students whose files were inactive.

If the student had received a credit grade in a previous ENG 102 class, the quarter and year of the student's enrollment were recorded from the student's transcript. If the student had repeated ENG 102, data were recorded only on the most recent successful class completion prior to the ENG 210 class. The number of units which the student completed while taking the ENG 102 class was also recorded from the transcript. The student was then traced by name and identification number through the ENG 102 grade sheets for the appropriate quarter and year to record data on ENG 102 master number, the number of class meetings per week, the instructor name and identification number, the instructor gender, and the part- or full-time status of the instructor.

Class location and time of day the class began were recorded from archival class schedules. Quarters and years of class offerings were used to code term identification numbers, which were later used to compute the number of terms between classes.

Secondary Data File

Data were recorded on 191 cases of ENG 102 classes from Fall quarter 1975 through Summer Session 1983. The course master number, the quarter the class was offered, the year the class was offered, the time of day the class began, the number of class meetings per week, the class location, the teacher identification number, the teacher gender, the part- or full-time status of the teacher, and the number of credit (CR) grades, no-credit (NC) grades, withdraw (W) grades, and incomplete (I) grades assigned by the teacher were recorded from ENG 102 grade sheets.

Data Analysis

The data files were analyzed using the analysis of variance program available in the Statistical Package for the Social Services (SPSS) library of programs. Analyses were carried out on the Butte College DEC PDP-11 instructional computer.

Findings

1. **Neither assessment program significantly affected withdrawal rates in developmental writing (ENG 102).**

The 43 classes which were offered during the period in which students were assessed by writing samples had an average drop rate of

19.21%. The 146 classes which were offered outside this period had an average drop rate of 16.27%. This difference is not significant (F=1.52, significance=.217).

The 29 classes which have been offered during the period in which students were assessed by the Stanford Task tests had an average drop rate of 20.33%. The 160 classes which were offered outside this period had an average drop rate of 16.33%. This difference is not significant (F=2.085, significance=.146).

2. **The percent of credit grades in developmental English (ENG 102) was not significantly affected by writing sample assessment.**

The 43 classes which were offered during the period in which students were assessed by the writing sample had an average credit (success) rate of 62.66%. The 146 classes which were offered outside this period had an average credit (success) rate of 58.99%. This difference is not significant (F=1.223, significance=.270).

3. **The percent of credit grades in developmental English (ENG 102) has increased significantly since implementing the Stanford Task instruments.**

The 29 classes which have been offered since this assessment program began had an average credit (success) rate of 67.16%. The 160 classes which were offered prior to this program had an average credit (success) rate of 58.49%. This difference is significant (F=5.139, significance=.023).

4. **The percent of no-credit grades in developmental English (ENG 102) decreased significantly during the period the writing sample was used.**

The 43 classes which were offered during the period in which students were assessed by the writing sample had an average no-credit (NC) rate of 17.34%. The 146 classes which were offered outside this period had an average no-credit (NC) rate of 24.29%. This difference is significnt (F=4.848, significance=.027).

5. **The percent of no-credit grades in developmental English (ENG 102) decreased significantly since implementing the Stanford Task instruments.**

The 29 classes which have been offered since this assessment program began had an average no-credit (NC) rate of 12.02%. The 160 classes which were offered prior to this program had an average no-credit (NC) rate of 24.65%. This difference is significant (F=12.272, significance=.001).

6. **The percent of incomplete (I) grades in developmental English (ENG 102) was not significantly affected by either assessment program.**

The 43 classes which were offered during the period in which students were assessed by writing samples had an average incomplete (I) rate of .79%. The 146 classes which were offered outside this period had an averge incomplete (I) rate of .45%. This difference is not significant (F=.667, significance=.420).

The 29 classes which have been offered since the Stanford Task instruments were implemented had an average incomplete (I) rate of .49%. The 160 classes which were offered prior to this program had an average incomplete (I) rate of .53%. This difference is not significant (F=.008, significance=.890).

7. Average developmental English (ENG 102) class size has not changed significantly during the period of either assessment program.

The 43 classes which were offered during the period in which students were assessed by writing samples had an average enrollment of 20.44. The 146 classes which were offered outside this period had an average enrollment of 20.80. This difference is not significant (F=.055, significance=.801).

The 29 classes which have been offered since the Stanford Task instruments were implemented had an average enrollment of 20.38. The 160 classes which were offered prior to this program had an average enrollment of 20.78. This difference is not significant (F=.051, significance=.807).

8. Students who were enrolled in developmental English (ENG 102) during the period when the writing sample was used did not get significantly higher grades in a subsequent freshman composition (ENG 210) course.

The 232 students who took ENG 102 during the period in which the writing sample was used were assigned an average ENG 210 grade of 2.58 on a 4.00 scale. The 477 students who took ENG 102 outside this period were assigned an average ENG 210 grade of 2.54 on a 4.00 scale. This difference is not significant (F=.308, significance=.586).

9. Students who were enrolled in developmental English (ENG 102) since the Stanford Task instruments were implemented got significantly higher grades in a subsequent freshman composition (ENG 210) course.

The 134 students who were enrolled in developmental English (ENG 102) since the implementation of the Stanford Task instruments were assigned an average ENG 210 grade of 2.72 on a 4.00 scale. The 575 students who were enrolled in developmental English (ENG 102) outside of this period were assigned an average ENG 210 grade of 2.51 on a 4.00 scale. This difference is significant (F=5.936, significance=.014).

10. **Students who were enrolled in developmental English (ENG 102) during both assessment programs showed a higher, but not a statistically significantly higher, persistence in a subsequent freshman composition class.**

Eighty-two percent of the 282 students who took ENG 102 during the period in which the writing sample was used persisted in the subsequent ENG 210 class. Eighty percent of the 598 students who took ENG 102 outside this period persisted in the subsequent ENG 210 class. This difference is not significant (F=.496, significance=.488).

Eighty-five percent of the 162 students who took ENG 102 during the period since the Stanford Task test were implemented persisted in the subsequent ENG 210 class. Eighty percent of the 718 students who took ENG 102 before this period persisted in the subsequent ENG 210 class. This difference is not significant (F=1.72, significance = .187).

11. **Students who enrolled in freshman composition (ENG 210) during the period when the writing sample was used received significantly higher grades in that class.**

The 707 students who enrolled in and completed ENG 210 during the period in which the writing sample was used received an average

grade of 2.82 on a 4.00 scale. The 2148 students who enrolled in and completed ENG 210 outside this period received an average grade of 2.58 on a 4.00 scale. This difference is significant (F=30.368, significance <.001).

12. **Students who enrolled in freshman composition (ENG 210) since the Stanford Task instruments were implemented received higher, but not statistically significantly higher, grades in that class.**

The 636 students who enrolled in and completed ENG 210 since the Stanford Task instruments were implemented received an average grade of 2.69 on a 4.00 scale. The 2148 students who enrolled in and completed ENG 210 before this period received an average grade of 2.58 on a 4.00 scale. This difference is not significant (F=2.05, significance=.148).

13. **Students who enrolled in freshman composition (ENG 210) during the period when the writing sample was used showed higher, but not statistically significantly higher, persistence in that course.**

Eighty-four percent of the 843 students who enrolled in ENG 210 during this period persisted to completion in that class. Eighty-one percent of the 2654 students who enrolled in ENG 210 outside this period persisted to completion in that class. This difference is not significant (F=2.512, significance=.109).

14. **Students who have enrolled in freshman composition (ENG 210) since the Stanford Task instruments were implemented persist in that course at about the same rate as before the assessment program.**

Eighty-one percent of the 798 students who enrolled in ENG 210 since the Stanford Task instruments were implemented persist to completion in that course. Eighty-two percent of the 2699 students who

enrolled in ENG 210 prior to this assessment program persisted to completion in that course. This difference is not significant (F=1.26, significance=.261).

15. **Student abilities as measured by high school grade point averages were not significantly different during the period in which either assessment program was in effect.**

The mean high school grade point average of 375 students who enrolled in ENG 210 during the period in which the writing sample was used was 2.77 on a 4.00 scale. The mean high school grade point average of 1251 students who enrolled in ENG 210 outside this period was 2.78 on a 4.00 scale. This difference is not significant (F=.088, significance=.760).

The mean high school grade point average of 296 students who enrolled in ENG 210 since the Stanford Task instruments were implemented was 2.77 on a 4.00 scale. The mean high school grade point average of 1330 students who enrolled in ENG 210 prior to this period was 2.78 on a 4.00 scale. This difference is not significant (F=.238, significance=.631).

16. **Student achievement as measured by Butte College grade point averages was significantly higher during the period of both assessment programs.**

The mean Butte College grade point average of the 843 students who enrolled in ENG 210 during the period in which the writing sample was used was 2.92 on a 4.00 scale. The mean Butte College grade point average of the 2654 students who enrolled in ENG 210 outside this period was 2.79 on a 4.00 scale. This difference is significant (F=16.12,

significance=.000).

The mean Butte College grade point average of the 798 students who enrolled in ENG 210 since the Stanford Task instruments were implemented was 2.88 on a 4.00 scale. The mean Butte College grade point average of the 2699 students who enrolled in ENG 210 prior to this period was 2.80 on a 4.00 scale. This difference is significant (F=5.223, significance=.021).

Conclusions

Student achievement at Butte College has significantly increased since the college instituted basic literacy skills assessment programs. Assessment by writing sample seems to be particularly effective in increasing student achievement in freshman composition and least effective in increasing student achievement in developmental writing. The Stanford Task instruments seem to be particularly effective in increasing student achievement in developmental writing and least effective in increasing student achievement in freshman composition.

Both programs appear to be effective in increasing student achievement as measured by Butte College grade point average. The basic skills abilities, as measured by high school grade point averages, of students entering Butte College before and after assessment began were not significantly different; however, Butte College grade point averages increased significantly under both assessment programs. Presumably, early diagnosis of basic skills weaknesses, in combination with a placement program whereby these weaknesses can be corrected, has a positive impact throughout their college experience. Assessment data

may also help students and their counselors to decide which classes are most appropriate for the student.

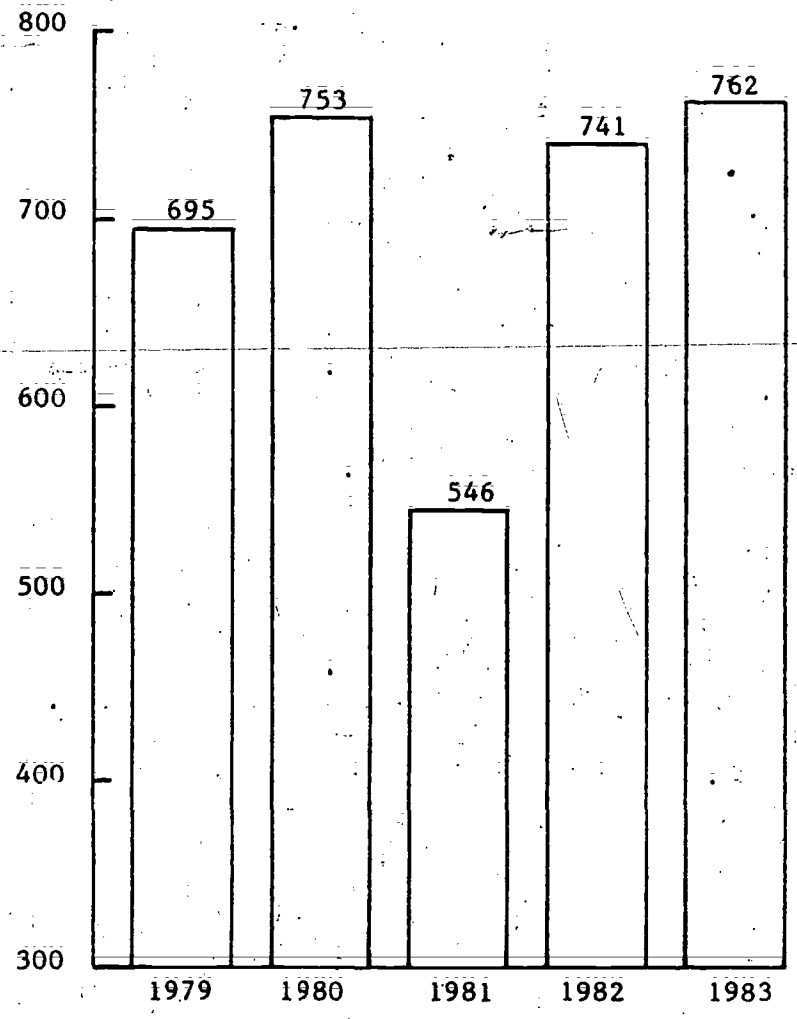


Figure 19. Freshman Composition Enrollments by Year

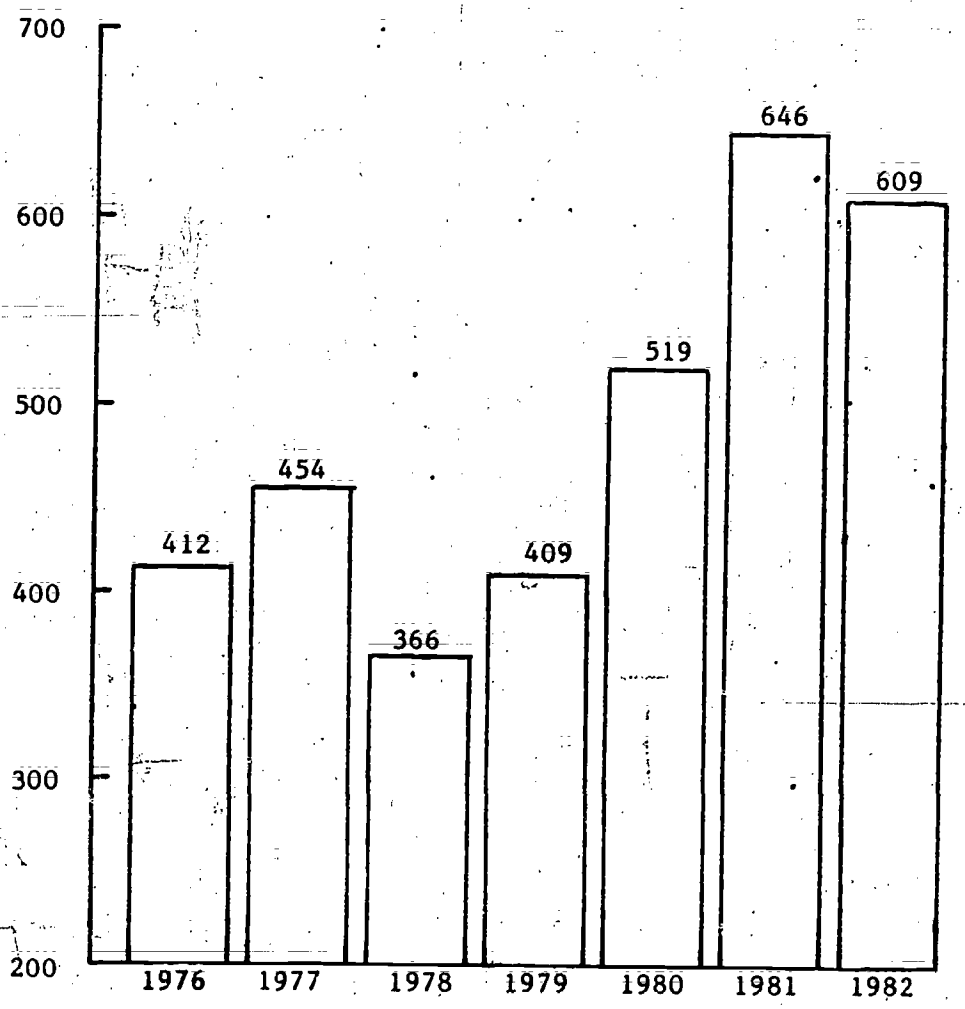
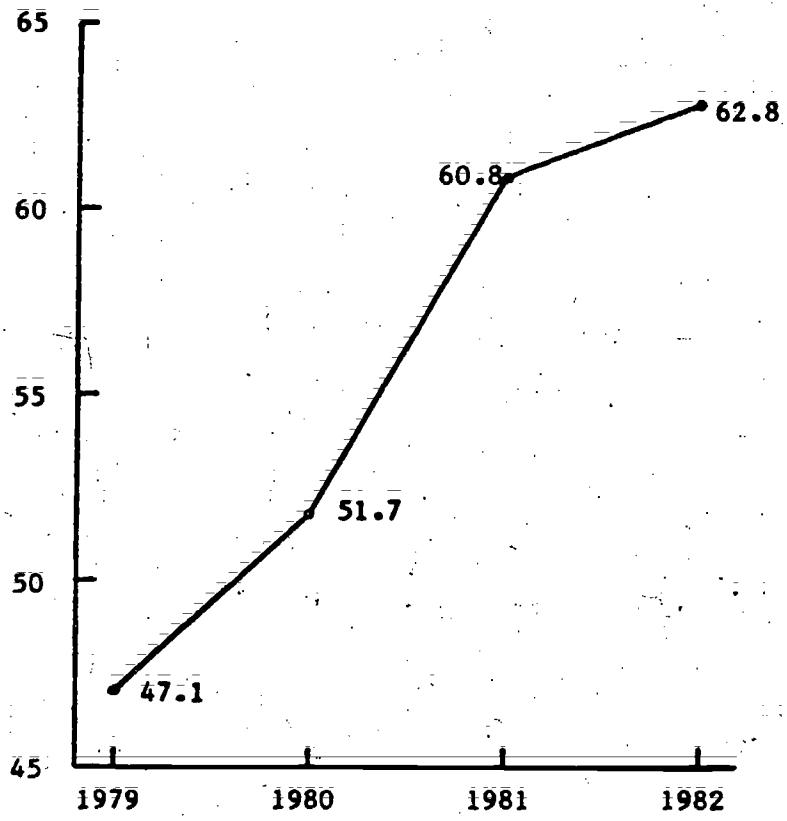


Figure 20. Developmental Writing Enrollments by Year



Percent Credit Grades in Developmental English by Year

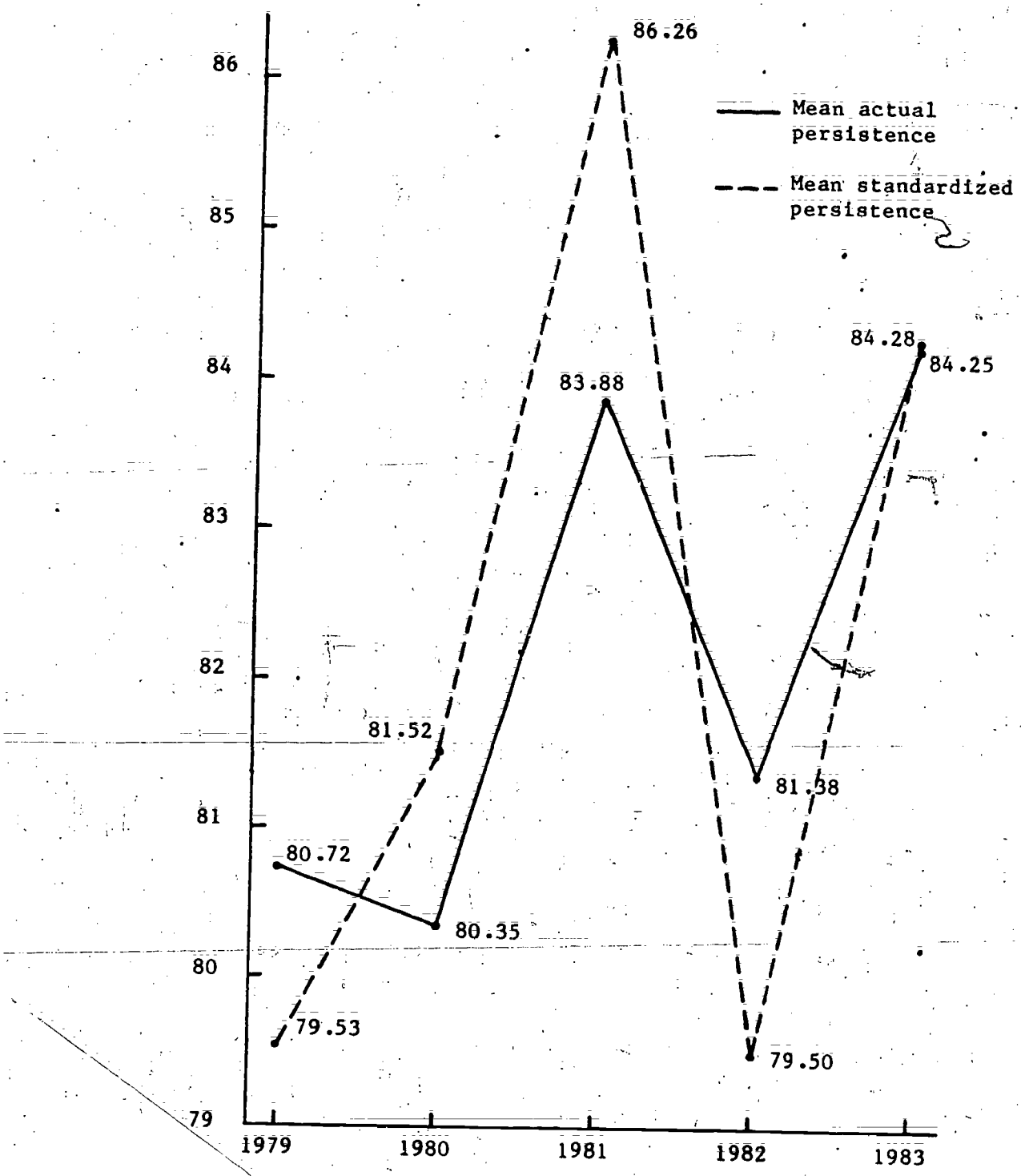


Figure 21. Mean Persistence Percentages in Freshman Composition by Year

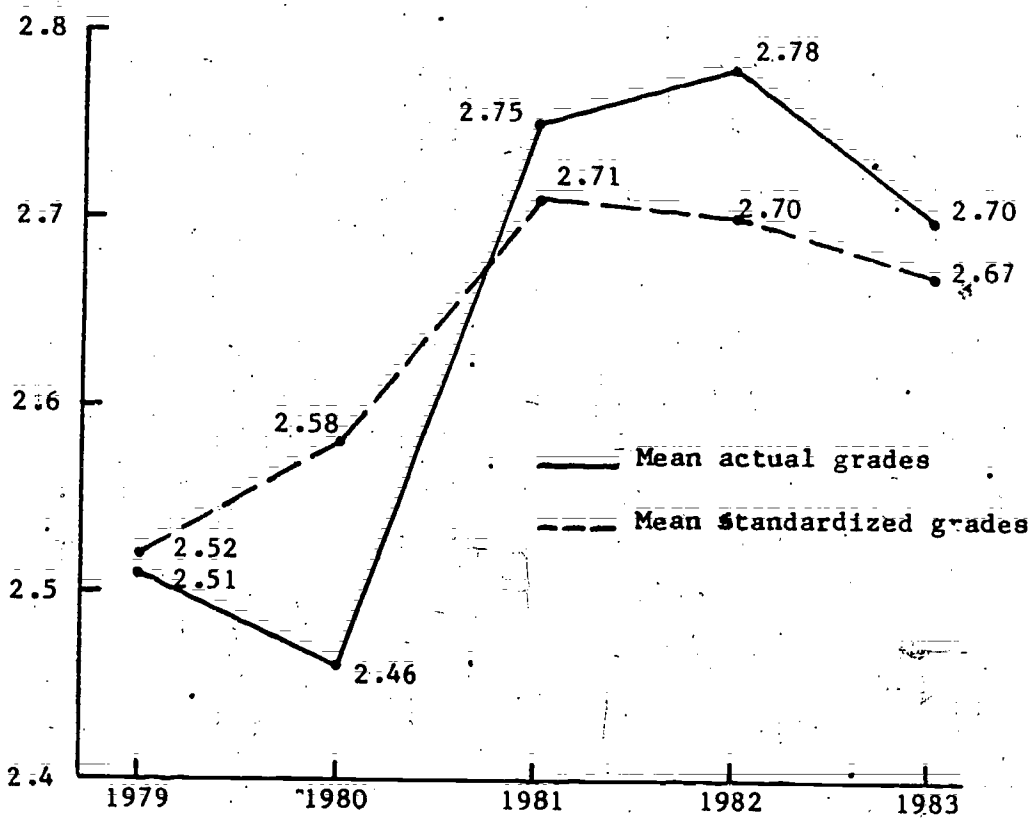
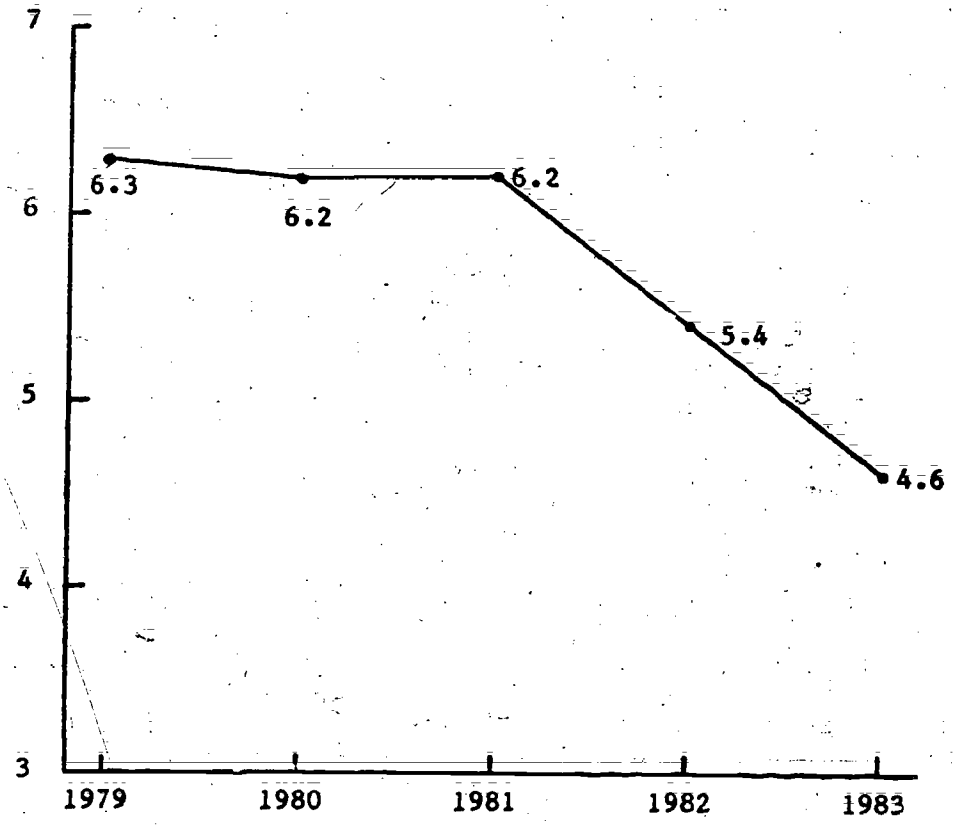


Figure 22. Mean Grades in Freshman Composition by Year



Percentage of Repeaters in Freshman Composition by Year