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# A STUDY OF THE EFFECTS OF COLLEGE- IMPOSED WORK-STUDY PROGRAMS ON GRADE POINT AVERAGES OF SELECTED STUDENTS AT WESTERN WASHINGTON STATE COLLEGE

*Margaret Gaston*

Public higher education today faces the unprecedented challenge of utilizing vast quantities of new knowledge as well as accommodating large numbers of students who seek admission to colleges and universities. Public colleges and universities educate three out of four people attending college. The AAUP estimated in 1968 that one-third of the student population used financial aid in order to consider higher education. Studies indicate that twice as high a proportion of high school seniors from the lowest income quartile hoped to attend college in 1966 as compared with 1959 (23 percent and 46 percent respectively), and the number in the second lowest quartile rose from 40 to 52 percent in the same time.<sup>1</sup>



Mrs. Gaston is currently an instructor of office occupations for Skagit Valley College in Washington. Her study which appears in this issue of the Journal was completed in partial fulfillment for a master's degree, the research being done while the author served an internship in the financial aids office at Western Washington State College.

1. Steif, William, "NDEA Effectiveness Measured by People As Well As Programs." *College and University Business*, September, 1968.

A basic assumption seems to be evolving that training beyond high school completion is the right of every citizen. Time will determine whether or not the taxpayer can continue to expand a subsidy that has cost \$200 million a year for college loans since 1965.<sup>2</sup> Over the years, modifications to financial aid guidelines have provided certain changes in funding and eligibility.

One modification in funding was the transfer of the work-study program from the Office of Economic Opportunity to the Office of Education. This provided certain funds for financial aid ear-marked for the creation of part-time employment for college students. The premise is that a student employed part-time can earn immediate money to offset costs.

Does a work-study requirement handicap a student in achieving his educational goals? If so, this could raise the question: Do students who apply for financial aid have an equal opportunity to an education? If a work-study requirement does not handicap a student, there are strong implications for recommendations to expand work-study programs, rather than have students borrow substantial amounts of money on a long-range basis.

In order to have local data to consider in the evaluation of financial aid policies at Western Washington State College in 1970, a study was initiated to compare two matched groups of students for one academic year and chart the performance of each subject; and then to compare each individual's performance with his own previous record, with his "matched other", and to compare the performance of each group. The one variable imposed was that one group of men and women students had specified employment requirements, while the group of students matched to them, did not have specified employment requirements.

Limitations of the study were to consider only "imposed work-study requirements" as there was no means to check the hours of part-time employment that members of *either* group may have performed occasionally in the community, in the business community, or in the agricultural area peripheral to the city of Bellingham. However, the college payroll records were researched for names of individuals in the control group who could have been employed on a part-time, voluntary basis in areas not designated for work study. None of these students was employed by Western Washington State College.

#### *Survey of the Literature*

A survey of the literature reveals that many studies have been researched over the years with regard to whether or not college achievement was helped or hindered by part-time employment. The consensus of the research is that part-time employment has no detrimental effect on college grades.

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2. Steif, William, "Who Pays for Rising College Aspirations?" *College and University Business*, June, 1969.

Studies fall principally into three categories:

1. Research conducted prior to passage of the National Defense Student Loan Act. A large proportion of these studies were at community colleges, and private religious colleges; (H. B. Baker, 1941; E. J. Brantley, 1957; R. E. Silver, 1956; W. R. Wood, 1949) although some were conducted at state universities (C. A. Berry, 1954; Dickerson and Newbegin, 1959; Isaacson and Amons, 1957; R. Keene, 1958).

2. Research conducted to measure performance of entering freshmen who did not work for money. (W. E. Budd, 1956; Dickinson and Newbegin, 1960; J. B. Henry, 1967; Kaiser and Bergen, 1959; D. L. Trueblood, 1957; E. G. Williamson, 1937.)

3. Research conducted to determine the long-range benefits of part-time employment, either in educationally-related employment; (F. C. Adams, 1965; D. L. Trueblood, 1956) or in intern-type jobs with possibilities of developing into full-time employment for the same or similar-occupation employer. (C. Dickinson, 1963; L. B. Bradshaw, 1964)

There is one interesting contrast in the conclusions of two researchers, which illustrates the different criteria for financial aid eligibility over thirty years in time. E. G. Williamson's *College Grades and NYA Scholarships*, 1937, and J. B. Henry's *Part-Time Employment and Academic Performance*, 1967, are published evidence of the modifications to financial aid guidelines that have evolved.

#### HYPOTHESIS

The hypothesis of this particular study at Western Washington State College in 1970 is:

There is no appreciable difference in the academic achievement of students employed for a reasonable number of hours each week on a part-time basis, and the academic achievement of students who are not employed, while attending college on a full-time basis.\*

#### Definitions

1. "Reasonable number of hours" would consist of regular working hours of not more than fifteen hours a week, as established by the work-study program.

2. "Full-time college student" refers to students enrolled in courses requiring from twelve to sixteen hours of attendance each week.

#### The Design

The study was an *ex post facto* design, using records from the Financial Aids Office and the registration and data processing areas of Western Washington State College, Bellingham, Washington.

#### Population and Sample

Two groups of students were selected at junior-senior class level in the fall of 1968. These students had completed both freshman and sophomore years — or five out of six quarters — at Western Washington State College.

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\* As defined by the Western Washington State College catalog.

The experimental group, Group 1, was employed during their junior year. The control group, Group 2, was matched individually to students from Group 1 on the basis of same sex, same quarter credits accumulated, and same grade point average. Group 1 was, in fact, a captive group in the records of Financial Aids. The group was composed of all students on the work-study program who met the previously-stated criteria. They numbered thirty-five.

*Procedure*

Critical matching factors were determined on the following basis:

1. Students who had attended five out of six quarters at the same college had a common background of general education requirements, thereby restricting the variable of different basic classes and/or grading practices.
2. Same sex. There is no conclusive evidence to prove or disprove theories regarding the superiority of intelligence of one or the other sex.
3. Accumulated credit hours. Juniors were chosen because they had survived two years of college, and had completed a majority of general college requirements.
4. Grade point average.

*Collection of the Data*

Printout sheets were run at the completion of spring quarter 1969, listing only students whose number was prefixed 664, which indicated they entered the fall quarter of 1966. The matching was performed on an individual basis. Each student in the experimental group was listed on his/her own research sheet, with name followed by accumulated credit hours and grade point average. The printout sheets were researched to find another student of the same sex with the same, or very similar accumulated credit hours and g.p.a. The matching student's name was then listed on the same research sheet with the experimental "matched other". Sequential information, beginning with g.p.a. and rank from high school, and progressing quarter by quarter at Western Washington State College, was recorded. Data for the completion of the sophomore and junior years were prominently placed in order to be easily read.

Each research sheet was inspected to determine if the g.p.a. had risen or dropped at the completion of the junior year, in comparison with the sophomore year. The sign test<sup>3</sup> was employed to indicate an increase + or a decrease - for this stated period of time.

Changes in the grade point averages during the course of the one academic year, 1968-1969, are summarized here:

|               | Group 1 | Group 2 |
|---------------|---------|---------|
| G.P.A. Gain + | 21      | 24      |
| G.P.A. Loss - | 14      | 9       |
| Unchanged     | 00      | 2       |

(Frequency tables that give the specific data follow.)

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3. Barnes, Fred P. *Research for the Practitioner in Education*. Washington, D. C. Department of Elementary School Principals. National Education Association, 1964.

Range and Frequency of Discrepancies  
Credit Hours: Women

|                         |          |
|-------------------------|----------|
| Identical Match         | 6 pairs  |
| One credit difference   | 8 pairs  |
| Two credit difference   | 3 pairs  |
| Three credit difference | 5 pairs  |
| Four credit difference  | 2 pairs  |
| Five credit difference  | 1 pair.  |
| Six credit difference   | 0 pair   |
| Seven credit difference | 1 pair   |
| Frequency =             | 26 pairs |
| N =                     | 1.88*    |

Grade Point Average: Women

|                 |          |
|-----------------|----------|
| Identical match | 4 pairs  |
| .01 difference  | 7 pairs  |
| .02 difference  | 5 pairs  |
| .03 difference  | 2 pairs  |
| .04 difference  | 5 pairs  |
| .05 difference  | 1 pair   |
| .06 difference  | 1 pair   |
| .07 difference  | 1 pair   |
| Frequency =     | 26 pairs |
| N =             | .0234*   |

Credit Hours: Men

|                         |         |
|-------------------------|---------|
| Identical Match         | 5 pairs |
| One credit difference   | 1 pair  |
| Two credit difference   | 2 pairs |
| Three credit difference | 0 pair  |
| Four credit difference  | 1 pair  |
| Frequency =             | 9 pairs |
| N =                     | .031*   |

Grade Point Averages: Men

|                 |         |
|-----------------|---------|
| Identical Match | 3 pairs |
| .01 difference  | 1 pair  |
| .02 difference  | 1 pair  |
| .03 difference  | 1 pair  |
| .04 difference  | 0 pair  |
| .05 difference  | 0 pair  |
| .06 difference  | 1 pair  |
| .07 difference  | 1 pair  |
| .08 difference  | 0 pair  |
| .09 difference  | 1 pair  |
| Frequency =     | 9 pairs |
| N =             | .031*   |

\* Note: N was obtained by multiplying each item by its frequency and dividing the sum total for each category by its base for that category -- which was 26 for women, 9 for men.

*Treatment of the Data*

In order to establish statistical significance, a simple chi-square and phi coefficient was performed on the data. Statistical conversion tables indicated this data to be significant at the .25 level.<sup>4</sup> The null hypothesis was therefore accepted. Analysis of sub groups was completed by application of Wilcoxon's T Statistics for Sign-Rank tests,<sup>5</sup> to interpret gain or loss.

Comparison of Sub Groups

| Group         | Sum of Negative Ranks | Sum of Positive Ranks | Level of Significance |
|---------------|-----------------------|-----------------------|-----------------------|
| Group 1 Men   | 13                    | 29                    | 0                     |
| Group 2 Men   | 3                     | 30                    | .02                   |
| Group 1 Women | 42                    | 133                   | .01                   |
| Group 2 Women | 36                    | 115                   | .01                   |

Analysis of Sub Groups by G.P.A.

The thirty-five students who comprised Group 1 were analyzed as a group and these observations noted at the point of matching, which was the completion of the junior year:

23 of the 35 (or 65%) had g.p.a.'s between 2.0 - 3.0

12 of the 35 (or 35%) had g.p.a.'s above 3.0

Further analysis produced these observations of the above:

17 of the 23 gained in g.p.a. during the year (74%)

6 of the 23 had a loss in g.p.a. (26%)

The 12 students that began with a g.p.a. above 3.0:

7 of the 12 gained in g.p.a. (59%)

5 of the 12 regressed in g.p.a. (41%)

Group 2 had the same ratio of students in the 2.0-3.0 range. They were distributed in this way:

18 of the 23 gained (78%)

4 of the 23 lost (17%)

1 remained constant (4%)

The 12 students in the 3.0 and above range were distributed:

6 of the 12 gained (50%)

5 of the 12 lost (42%)

1 remained constant (8%)

*Men in Groups 1 and 2*

The nine matched pairs of men had records of gain or loss as follows:

|                    |      |           |      |
|--------------------|------|-----------|------|
| Group I mean gain  | .172 | mean loss | .12  |
| Group II mean gain | .178 | mean loss | .015 |
| Difference         | .006 |           | .105 |

*Women in Groups 1 and 2*

|                    |      |           |      |
|--------------------|------|-----------|------|
| Group I mean gain  | .106 | mean loss | .06  |
| Group II mean gain | .096 | mean loss | .054 |
| Difference         | .01  |           | .006 |

4. Bruning, James L. and Kintz, B. L. *Computational Handbook of Statistics*. Palo Alto: Scott, Foresman and Company, 1968, pages 220-221.

5. *Ibid*, pages 205-206.

## SUMMARY

The purpose of the study was to determine if present financial aid policies, with regard to work-study requirements, are reasonable; or if students who are required to perform ten to fifteen hours of employment each week are not receiving an equal opportunity to an education, when compared with students who do not have an imposed employment requirement.

### *Results*

1. The chi-square tests to compare Group I and Group 2 men and women indicated that there was no appreciable difference in the records of the two groups during the course of the one academic year, 1968-1969. The null hypothesis was confirmed.

2. Results of the Sign Test for Differences in Two Related Samples was performed to assess the proportion of gain or loss in g.p.a. by sub groups. The findings were:

All subjects tended to improve in academic performance during the junior year, with the exception of men with a work-study requirement. There was statistical significance indicating improvement for the three other groups.

3. Students in the 2.0 to 3.0 grade average category tended to improve their performance to a greater extent than students in the 3.0 or higher category, regardless of whether or not they were employed. Thorndike's explanation for achievement discrepancy scores points out that students who are already near the top have only a few ways to go up and a great many ways to go down.<sup>6</sup>

### *Implications of the Findings*

Current financial aid policies would appear to be reasonable in these respects:

- a. Students who worked part time performed as well as students who were not required to work part time. Work study requirements are therefore in order.
- b. Students in the 2.0-3.0 category performed well in both groups, thereby lending support to the policy of no g.p.a. restrictions for financial aid, other than being eligible to remain in college.

The results of the study have implications beamed toward further research into the circumstances, life styles, and goals of students who apply for college loans, in order to contribute data for more specific guidelines for consideration of human factors of need analysis. These guidelines would add another dimension to the national endeavor to create an equal opportunity to an education for all who seek it.

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