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ABSTRACT

A study was conducted in order to determine if the success of full-time, associate degree students at Forsyth Technical Institute, as reflected by grade point average, was related to the number of hours per week that such students were employed. The fall 1976 grade point averages of random samples drawn from a population of 783 students were grouped according to the number of hours per week that the students were employed. Statistical analysis of the relationship between employment and grade point average was performed, controlling for such additional variables as year in school, years since high school graduation, sex, and selected curricula. Results indicated a relationship between grade point average and hours per week of employment only for first-year students. It was found that those students employed 1-13, 14-26, and 40 hours or more per week had higher grades than did unemployed students. However, those employed 27-39 hours per week had lower grades than unemployed students. It was recommended that counselors be aware of both the apparent beneficial and detrimental aspects of student employment when advising entering students and other students with academic difficulty. (Author/JDS)

THE EFFECT OF EMPLOYMENT ON THE GRADES OF STUDENTS IN ASSOCIATE DEGREE PROGRAMS AT FORSYTH TECHNICAL INSTITUTE

by

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Chapter 1

INTRODUCTION

It is a widely held opinion among instructors at Forsyth Technical Institute, Winston-Salem, North Carolina, that students who hold a job while carrying a full class load are at a disadvantage. Research to support or refute this opinion is very sparse.

The purpose of this study was to search for a relationship between the success of associate degree students, as measured by their grade point average (GPA), and their employment status. The questions to be answered were:

1. Are student GPAs related to the number of hours per week that the students are employed?

2. Do the factors of year in school, curriculum, years since high school graduation or sex have any bearing on that relationship?

The population studied consisted of those students carrying twelve or more credit hours during the fall quarter of 1976. The GPAs for the fall quarter were grouped according to hours per week employed and variable to be controlled and compared using Student's t-test.

Chapter 2

BACKGROUND AND SIGNIFICANCE

The average age of students entering the two-year college has increased during the past few years. From a nationwide sampling, Bushnell (1973:22) reports that the proportion of students over twenty-one years old increased from 7 percent in 1967 to 25 percent in 1971. In a study of students in North Carolina Community Colleges and Technical Institutes, Shearon, Templin and Daniel (1973:72-73) report that:

> In 1968, 74% of all curriculum students were under 23 years of age. By 1974 this tendency toward serving mainly younger students had shifted, with the largest increases occurring in the 26-39 age group.

Their data indicates that in 1974 only 44 percent of curriculum students were under 23 years old.

The older student brings with him different, if not more, problems than the younger student. The pressures of early adulthood have replaced those of late adolescence. Or, as Sheehy (1976:38,85) describes it, the student is "getting started" instead of "breaking away." Among the most formidable of these problems is the economics of living as an individual without parental support or of starting a family. As the average age has gone up, the percentage of married curriculum students, as reported by Shearon, Templin and Daniel (1976:73), has increased from 28 percent in 1968 to 51 percent in 1974.

It is not unexpected then, that a large proportion of today's

two-year college students are employed. Again from Shearon, Templin and Daniel (1976:111):

> Among curriculum students, 45% were employed full time, 25% were working part time, and 22% were unemployed. Of those who were working, 57% spent 40 or more hours per week on the job and 36% worked between 10 and 39 hours.

It would seem that any activity requiring such a large part of the student's time would affect his performance in school. Some knowledge of the relationship, if any, between hours of employment per week and grades would be useful in counseling entering students and students having academic or financial difficulty. According to Charles R. King, Director of Student Personnel at Forsyth Technical Institute, help is needed in answering the following questions:

1. How many hours can a student work and maintain a GPA commensurate with his ability to learn?

2. What type of part-time work (in terms of hours or schedules) should be developed for students?

3. Should part-time work be encouraged in the financial aid package for students?

4. How much emphasis should counselors put on part-time work when counseling students on academic probation?

Recent literature is almost totally lacking on the relationship between hours of employment and GPA. In the only related study found, Deal (1973:50) reports that students carrying 12-15 credit hours and working forty or more hours per week did better than those carrying the same load but working only 27-39 hours per week. He also found that college transfer students (as opposed to two-year technical students) working 14-26 hours per week did better than those working forty or more hours per week.

If the present trend toward older students continues, knowledge of the effect of employment on success in school will become more important. In order to better serve the student, educational institutions must be aware of the pressures that affect his ability to learn.

Chapter 3

PROCEDURES

The population in this study was limited to students enrolled for twelve or more credit hours in associate degree programs. The research questions addressed were as follows:

1. Are student GPAs related to the number of hours per week that the students are employed?

2. Do the factors of year in school, curriculum, years since high school graduation or sex have any bearing on the relationship between GPA and number of hours per week employed?

As a guide to grouping and analyzing data, the following null hypotheses were made:

1. The mean GPA of students not employed is no different from the mean GPA of employed students.

2. The mean GPA of first-year students not employed is no different from the mean GPA of employed first-year students.

3. The mean GPA of second-year students not employed is no different from the mean GPA of employed second-year students.

4. The mean GPA of Engineering Technology, Associate Degree Nursing, and Business Administration students not employed is no different from the mean GPA of employed students in the same curriculums.

5. When isolating the variables of sex and years since high school graduation, the mean GPA of students not employed is not different from the mean GPA of employed students.

The data used was contained in a listing of all students registering for the winter quarter of 1976-77. During the registration process students verified or updated the information about their employment status. A list was made of 783 students fitting the description of the population to be studied. From that list the GPAs earned during the fall quarter of 1976 were assembled into the following groups:

All Students Not Employed

All Students Employed 1-13 Hours Per Week

All Students Employed 14-26 Hours Per Week

All Students Employed 27-39 Hours Per Week

All Students Employed 40 or More Hours Per Week

First-Year Students Not Employed

First-Year Students Employed 1-13 Hours Per Week

First-Year Students Employed 14-26 Hours Per Week

First-Year Students Employed 27-39 Hours Per Week

First-Year Students Employed 40 or More Hours Per Week

Second-Year Students Not Employed

Second-Year Students Employed 1-13 Hours Per Week

Second-Year Students Employed 14-26 Hours Per Week

Second-Year Students Employed 27-39 Hours Per Week

Second-Year Students Employed 40 or More Hours Per Week

Engineering Technology Students Not Employed

Engineering Technology Students Employed

Associate Degree Nursing Students Not Employed

Associate Degree Nursing Students Employed

Business Administration Students Not Employed

Business Administration Students Employed

Male Students Four Years or More Out of High School and Not Employed

Male Students Four Year or More Out of High School and Employed Forty or More Hours Per Week

Male Students Three Years or Less Out of High School and Not Employed

Male Students Three Years or Less Out of High School and Employed 1-26 Hours Per Week

Male Students Three Years or Less Out of High School and Employed 27-40 or More Hours Per Week

Female Students Four Years or More Out of High School and Not Employed

Female Students Four Years or More Out of High School and Employed Forty or More Hours Per Week

Female Students Three Years or Less Out of High School and Not Employed

Female Students Three Years or Less Out of High School and Employed 1-26 Hours Per Week

Female Students Three Years or Less Out of High School and Employed 27-40 or More Hours Per Week

Each group was inserted into a matrix to facilitate random sampling using a table of random numbers. Samples were drawn from each group and comparisons were made between the GPAs of students not employed and the GPAs of similar employed students.

Student's t-test (two-tailed) was applied to the samples from each pair of groups compared. Student's t-test was selected for its value, according to Li (1968:100), in testing the null hypothesis that two samples belong to the same population. The mathematical analysis was done on a Hewlett-Packard Model 9810 programmable calculator.

A limitation on this study was the lack of data on students who withdrew from school during the quarter under consideration. Also, those

who completed the fall quarter but did not register for the winter quarter were not included.

Several assumptions were made. One was that the employment status reported or verified by the student during the winter quarter registration was valid all through the fall quarter. Another was that variations in credit hour loads above the 12 hour minimum were not significant. The latter was justified by Deal's study (1973:46) which reports that;

> No significant difference was found in the current grade point average of full-time students working a designated number of hours per week attempting 12-15 credit hours and full-time students working a designated number of hours per week attempting 16 or more credit hours.

The assumption was also made that the differing abilities of students was of no significance. This was supported by a study of engineering and health curricula students at Forsyth Technical Institute in which Chase (1976:34) found no correlation between pre-enrollment mathematics test scores and student success as measured by their GPAs. She suggests that " . . . the success of students . . . does not depend on their academic level at entrance . . . ."

The population GPAs and the groups into which they were divided were assumed to be distributed normally.

Chapter 4

RESULTS

The test of the first hypothesis is shown in Table 1. The value of t required to reject the hypothesis at the .95 level of confidence is found only in the comparison with students employed 14-26 hours per week. At the .90 level of confidence the hypothesis holds only for students employed 1-13 hours per week. The mean GPA of students in each employment category was higher than the mean GPA of students not employed.

Table 1

A Comparison of GPAs of Employed Students and Students Not Employed

	Employed 1-13 hrs/wk Mean=2.95 S.D.=0.62	Employed 14-26 hrs/wk Mean=3.04 S.D.=0.75	Employed 27-39 hrs/wk Mean=2.96 S.D.=0.68	Employed 40 or more hrs/wk Mean=2.95 S.D.=0.70
Not Employed Mean=2.88 S.D.=0.83	t=1.23 d.f.=68	t=2.13 d.f.=88	t=1.81 d.f.=78	t=1.90 d.f.=98

t for rejection of hypothesis at .95 level=2.00

t for rejection of hypothesis at .90 level=1.67

The test of the second hypothesis, shown in Table 2, revealed that it could be rejected at the .95 level of confidence for one of the employment hour categories and at the .99 level for the other three categories. The employed students had higher average GPAs except for those employed 27-39 hours per week.

Table 2

A Comparison of GPAs of Employed First-Year Students and First-Year Students Not Employed

	Employed 1-13 hrs/wk Mean=3.02 S.D.=0.67	Employed 14-26 hrs/wk. Mean=3.10 S.D.=0.66	Employed 27-39 hrs/wk Mean=2.64 S.D.=0.69	Employed 40 or more hrs/wk Mean=2.98 S.D.=0.88
Not Employed Mean=2.85 S.D.=0.82	t=2.67 d.f.=58	t=3.99 d.f.=58	t=3.46 d.f.=58	t=2.06 d.f.=58

t for rejection of hypothesis at .99 level=2.66

t for rejection of hypothesis at .95 level=2.00

Table 3 shows that the third hypothesis cannot be rejected for any employment hour category.

Table 3

A Comparison of GPAs of Employed Second-Year Students and Second-Year Students Not Employed

	Employed 1-13 hrs/wk Mean=3.09 S.D.=0.79	Employed 14-26 hrs/wk Mean=3.01 S.D.=0.87	Employed 27-39 hrs/wk Mean=3.02 S.D.=0.74	Employed 40 or more hrs/wk Mean=2.98 S.D.=0.53
Not Employed Mean=3.07 S.D.=0.71	t=0.11 d.f.=57	t=0.30 d.f.=58	t=0.24 d.f.=58	t=0.51 d.f.=58

t for rejection of hypothesis at .90 level=1.67

The results of the test of the fourth hypothesis is shown in Table 4. The hypothesis could not be rejected.

Table 4

A Comparison of GPAs of Employed and Not-Employed Students in Engineering Technology, Associate Degree Nursing and Business Administration

	Employed in All Hour Categories		
Not Employed	Engineering Technology Mean=3.15 S.D.=0.67	Assoc. Degree Nursing Mean=2.74 S.D.=0.53	Business Administration Mean=2.81 S.D.=0.73
Engineering Technology Mean=3.18 S.D.=0.78	t=0.15[a] d.f.=38		
Assoc. Degree Nursing Mean=2.90 S.D.=0.58		t=1.14[b] d.f.=58	
Business Administration Mean=2.62 S.D.=0.90			t=0.90[b] d.f.=58

[a] t for rejection of hypothesis at .90 level=1.68

[b] t for rejection of hypothesis at .90 level=1.67

Tables 5 and 6 show the results of the test of the fifth hypothesis. Table 5 shows that the differences between the GPAs of employed and unemployed students who have been out of high school three years or less is statistically insignificant. It also indicates that the sex of the student does not affect the relationship between GPA and employment status.

Table 5

A Comparison of GPAs of Male and Female Students Three Years or Less Out of High School - Not Employed and Employed 1-26 and 27-40 or More Hours Per Week

	Employed 1-26 hrs/wk		Employed 27-40 or more hrs/wk	
	Male	Female	Male	Female
Not Employed	Mean=2.71 S.D.=0.83	Mean=2.88 S.D.=0.73	Mean=2.66 S.D.=0.83	Mean=2.76 S.D.=0.78
Male Mean=2.74 S.D.=0.89	t=0.15. d.f.=58		t=0.37 d.f.=58	
Female Mean=2.81 S.D.=0.71		t=0.40 d.f.=58		t=0.24 d.f.=58

t for rejection of hypothesis at .90 level=1.67

Table 6 shows that, for students who have been out of high school four years or more, employment of forty hours or more per week is not related to GPA for either sex.

Table 6

A Comparison of GPAs of Male and Female Students Four or More Years Out of High School - Not Employed and Employed Forty or More Hours Per Week

	Employed 40 or More Hours Per Week	
	Male	Female
Not Employed	Mean=3.00 S.D.=0.80	Mean=3.14 S.D.=0.66
Male Mean=2.72 S.D.=1.07	t=1.13 d.f.=58	
Female Mean=3.15 S.D.=0.76		t=0.05 d.f.=58

t for rejection of hypothesis at .90 level=1.67

The grouping of student GPAs for sampling resulted in data that describes, to some extent, the employment of students attending Forsyth Technical Institute during the fall quarter of 1976. This data is tabulated in Table 7, Appendix A.

Chapter 5

DISCUSSION, IMPLICATIONS AND RECOMMENDATIONS

The results of this study show some interesting relationships between student employment, delineated by hours per week employed, and student success, measured by grade point average. It was found that GPA was related to hours of employment for first-year students but not for second-year students. It was also found that when isolating students by certain curriculums, by years since high school graduation or by sex, there was no relationship between GPA and employment.

The second hypothesis, that the mean GPA of first-year students not employed is no different from the mean GPA of employed first-year students, was rejected to a 99 percent level of confidence for the part-time work categories and to a 95 percent level of confidence for the full-time employment category. First-year students employed 1-26 hours per week or employed full-time had higher GPAs than the first-year students who were not employed. Those employed 27-39 hours per week, however, had lower GPAs than those not employed. The strongest relationship was found in the 14-26 hour category and is reflected in Table 1 which deals with the total population.

The implications are that during their first year in school, students benefit from being employed full-time or from part-time employment of up to approximately 26 hours per week. Part-time employment of more than approximately 26 hours per week, however, is detrimental to their grades.

On the surface this non-linear relationship between hours per week employed and average GPA is paradoxial. A reasonable explanation seems to be that employment is a either motivating factor itself or is evidence of high motivation. There is a point, however, past which the number of hours employed leaves insufficient time for studies. The fact that some students employed forty or more hours per week also do well in school indicates that some other factors have a bearing. It can be seen from the data presented in Table 7, Appendix A, that those students who have been out of high school four years or more, make up only 35 percent of the population studied but represent 61 percent of those employed forty or more hours per week. It seems that age may be a factor in succeeding in school while working full-time.

Based on the results of this study, the following recommendations are made to the counselors at Forsyth Technical Institute:

1. Consideration should be given to the relationships reported here between hours per week of employment and GPA when securing employment or developing work-study schedules for full-time associate degree students.

2. Entering students and students in academic difficulty should be made aware of the relationships between employment and GPA.

3. The relationships between employment and GPA should be considered from both the beneficial and the detrimental aspects.

The need for further research on this topic is obvious, due to the lack of recent studies and the limited scope of this study. More variables need to be controlled as other factors are studied for their effect on the relationship between employment and success in school.

The non-linear relationship between number of hours employed and GPA, also found by Deal (1973:23), needs further explanation. It would also be interesting, and helpful, to know if employment is motivating for the student or simply an indication of motivation from another source.

REFERENCES

Bushnell, David S.
1973 Organizing for Change: New Priorities for Community Colleges. New York: McGraw-Hill.

Chase, Betty D.
1976 "A comparative study of Students' success at Forsyth Technical Institute and their mathematics scores on the Comparative Guidance and Placement Test." Winston-Salem: Wake Forest University, unpublished M.A. thesis.

Deal, Willard M., Jr., and others
1973 An Analysis of Current Grade Point Averages of Employed Full-Time Students at Wilkes Community College. U.S., Educational Resources Information Center, ERIC Document ED 097 939, December, 1973.

Li, Jerome C. R.
1968 Statistical Inference, Volume I. Ann Arbor: Edwards Brothers.

Shearon, Ronald W., Robert G. Templin, Jr. and David E. Daniel
1976 Profile of Students in North Carolina Community Colleges and Technical Institutes, Volume I. Raleigh: North Carolina State University, June, 1976.

Sheehy, Gail
1976 Passages: Predictable Crises of Adult Life. New York: E. P. Dutton.

APPENDIX A

Table 7

Percent of Certain Classifications of Students in Each Employment Category

Student Classification	Employment Category (Hours per Week) 0	1-13	14-26	27-39	40+
First Year N=434	44.9	5.5	16.8	7.8	24.9
Second Year N=341	42.2	5.6	16.1	11.7	24.3
Special Credit N=8	25.0	0	62.5	0	12.5
Engineering Tech. N=98	28.6	----------	71.4	----------	
A. D. Nursing N=151	64.9	----------	35.1	----------	
Business Adm. N=129	32.6	----------	67.4	----------	
Male: 4 years or more out of high school N=147	25.2	2.0	3.4	6.1	63.3
Male: 3 years or less out of high school N=186	23.1	7.5	21.5	16.7	31.2
Female: 4 years or more out of high school N=130	61.5	4.6	8.5	6.2	19.2
Female: 3 years or less out of high school N=320	56.6	6.2	24.1	8.1	5.0
Total N=783	43.6	5.5	17.0	9.4	24.5