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A Study to Determine the Relationship Between Grade Point Average and Job Success

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A STUDY TO DETERMINE THE RELATIONSHIP BETWEEN GRADE POINT AVERAGE AND JOB SUCCESS

A Research Paper Presented to the Faculty of the Graduate School Old Dominion University

In Partial Fulfillment of the Requirements for the Degree Master of Science in Education

> by Charlotte S. Slade Spring, 1980

This research paper was prepared by Charlotte S. Slade under the direction of Dr. David I. Joyner for Education 636, Problems in Education. It is hereby submitted to the Graduate Program Director as partial fulfillment of the requirements for the degree of Master of Science in Education

APPROVED BY:

Dr. David I. Joyner Advisor

Date

Graduate Program Director

Date

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CHAPTER 1

INTRODUCTION

The singular purpose of vocational educators must be to prepare students for employment. Students must be taught specific marketable skills which will equip them for entry into the business world. The letter grades that students receive have traditionally been used as indicators of success in mastering these skills. If the courses taken by vocational students are applicable and pertinent to their subsequent jobs, and if the grades are accurate assessments of their understanding of their work, then it must follow that grades obtained in vocational courses should at least partially predict job success.

It is recognized that grading standards vary for different teachers and different courses. Some courses lend themselves to essentially an objective evaluation. Others require subjective appraisals. It is also recognized that many other factors will influence job success. Some factors will be internal to the student; others will be beyond his or her control. If, however, grades can serve as reasonably accurate estimations of student preparation for employment, educators can be provided

some interesting feedback about the adequacy of their curricula if the correlation between grade point average and job success is studied.

Statement of the Problem

The purpose of this study is to determine the relationship between grade point average and job success for Cooperative Office Education students at Poquoson High School (PHS) during the school year 1979/1980. The study will focus on the following questions:

1. Are grades predictors of job success?

- 2. Is there a significant difference in job success between students with an <u>A</u> average, students with a <u>B</u> average, and students with a <u>C</u> average?
- 3. In what aspects of their jobs are students most successful? Can these aspects relate to success in the classroom?
- 4. In what aspects of their jobs are students least successful? Can these also be predicted by grades?

Background and Significance

There is a great demand today for qualified personnel in office related occupations. According to a United States Department of Labor Bulletin, "Business Education and the Job Market of the 1980's," the clerical occupation is expected to grow faster than any other major occupation through the mid-1980's (1, p. 1). Many of these workers will begin their employment through a cooperative education program. Such programs date far

back into the history of education, traceable to apprenticeships. They continue to be effective as means of introducing students to their first employment experience. Before a student is accepted into a cooperative education program, that student must have maintained a minimum grade point average (1.0 at PHS). Some employers require a higher average. In this cooperative endeavor, students have the opportunity to apply the skills they have acquired in the classroom to practical, on-the-job work situations. It is reasonable to assume that the higher the student's grade point average, the better the chances of that student's being successful on the job. This study will seek to determine whether or not this is It is important for cooperative education programs true. and other vocational programs to keep their curricula constantly attuned to the needs of prospective employers.

A manufacturing concern learns quickly and painfully when the products it produces do not meet the standards required by consumers. Their products do not sell and profits will drop. The success of the company depends upon its ability to satisfy prospective consumers.

The relationship between output and profitability in an educational environment is not that direct. Students select an educational institution based on many factors, such as cost, course offerings, compatibility with current occupations. Rarely does a prospective student know how successful he or she can expect to become as a result of

pursuing a given course of study at a particular institution. As a result, an educational institution can graduate students who may not be qualified for the occupations they will pursue. This would be close akin to a shoe manufacturer continuing to make size thirteen shoes although no person in his marketing area wears larger than an eleven. It is important for the shoe manufacturer to know the sizes and tastes of its customers. It is also important for an educator to assess the needs of his students and, through feedback mechanisms, assure that he is meeting those needs.

Definition of Terms

<u>Cooperative Education</u> is an academic program designed to provide the student with actual and practical work experience, which carries high school credit for a supervised, paid, learning program with a participating employer. A student must have attained junior status before participating in the program. Seniors are given employment first. Juniors are placed in remaining available jobs.

<u>Grade point average</u> is determined by dividing the number of grade points earned in courses by the number of credits attempted.

The <u>grading System</u> at PHS assigns grade points as follows:

- A Excellent 4 grade points per credit
- B Good 3 grade points per credit
- C Average 2 grade points per credit
- D Poor 1 grade point per credit

<u>Job success</u>, for purposes of this study, is measured by means of an evaluation instrument utilized by the Business Education Department of Poquoson High School.

Limitations

The following limitations were applicable to this study:

1. Only those students participating in the Cooperative Office Education program at Poquoson High School in the 1979/1980 school year were included in the study.

2. The study involved students who were employed by the United States Government, a bank, a credit union, a radio station, a funeral home, a hospital, and building contractors.

3. Job success was determined solely on the basis of the job evaluation instrument developed by Poquoson High School and completed by the employers of the students.

Basic Assumptions

The following assumptions are applicable to this study:

1. Job success can be measured by an evaluation instrument utilized by employers.

2. Employers have rated cooperative education students accurately and fairly on the evaluation instrument.

Procedures

This study deals with the relationship between grade point average and job success for cooperative education students at Poquoson High School. First. permission to conduct the study was obtained from Dr. Roy J. Vorhauer, Principal of Poquoson High School and from Mr. George Curtis, Assistant Superintendent for Administration and Personnel for Poquoson schools. Permission was also obtained from Mrs. Brenda McPherson, Cooperative Education Coordinator at Poquoson High School. Grade point averages were obtained from the guidance office at Poquoson High School. Employer evaluations of each student were made available by the Cooperative Office Education Coordinator. The grade point averages and the evaluations were studied to determine the relationship between the two.

Organization of the Remainder of the Study

Chapter 1 has given a brief overview of the study. The remainder of this paper will consist of four additional chapters: the review of related literature, the

description of the instrument and procedures employed in the study, the presentation and analysis of the data, and the summary, conclusions, and recommendations.

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CHAPTER 2 REVIEW OF RELATED LITERATURE

There are many definitions of what a grade, a score, or a mark is. First, it is a measure of some type of academic performance. Most will also agree that grades are meant to be of motivational significance to the student, apart from their institutional function. Grades correlate to cognitive ability, effort, ambition, pleasing personal styles, and values similar to the evaluator (3). Boyle (1) indicates, however, that some attributes one normally thinks of as positive, such as creative ability, may adversely affect grades. Although creative ability may enhance growth in cognitive capability and academic learning, a degree of conformity to the values of those who dispense grades appears necessary for obtaining high marks.

If grades are measures of merit, there is a strange phenomenon concerning the good grades: they are artificially in short supply. The quantity of high grades is often limited by grading curves or norms which limit the total number of high grades within a group. This is called comparative grading, or norm-referenced grading (3).

Comparative grading systems, used by many instructors, tell which student is better than which other one but tell far less about the student in terms of an absolute objective criterion. This comparative nature of grades is reinforced by the requirements for them to respond in carefully regulated test situations, designed to be as uniform as possible in time, atmosphere, and test situ-The artificial shortage of good grades in the ation. classroom contributes to competitive mediocrity. Through repeated struggles in the classroom for scarce quantities of good grades, students are conditioned to believe that this is the just and natural way of allocating success in the larger impersonal world. They learn, too, that there are and must be winners and losers in all competitions and that while winning is possible, one is much more likely to lose (3).

For the student, grades are what occupational status and income are to adults. High school grades are direct measures of success of students wishing to go to college. High grades will allow a student to get into the college of his choice, go to medical school, or even pay for one's education with a scholarship. However, there is little evidence to support the proposition that those college students who make the best grades have more economic success than those who obtain poorer grades (3). While there is a clear and logical relationship between grades in high school and success in college, the

relationship between grades and job success is less clear. The grade point average (GPA) is the overall grade measurement of students' general intelligence and predicted success in later life. If this were not so, college recruiters and graduate schools would not reward with highest starting salaries and scholarships those who have the highest GPA's.

A student's educational future is often governed by scores on various academic achievement tests, such as the Scholastic Aptitude Test (SAT) and the Graduate Record Examination (GRE). A sizeable body of research exists on the relationship of these tests to academic success. SAT scores obtained in high school predict freshman grades moderately well (correlation coefficient varying between 0.30 and 0.39) in heterogeneous college populations. Similar results are obtained with the American College Testing Program's Admissions Test (ACT) and the GRE (4).

Other studies have attempted to explore the relationship between GRE and ACT scores and adult competence. In a study of 1600 former graduate students in seven scientific fields, GPA, GRE scores, and faculty recommendations were compared with scientific knowledge ratings on the job. All three "grades": GRE, GPA, and recommendations predicted job knowledge, but not very impressively (2). In another study, Heath (4) examined academic predictors of maturity and adult competence.

He found that high SAT scores were directly related to psychological, particularly inter-personal, immaturity. Additionally, McClelland (7) concluded that on the basis of data available, scores of intellectual aptitude could not be related to "actual accomplishments in social leadership, the arts, science, music, writing, speech, and drama." Finally, Wallack (13) points out that the premise that tests reflect achievement potential is not valid for higher test scores. This is precisely the range from which recipients receive the most highly sought after advanced educational benefits. In summary, most authors reviewed agreed that above the intermediate level, standardized test scores gave results slightly better than chance at predicting behaviors of interest. They did predict accurately, however, how well a person would do on other similar tests.

An additional large body of research has been devoted to attempts to correlate GPA with significant adult achievement. In a review of 46 studies conducted between 1903 and 1965, Hoyt (5) concluded that college grades were unrelated to success in occupations that graduates enter, such as scientific research, engineering, teaching, business, and medicine. In one of the studies, an investigation was made of eight characteristics considered elements of success in general business: drive, creativity, persuasiveness, leadership, problem solving ability, oral communication, identification with

the business community, and identification with the company. None related positively with GPA. In fact, some were negative (8). Among physical scientists, weak correlations were found between GPA and productivity, creativity, and salary. No correlation was found between GPA and quality of research work, scientific reputation, or overall performance, The results of several studies of physicians (12, 10, 11) were similar. Over 200 measures of performance were collected on 426 Utah physicians. Correlation of measures of academic performance with other performance measures resulted in 849 correlations, of which only 3 per cent were significant. Of this small group there were more negative than positive coefficients. In a separate study of 88 North Carolina general practitioners (9), records of performance were compared with academic rank. A significant positive correlation was found for physicians under 35 years of age. For doctors above 35, no correlation was found.

Martin and Pacheres (6) compared salary with college grades for 99 Hughes Aircraft Company research laboratory engineers. A weak correlation was found for those with four years of experience, no correlation for those with six or more. When the authors computed weighted scores for each individual which accounted for scholastic record and reputation of the college attended, they found no significant correlation between scores and salary.

Wallach and Wing (14) studied out-of-class accomplishments of 500 undergraduate college students in seven academic fields: literature, art, music, dramatics, political leadership, science, and social service. Accomplishment was almost as frequent among students who scored in the lowest third scholastically as among those who scored in the top third.

Much of the research previously mentioned is very difficult to carry out and the results are difficult to interpret. There are many confounding variables: individuals graduating from different colleges covering a wide quality range; persons working outside their primary vocational area; differing criteria used to define adult success; varying physical and mental health. Standardized achievement tests discussed previously are measures of academic aptitude. They cannot predict whether a person will develop it. In the same vein, the GPA measures what a student knows. The fact that a person has knowledge does not mean that he or she is able to apply it. In a vocational, cooperative education program, however, where a student is specifically prepared for employment and given training in that employment, there should be a positive correlation between success in the vocational classes and success on

the job. This research will seek to determine if this correlation does exist.

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CHAPTER 3 METHODS AND PROCEDURES

Introduction

As previously stated, the purpose of this effort is to evaluate the relationship between grade point average and job success. One's grade point average is a measure of academic success. It is an exact quantitative measure. Job success is not so precise. Some would say that even having a job during a period of ten percent unemployment is extremely successful. In this paper, however, job success will be determined by a quantitative assessment of supervisory evaluations. If "beauty is in the eye of the beholder," then job success must in large measure be determined by how successful an employee's supervisor thinks the employee is.

Field and Population

The records of fourteen seniors at Poquoson High School were evaluated in this study. All students considered were Cooperative Office Education students. Seven worked for agencies of the United States Government, two for contractors, and one each for a bank, a credit union, a radio station, a funeral home, and a hospital.

Each student had a performance evaluation on file in the office of the Cooperative Office Education Coordinator at Poquoson High School. These students comprised the entire Cooperative Office Education enrollment during the 1979/1980 school year. They represented 7.3 percent of the senior class for that year.

Quantitative measures of job success were obtained from analyses of supervisory evaluations. These were completed for each cooperative student by a supervisor. A sample evaluation sheet is included in Appendix 1. Supervisors evaluated student performance by scoring various performance criteria with numerical values from 0 to 3. A score of 0 requires improvement, 1 is average, 2 is above average, 3 is outstanding. The performance criteria are collected under the headings of personal traits and skill performance. An additional subjective evaluation of overall performance is included at the bottom of the evaluation sheet. The same needs improvementaverage-above average-outstanding criteria ratings are used.

Research Design and Methodology

Grade point averages were obtained for each student from the guidance office. Performance evaluations were studied in the office of the Coordinator of Cooperative Office Education. A numerical rating for each heading on the evaluation was obtained by taking the arithmetic mean of the individual scores. A total performance rating was calculated for each student by averaging the performance criteria. Ratings obtained for each of the performance criteria and the overall evaluation rating were correlated with grade point average. A summary of grade point averages and numerical ratings of success is contained in Chapter 4. The Pearson product-moment correlation (r) was used to determine if a relationship existed between grade point average and job success.

Summary

This chapter has presented the methods and procedures followed in gathering and treating the data involved in determining the relationship between grade point average and job success. The following chapter will describe the findings of the study.

CHAPTER 4

FINDINGS

This study was made to determine the relationship between grade point average and job success for Cooperative Office Education students at Poquoson High School during the school year 1979/1980. The study has been focused on the following questions:

- 1. Are grades predictors of job success?
- 2. Is there a significant difference in job success between students with an <u>A</u> average, students with a <u>B</u> average, and students with a C average?
- 3. In what aspects of their jobs are students most successful? Can these aspects relate to success in the classroom?
- 4. In what aspects of their jobs are students least successful? Can these also be predicted by grades?

In order to determine the correlation between grade point average and job success, Pearson's product-moment correlation (r) was calculated for each of the three employer's subjective measurements of personal traits, skill performance, and overall evaluation.

Pearson's \underline{r} for personal traits and grade point average was calculated at 0.305. For skill performance, it was determined to be -0.212, and for the overall evaluation it was -0.390. All three of these numerical values were calculated using the formula

$$F = \frac{N \leq \chi y - (\xi \chi)(\xi y)}{\sqrt{\left[N \leq \chi^2 - (\xi \chi)^2\right] \left[N \leq y^2 - (\xi y)^2\right]}}$$

where N is the number of paired sets and X and Y are the two variables.

There appeared to be no difference in job success between those with an A, B, or C average. The one individual with an A- grade point average received average ratings in skill performance (1.0), only slightly above average in personal traits (1.55), and above average in overall evaluation (2.0). Of the seven individuals whose grade point averages were between 2.5 and 3.0, skill performance, personal traits, and overall evaluation all ran the full range of possible values. The same trends were true of the four individuals whose grade point averages ranged between 2.0 and 2.5. The two individuals with the lowest averages (1.43 and 1.39) had personal trait scores (2.50 and 2.56) that were higher than all but three other students and above average skill scores (2.17 and 1.86) These two individuals also scored high on the overall evaluations (one outstanding and one above average). There was no significant difference between average scores awarded in each of the three categories. The average personal

trait score was 2.21, the average skill performance score was 2.12, and the average for overall evaluation was 2.21, identical to personal traits. The following page contains a summary of the grade point averages and numerical ratings of success for the students.

TABLE 1

SUMMARY OF GRADE POINT AVERAGES AND PERFORMANCE CRITERIA

<u>Student</u>	Personal Traits	Skill Performance	Overall Evaluation	Grade Point Average
А	1.55	2.45	1	2.96
В	3.00	2.73	2	2.81
С	1.55	1.00	2	3.37
D	3.00	3.00	3	2.27
Е	2.22	2.67	3	2.14
F	2.44	1.85	2	2.93
G	2.50	2.17	3	1.43
Н	1.33	1.77	3	2.45
I	2.56	1.86	2	1.39
J	1.44	1.87	1	2.84
K	2.21	2.00	2	2.97
L	2.33	2.08	2	2.11
М	1.88	1.67	2	2.80
N	3.00	2.69	3	3.00

CHAPTER 5

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Summary

Consistent with the results presented in Chapter 2, Review of Related Literature, there was no significant correlation between the grade point averages of the fourteen Cooperative Office Education students and the subjective evaluation of students' performance on the job. Additionally, there was no significant difference between the degree of job success enjoyed by students with any particular range of grade point averages. The <u>A</u> students were no more prone to success than those who made <u>B</u>'s and <u>C</u>'s. To the contrary, those students who scored the lowest academically tended to receive slightly higher evaluations in personal traits, skill performance, and in the overall evaluation.

Students were not evaluated significantly higher in any of the three areas evaluated. Average grades given for each area differ from those received in either of the other two by no more than five percent.

Conclusions

After the weight of evidence presented in Chapter 2, a lack of correlation between job success

and grade point average could not be unexpected. It was believed, however, that a study of a group of Cooperative Office Education students presented a good opportunity to show a definite positive relationship between grade point average and job success. Such, however, was not the case.

There are several considerations which could have influenced the results of the investigation. First, the students' grade point averages were overall averages, for all subjects, and included the results obtained throughout their high school career. The grade point averages, therefore, considered such subjects as history, mathematics, etc., that may be less related to job success than other courses in their specific Cooperative Office Education curriculum. The grade point averages for specific courses relating to students' employment were not available.

Second, because the grade point averages were computed over a four-year period, they would not indicate "late bloomers' or students on the other extreme whose academic work suffered, resulting in decreases in grades as the students progressed through the four-year program.

Another possible reason for the lack of correlation is that age-old problem of grades not accurately measuring what a student knows about a subject. Students who make A's may memorize soon-to-be-forgotten test

materials. Others who make \underline{B} 's and \underline{C} 's may have a better understanding of the mechanics of a subject.

A fourth reason for the lack of correlation is with the performance evaluations themselves. There were many different employers and no standard of evaluation. What may have been satisfactory to one employer may not have been so to another. Additionally, some employers may have been reluctant to objectively evaluate students and give them poor evaluations on their first venture into the employment market.

A fifth and more probable reason, however, is that grade point average may indeed be a predictor of job success but that other characteristics of a student may be stronger. For instance, a student who has not fared well in school academically may have that extra spark of enthusiasm and motivation to excel that makes him a success with his first employer.

Finally, we must consider the possibility that instruction in the classroom may not have been relevant to the students' subsequent employment.

Recommendations

More research is definitely needed into the relationship between grade point average and job success, particularly in vocational education. If vocational education programs are supposed to prepare individuals for employment, those who are best prepared

(i.e. have the highest grades) should have the largest degree of success.

An additional investigation should consider a larger sample of students. Also, it should use a grade point average composed of grades in courses in the Cooperative Education curriculum only, in addition to the overall grade point average. Also, additional guidance should be provided to the employers who fill out the evaluations, in order to achieve as objective an evaluation as possible. Finally, a portion of the evaluation used should be "closed," i.e. results not provided to the students, in order that the most objective evaluation possible could be obtained.

SAMPLE PERFORMANCE EVALUATION APPENDIX A

.

COOPERATIVE OFFICE EDUCATION PROGRAM

POQUOSON HIGH SCHOOL

Quarterly Evaluation

Student-Trainee Name_____

Company_____ Date_____

Your constructive criticism enables us to provide better instructional training. Please circle the following traits as (0) Needs Improvement, (1) Average, (2) Above average, (3) Outstanding, (NA) Not Applicable.

Personal Traits						Skill Performance		
Attitude	0	1	2	3	NA	English Usuage	0123	NA
Grooming		1	2	3	NA	Typing	0123	NA
Suitability of Dress		1	2	3	NA	Shorthand	0123	NA
Personal Hygiene		1	2	3	NA	Machine Transcription	0123	NA
Business Behavior	0	1	2	3	NA	Filing	0123	NA
Speech	0	1	2	3	NA	Computing & Accounting	0123	NA
Interest in work		1	2	3	NA	Spelling	0123	NA
Cooperation	0	1	2	3	NA	Punctuation	0123	NA
Initiative	0	1	2	3	NA	Proofreading	0123	NA
Works well with others	0	1	2	3	NA	Office Housekeeping	0123	NA
Dependability	0	1	2	3	NA	Telephone Usage	0123	NA
						Mail Procedures	0123	NA
Ability to						Knowledge of Job	0123	NA
						Office Machines:	0123	NA
Follow directions	0	1	2	3	NA	Adding & Calculating	0123	NA
Take criticism	0	1	2	3	NA	Stencil/Fluid Duplicator	0123	NA
Understand instructions	0	1	2	3	NA	Photocopier	0123	NA
Attend to details	0	1	2	3	NA	Other:	0123	NA
Utilize time wisely	0	1	2	3	NA		0123	NA
Meet People	0	1	2	3	NA		0123	NA
Get along with others	0	1	2	3	NA		0123	NA
Has your COE trainee bee	en j	pui	nc	tu	al in	reporting to work?	(yes or	no)
to be absent?	er.	LY	C	on	cacte	d you when he or she is		
							(yes or	no)
How many times has the (OE	t	ra	in	ee be	en absent this evaluation?		
General rating of studer	nt	tr	ai	ne	e:	(Please circle one)		

(A) Outstanding (B) Above Average (C) Average (D) Needs Improvement

Please list any points that should be emphasized in training:

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