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July 26, 1972

A CORRELATIVE STUDY OF HIGH SCHOOL SOPHOMORE ACHIEVEMENT
IN FIRST-YEAR BOOKKEEPING OR ACCOUNTING

by

GARY LEE REYNOLDS

A professional paper submitted to the Graduate Faculty in
partial fulfillment of the requirements for the degree

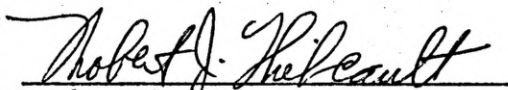
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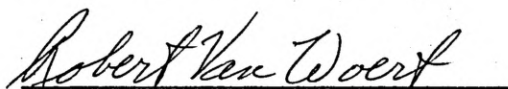
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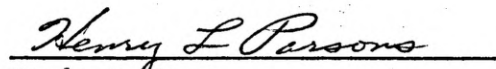
with concentration in

School Administration

Approved by:


Head, Major Department


Chairman, Examining Committee


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MONTANA STATE UNIVERSITY
Bozeman, Montana

August, 1972

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ABSTRACT

This investigation was a correlative study of sophomore grade level achievement in a first-year course in bookkeeping or accounting measured by GPA and correlated with previously administered intelligence and aptitude tests. The sample included 477 students of Billings West High School, who had taken both an Otis-Lennon Intelligence Test and the Differential Aptitude Tests and had completed a first-year course in bookkeeping or accounting. The hypotheses to be tested were:

(1) sophomores seemingly did not achieve as high a level grade point average (GPA) as juniors and seniors enrolled in first-year bookkeeping or accounting; and (2) when comparing GPA with intelligence test scores or percentile rank on a selected Differential Aptitude Tests subtest, there would be higher correlations for juniors and seniors than for sophomores.

A review of literature revealed no evidence of studies of a similar nature. No singular device was cited which could predict success in first-year bookkeeping or accounting.

Data about grade point achievement in a first-year course in bookkeeping or accounting and about performance on an intelligence test and aptitude tests were gathered about each student. Data were transferred to a Monroe 1785 Programmable Electronic Calculator, using Monroe program number 3010-SA to give the mean, standard deviation, and the correlation of paired observations. Results were summarized in tables showing the mean, standard deviation, and correlation for each of the paired observations for each of the academic classes.

Evidence, based on data gathered, calculated, and analyzed, indicates that sophomores did in fact achieve a higher mean GPA than juniors although not as high as seniors. Comparison of correlations of GPA and the various test instruments indicates higher correlations for sophomores than for seniors on all instruments. Comparison indicates that sophomores had higher correlations on three of the four instruments than did juniors. Evidence presented in the study indicates that both hypotheses must be rejected.

Recommendations are made that: (1) all available test results should be examined when screening prospective enrollees in first-year bookkeeping or accounting courses. No student should be excluded on the basis of the results of a single test instrument; and (2) no student should be excluded from a first-year course in bookkeeping or accounting on the basis of class standing; i.e., sophomore, junior, or senior, but purely on their past achievement record.

Chapter 1

INTRODUCTION

High school bookkeeping or accounting objectives have been listed as one or several of the following: (1) vocational, (2) related vocational, (3) personal-use, and (4) general education. The two most frequently advanced are vocational and related vocational. If a major objective of the bookkeeping or accounting course is to prepare students vocationally, the course should be completed as close to the time of potential employment as possible.

Who should enroll in the first-year bookkeeping or accounting class? When should the course be taken? Can the future success of the student in the course be predicted? These are considerations that should be made before a student is allowed to enroll in a first-year bookkeeping or accounting class.

Statement of the Problem

The purpose of this study was to determine if screening of prospective enrollees in a first-year course in bookkeeping or accounting would help to insure the level of success of those students who actually enrolled. In order to reach a conclusion and make recommendations regarding a screening process for minimum entry levels for sophomore students, this study attempted to answer the following questions:

1. Should sophomores have been prevented from enrolling in first-year bookkeeping or accounting?

2. Was it possible to predict that membership in a grade level "class" affected the grade earned in first-year bookkeeping or accounting?

3. Did the raw score earned on an Otis-Lennon intelligence test correlate with the GPA of students in first-year bookkeeping or accounting?

4. Did the percentile rank on the Verbal Reasoning subtest of the Differential Aptitude Tests correlate with the GPA of students in first-year bookkeeping or accounting?

5. Did the percentile rank on the Numerical Ability subtest of the Differential Aptitude Tests correlate with the GPA of students in first-year bookkeeping or accounting?

6. Did the percentile rank on the Abstract Reasoning subtest of the Differential Aptitude Tests correlate with the GPA of students in first-year bookkeeping or accounting?

7. Did any one of the previously mentioned tests or subtests correlate more highly with the GPA of students in first-year bookkeeping or accounting?

8. Did sophomores score higher or lower when the mean GPA of sophomores, juniors, and seniors were compared?

The Need for This Study

The justification for this study was found in the fact that since its inception in the fall of 1959, Billings West High School had no set screening procedure for prospective enrollees in first-year bookkeeping or accounting; and, in fact, the courses were considered to be open electives.

This study was developed to determine if such a screening procedure was necessary.

Purpose of the Study

The purpose of this study was to determine if sophomores did in fact score lower on GPA in first-year bookkeeping or accounting than did juniors and seniors based on the same comparative data.

The hypotheses to be tested were these:

1. Sophomores seemingly did not achieve as high a level grade point average as juniors and seniors enrolled in first-year bookkeeping or accounting.

2. When comparing GPA with intelligence test scores or percentile rank on a selected Differential Aptitude Tests subtest, there would be higher correlations for juniors and seniors than for sophomores.

General Procedures

The procedure used to conduct this study included the following phases:

1. Review of pertinent literature to determine if other studies of this type had been done.
2. Selection of the sample to be used in this study.
3. Compilation of the data.
4. Analysis of the data.
 - a. Mean GPA
 - b. Pearson r correlations
5. Drawing conclusions from the analysis and making appropriate recommendations.

Limitations

There were three limitations in this study: (1) The data was gathered for only those students who completed their schooling at Billings West High School or were underclassmen during the school year 1970-1971. (2) The sample included only those students who had completed both an Otis-Lennon intelligence test and the Differential Aptitude Tests. (3) Percentile rank was the form in which scores were reported for the various subtest of the Differential Aptitude Tests which were used in the study.

Summary

The high school bookkeeping or accounting course has both vocational and non-vocational objectives. Those objectives most frequently advanced are vocational in nature. Should enrollment have been limited by academic class or predictability of success?

Chapter 2

REVIEW OF LITERATURE

This review of literature will be of necessity extremely limited. The researcher was unable to locate another study of significance as related to this study.

Predictability of Success

An Ohio investigation studied the relationship between eighth grade Differential Aptitude Tests subtest scores and course marks in elective courses. The study did not include first-year bookkeeping or accounting; however, it did include typing and shorthand. Raw scores from the subtest were used in computing correlations. The conclusion of Kohli (1969) was that:

Numerous factors other than scores from the Differential Aptitude Tests appear to enter into the determination of how accurately a particular student's marks in an elective course may be predicted. The personality of the student; his level of motivation; his personal adjustment to the environment; his capability of exercising self-discipline as related to study habits; and other non-cognitive factors may influence the accuracy with which his performance in an elective course may be predicted.

There are no prognostic tests nor interest tests that alone supply an answer as to which students will or will not succeed in a bookkeeping or accounting course (Boynton, 1970). Many factors and combinations of factors were studied in an effort to predict success in bookkeeping and accounting courses. No predictive factor or factors were found to be satisfactory (Devine, 1962), yet the importance of a

predictive instrument was recognized in guidance.

According to Douglas (1957), average intelligence, some skill in performing basic processes in arithmetic, and some interest in business are practical, defensible criteria for the selection of students for the course.

Placement of Bookkeeping in the Curriculum

A study reported in "The Business Curriculum," Monograph 100, surveyed selected high school curriculums in small, medium, and large cities indicated a small minority of the schools offered first-year bookkeeping or accounting to sophomores, with a majority of the schools offering the course at the junior level. Of seventy-three schools surveyed, nine offered the course to sophomores, fifty to juniors, and fourteen to seniors (Roman, 1960).

Richmond (1958) found in her study of Massachusetts high schools a nearly even division of offerings for first-year bookkeeping. Sixty-nine schools offered the course in grade ten and sixty-eight schools offered the course in grade eleven.

State curriculum guides reviewed were consistent in their recommendations. Montana's "Business Education Curriculum Guidelines," published in 1971, recommended bookkeeping be taught in grades eleven and twelve. The "Idaho Curriculum Planning Guide for Business-Economic Education" (1961) indicated that bookkeeping was not recommended below

grade eleven.

Achievement

Seymour (1954) reported results from his Kansas study of performance of first-year bookkeeping students that indicated "seniors consistently made better grades than the sophomores, with the juniors making the poorest grades of the three classes."

Summary

The purpose of the review of literature was four-fold: (1) to determine if other studies of the same type had been completed; (2) to determine if a successful predictive device for first-year bookkeeping or accounting had been used; (3) to determine the most frequent grade level offering of first-year bookkeeping or accounting, and (4) to determine if achievement for specific grade levels had been reported.

No evidence of studies of a similar nature was found. A single study was reported which had used the Differential Aptitude Tests raw scores in predicting success in selected elective courses, but did not include bookkeeping or accounting.

Examination of the literature revealed no singular device which could predict success in first-year bookkeeping or accounting. Most evidence indicated that a first-year course in high school bookkeeping or accounting had been or should be offered in grades eleven or twelve.

Achievement based on grades indicated that seniors earned higher grades than sophomores and juniors earned lower grades than either seniors or sophomores.

Chapter 3

PROCEDURES

The problem of this study was primarily investigative. Information was gathered about the grade achievement in first-year high school bookkeeping or accounting and performance on previously administered intelligence and aptitude tests. This chapter will present the methods used in collecting and in interpreting the required information.

The organization of this chapter is in three parts: (1) description of the population and sample, (2) method of collecting and organizing data, and (3) method of analysis of the data.

Description of the Population and Sample

The population for this investigation was students of Billings West High School who were enrolled in Bookkeeping I or Accounting I (course title was changed but content and materials remained the same) during the school years 1966-1967, 1967-1968, 1968-1969, 1969-1970, and 1970-1971. The group was composed of sophomores, juniors, and seniors who were enrolled for at least two weeks in bookkeeping or accounting.

The sample used in the study included only those students who: (1) did not drop out of school or transfer to another school prior to being graduated, (2) did not drop prior to the seventh week of enrollment in a bookkeeping or accounting class, and (3) had taken both an

Otis-Lennon intelligence test and the Differential Aptitude Tests.

Method of Collecting and Organizing

Data

The data used in this study was taken from two sources: (1) the permanent class records filed by first-year bookkeeping and accounting instructors at Billings West High School, and (2) the cumulative folder for each student retained in the sample. A sample of the form used appears in the Appendix.

The permanent class record cards were used to determine: (1) which students had been enrolled in first-year bookkeeping or accounting classes, (2) which academic class that student was a member of, (3) which calendar year the student took the class, and (4) the grade earned by the student.

The cumulative folder for each student in the population contained a profile sheet which had been prepared by guidance personnel. Information taken from this profile sheet included: (1) a raw score earned on an Otis-Lennon intelligence test, (2) a percentile rank for the Verbal Reasoning subtest of the Differential Aptitude Tests, (3) a percentile rank for the Numerical Ability subtest of the Differential Aptitude Tests, and (4) a percentile rank for the Abstract Reasoning subtest of the Differential Aptitude Tests.

Organization of the data gathered from the permanent class record cards and the cumulative folder for each student was done on

the following bases:

1. A master list was prepared from the permanent class record cards filed by first-year bookkeeping or accounting instructors.

2. Students were grouped alphabetically according to their respective graduating classes to enable the researcher to attempt to locate a cumulative folder for each student. Grades earned by the students in first-year bookkeeping or accounting were also listed at this time.

3. Profile sheets contained in the cumulative folder were examined to determine if the student had taken both the Otis-Lennon intelligence test and the Differential Aptitude Tests.

4. Raw scores for the Otis-Lennon intelligence test were transferred to the proper list.

5. Percentile ranks for each of the individual subtests to be used from the Differential Aptitude Tests were transferred to the proper list.

6. Separate lists were then prepared with the students grouped according to the academic class they were members of while enrolled in first-year bookkeeping or accounting.

The grade point average (GPA) for each student was determined by assigning a number on a one-to-five scale (1 = F, 5 = A) for each of the semester grades earned by the student. The total points, when added, were divided by two to arrive at the individual GPA for first-

year bookkeeping or accounting.

Data were transferred into a Monroe 1785 Programmable Electronic Calculator, which had been programmed, using Monroe program number 3010-SA to give the mean, standard deviation, and the correlation of paired observations.

Method of Analysis of Data

The data were summarized in tables. From the tables the means, standard deviations, and correlations for each of the paired observations were reported for each of the academic classes.

Chapter 4

ANALYSIS OF DATA

This chapter presents the data collected by this study. The information is arranged into the following sections: (1) Analysis of the Sample, (2) Correlation of the Otis-Lennon intelligence test and the GPA, (3) Correlation of the Verbal Reasoning subtest of the Differential Aptitude Tests and the GPA, (4) Correlation of the Numerical Ability subtest of the Differential Aptitude Tests and the GPA, (5) Correlation of the Abstract Reasoning subtest of the Differential Aptitude Tests and the GPA, and (6) Correlation of the various test instruments used with the GPA grouped by academic classes.

Analysis of the Sample

The total sample of this study originally included a much larger number of students than the 477 students who made up the final sample. A large number were omitted when it was discovered that the entire Class of 1968 had not taken the Differential Aptitude Tests. Further reductions were brought about by: (1) students who transferred into Billings West High School and had not taken the Differential Aptitude Tests; (2) students who dropped out of school or transferred to another school from Billings West High School after having completed the first-year bookkeeping or accounting course, but prior to their graduation; and (3) students who dropped the course between the second and seventh week of the school year (the time limit for dropping a

course at Billings West High School without receiving a failing grade).

The sample included 177 sophomores, 156 juniors, and 144 seniors. Comparisons of the various classes as exhibited in Table 1 showed that sophomores comprised approximately 37 per cent of the sample, juniors comprised approximately 33 per cent of the sample, and seniors comprised the remaining approximate 30 per cent of the sample.

Table 1
Analysis of the Makeup of the Sample

Class	Number of students	Per Cent of sample
Sophomores	177	37.11
Juniors	156	32.70
Seniors	144	30.19
Total	477	100.00

Correlation of IQ and GPA

An Otis-Lennon intelligence had been given to all students in the sample. The raw score result of this test and the grade point average (GPA) earned in first-year bookkeeping or accounting for each individual student were entered into a programmable electronic calculator which had been programmed to give the mean, standard deviation, and correlation of paired observations. The data were entered according

to the following groupings: sophomores, juniors, and seniors.

Seniors had the highest mean IQ and the smallest standard deviation from the mean of the three groups tested. Juniors had the lowest mean IQ and the largest standard deviation from the mean. While the sophomores were the middle group, their mean IQ and the size of standard deviation was closer to that of the seniors than that of the juniors.

Mean grade point averages showed much the same comparative results. Seniors earned the highest mean GPA and had the middle ranked standard deviation. Juniors earned the lowest mean GPA and had the smallest standard deviation of the groups. Sophomores earned the middle ranked mean GPA, which again was closer to the mean for seniors than for juniors, and had the highest standard deviation of the three groups.

The Pearson correlation of IQ scores and GPA indicated the highest correlation for sophomores. Juniors had the middle ranked correlation and seniors showed the lowest correlation between IQ and GPA in first-year bookkeeping or accounting. This information is summarized in Table 2, page 16.

Correlation of Verbal Reasoning and GPA

The percentile rank earned on the Verbal Reasoning subtest of the Differential Aptitude Tests was correlated with the GPA earned in first-year bookkeeping or accounting (See Table 3, page 16). The

programmable electronic calculator provided the mean percentile rank and standard deviation for the Verbal Reasoning subtest, the mean GPA and standard deviation, and the correlation of the two observations.

Table 2

Correlation of Otis-Lennon IQ and GPA

Class	Mean IQ	Standard deviation	Mean GPA	Standard deviation	Pearson r
Sophomores	109.0903	- 10.9296	3.0706	- 1.2206	.5644
Juniors	107.2564	- 11.2685	2.7179	- 1.1218	.4660
Seniors	111.6458	- 9.4989	3.2986	- 1.1816	.3527

Seniors achieved the highest mean percentile rank and the smallest standard deviation from the mean. Sophomores achieved the middle ranked mean percentile and standard deviation. Juniors achieved

Table 3

Correlation of Verbal Reasoning and GPA

Class	Mean VR percentile	Standard deviation	Mean GPA	Standard deviation	Pearson r
Sophomores	59.2613	- 23.0960	3.0706	- 1.2206	.5240
Juniors	54.4102	- 23.3999	2.7179	- 1.1218	.4075
Seniors	62.6666	- 20.4788	3.2986	- 1.1816	.2026

the lowest mean percentile and the largest standard deviation. Sophomores were closer to seniors when mean percentiles were compared and closer to juniors when standard deviations were compared.

The Pearson correlation of Verbal Reasoning subtest rank and GPA indicated the highest correlation for sophomores. Seniors showed the lowest correlation of the groups, while juniors showed a correlation that more nearly approximated that of the sophomores than that of the seniors.

Correlation of Numerical
Ability and GPA

The percentile rank earned on the Numerical Ability subtest of the Differential Aptitude Tests was correlated with the GPA earned in first-year bookkeeping or accounting. The same procedure reported earlier was used. The results of the correlation and the mean percentile rank for each group were reported in Table 4.

Table 4

Correlation of Numerical Ability and GPA

Class	Mean NA percentile	Standard deviation	Mean GPA	Standard deviation	Pearson r
Sophomores	61.4802	22.4484	3.0706	1.2206	.5388
Juniors	52.9038	23.9113	2.7179	1.1218	.5392
Seniors	63.1875	21.5918	3.2986	1.1816	.3919

The highest mean percentile rank was earned by the seniors and the lowest was earned by the juniors. Sophomores earned a mean percentile rank much closer to that of the seniors than that of the juniors. Comparison of standard deviations from the mean showed seniors with the smallest deviation and juniors with the largest. Sophomores had a standard deviation more nearly the same as that of the seniors than that of the juniors.

The Pearson correlation of Numerical Ability subtest percentile rank and the GPA indicated nearly equal correlation for juniors and sophomores, with the juniors having the higher of the two. Both groups had substantially higher correlations than did the seniors.

Correlation of Abstract Reasoning and GPA

The percentile rank earned on the Abstract Reasoning subtest of the Differential Aptitude Tests was correlated with the GPA earned in first-year bookkeeping or accounting. Reported in Table 5, page 19, were the mean percentile rank earned on the Abstract Reasoning subtest by each group and the correlations of percentile rank and GPA.

Seniors earned the highest mean percentile rank on the Abstract Reasoning subtest, but were closely followed by the sophomores. Juniors had earned the lowest mean percentile rank of the three groups. The standard deviation from the mean percentile followed the same order,

however sophomores standard deviation was closer to that of the juniors.

Table 5

Correlation of Abstract Reasoning and GPA

Class	Mean AR percentile	Standard deviation	Mean GPA	Standard deviation	Pearson r
Sophomores	61.3446	24.8026	3.0706	1.2206	.4640
Juniors	51.5961	26.0552	2.7179	1.1218	.3593
Seniors	62.2638	22.7749	3.2986	1.1816	.4055

Sophomores had the highest Pearson correlation for the Abstract Reasoning subtest percentile rank and the GPA. Juniors had the lowest correlation and the seniors were grouped between sophomores and juniors.

Correlation of Test Instruments
and GPA by Academic Classes

Summarized in this section were the correlations of the Otis-Lennon intelligence test raw score or Differential Aptitude Tests subtest percentile rank and the GPA earned in first-year bookkeeping or accounting. All correlations calculated for each academic class were exhibited in separate tables according to academic class group.

Examination of correlation of the various tests or subtest and grade point averages of sophomores (See Table 6, page 20) revealed that the Otis-Lennon intelligence test had the highest correlation with the GPA. This test was followed closely by the Differential Aptitude Tests

subtests of Numerical Ability and Verbal Reasoning, respectively. The Abstract Reasoning subtest correlated the lowest of the four test or subtest correlated with GPA.

Table 6
Correlation of Test Instruments and GPA for Sophomores

Test Instrument	Pearson r
Otis-Lennon IQ	.5644
DAT-VR	.5240
DAT-NA	.5388
DAT-AR	.4640

Exhibited in Table 7 were the correlations of the various instruments used with the grade point averages for juniors having

Table 7
Correlation of Test Instruments and GPA for Juniors

Test instrument	Pearson r
Otis-Lennon IQ	.4660
DAT-VR	.4075
DAT-NA	.5392
DAT-AR	.3593

completed first-year bookkeeping or accounting. At the junior level, it was found that the Differential Aptitude Tests subtest of Numerical Ability correlated highest with GPA. The Otis-Lennon intelligence test correlated next highest and was followed by the Differential Aptitude Tests subtest of Verbal Reasoning. The instrument having the lowest correlation of the group was the Differential Aptitude Tests subtest of Abstract Reasoning.

Table 8 presented the correlations found between the various tests or subtests and the GPA earned by seniors in first-year bookkeeping or accounting.

Table 8
Correlation of Test Instruments and GPA for Seniors

Test instrument	Pearson r
Otis-Lennon IQ	.3527
DAT-VR	.2026
DAT-NA	.3919
DAT-AR	.4055

Correlated most highly with GPA of seniors was the Differential Aptitude Tests subtest of Abstract Reasoning. The Differential Aptitude Test subtest of Numerical Ability correlated nearly as high and was followed by the Otis-Lennon intelligence test. The lowest correlation

was found to be between the Differential Aptitude Tests subtest of Verbal Reasoning and GPA.

Summary

The sample was analyzed to determine its makeup by academic class. Sophomores made up approximately 37 per cent of the sample, juniors approximately 33 per cent, and seniors approximately 30 per cent.

A calculation of the mean GPA earned in a first-year course in bookkeeping or accounting revealed that seniors earned a mean GPA of 3.2986, juniors a mean GPA of 2.7179, and sophomores a mean GPA of 3.0706 on a scale of one to five. Seymour (1954) reported similar results from his study of performance of first-year bookkeeping students in Kansas.

An examination of the correlations obtained between the various test instruments and GPA for each of the academic classes was performed.

The order of correlation of the instruments with GPA in first-year bookkeeping or accounting for sophomores was the Otis-Lennon intelligence test, the Numerical Ability subtest of the Differential Aptitude Tests, the Verbal Reasoning subtest of the Differential Aptitude Tests, and the Abstract Reasoning subtest of the Differential Aptitude Tests.

Correlation of the instruments with the GPA in first-year bookkeeping or accounting for juniors yielded slightly different order.

The Numerical Ability subtest of the Differential Aptitude Tests correlated highest followed by the Otis-Lennon intelligence test, the Verbal Reasoning subtest of the Differential Aptitude Tests, and the Abstract Reasoning subtest of the Differential Aptitude Tests.

Still another order of correlation was observed for seniors in first-year bookkeeping or accounting. The Abstract Reasoning subtest of the Differential Aptitude Tests correlated highest and was followed in order by the Numerical Ability subtest of the Differential Aptitude Tests, the Otis-Lennon intelligence test, and the Verbal Reasoning subtest of the Differential Aptitude Tests.

Chapter 5

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

SUMMARY

This investigation was a correlative study of sophomore grade level achievement in a first-year course in bookkeeping or accounting measured by GPA and correlated with previously administered intelligence and aptitude tests. The sample included 477 students of Billings West High School who had taken both an Otis-Lennon intelligence test and the Differential Aptitude Tests and had completed a first-year course in bookkeeping or accounting.

The hypotheses to be tested were these:

1. Sophomores seemingly did not achieve as high a level grade point average (GPA) as juniors and seniors enrolled in first-year bookkeeping or accounting.

2. When comparing GPA with intelligence test scores or percentile rank on a selected Differential Aptitude Tests subtest, there would be higher correlations for juniors and seniors than for sophomores.

A review of literature revealed no evidence of studies of a similar nature. A study was reported which had used the Differential Aptitude Tests raw scores in predicting success in selected elective courses, but did not include bookkeeping or accounting.

Examination of the literature revealed no singular device which could predict success in first-year bookkeeping or accounting. Most

evidence indicated that a first-year course in high school bookkeeping or accounting had been or should be offered in grades eleven or twelve.

Achievement based on grades (Seymour, 1954) indicated that seniors earned higher grades than sophomores and juniors earned lower grades than either seniors or sophomores.

Data about grade point achievement of students enrolled in a first-year course in bookkeeping or accounting at Billings West High School between the years 1966-1967 and 1970-1971 were taken from the permanent class record cards filed by instructors. Data about the performance of these same students on an intelligence test and aptitude tests were taken from the cumulative folder profile sheet prepared by guidance personnel.

Data were transferred into a Monroe 1785 Programmable Electronic Calculator, which had been programmed, using Monroe program number 3010-SA to give the mean, standard deviation, and the correlation of paired observations.

The data were summarized in tables. From the tables the mean, standard deviation, and correlation for each of the paired observations were reported for each of the academic classes.

The sample was analyzed to determine its makeup by academic class. Sophomores made up approximately 37 per cent of the sample, juniors 33 per cent, and seniors approximately 30 per cent.

A calculation of the mean GPA earned in a first-year course in

bookkeeping or accounting revealed that seniors earned a mean GPA of 3.2986, juniors a mean GPA of 2.7179, and sophomores a mean GPA of 3.0706 on a scale of one to five. Similar results had been reported (Seymour, 1954) from a study of performance of first-year bookkeeping students in Kansas.

An examination of the correlations (Pearson r) obtained between the various test instruments and GPA for each of the academic classes was performed.

The order of correlation of the instruments with GPA in first-year bookkeeping or accounting for sophomores was the Otis-Lennon intelligence test (.5644), the Numerical Ability subtest of the Differential Aptitude Tests (.5388), the Verbal Reasoning subtest of the Differential Aptitude Tests (.5240), and the Abstract Reasoning subtest of the Differential Aptitude Tests (.4640).

Correlation of the instruments with the GPA in first-year bookkeeping or accounting for juniors yielded a slightly different order. The Numerical Ability subtest of the Differential Aptitude Tests correlated highest (.5392) followed by the Otis-Lennon intelligence test (.4660), the Verbal Reasoning subtest of the Differential Aptitude Tests (.4075), and the Abstract Reasoning subtest of the Differential Aptitude Tests (.3593).

Still another order of correlation was observed for seniors in first-year bookkeeping or accounting. The Abstract Reasoning subtest of

the Differential Aptitude Tests correlated highest (.4055) and was followed in order by the Numerical Ability subtest of the Differential Aptitude Tests (.3919), the Otis-Lennon intelligence test (.3527), and the Verbal Reasoning subtest of the Differential Aptitude Tests (.2026).

CONCLUSIONS

Evidence, based on data gathered, calculated, and analyzed concerning the grade point achievement level of sophomores, juniors, and seniors, indicates that sophomores did in fact achieve a higher mean GPA than juniors although not as high as that earned by seniors.

Correlations of GPA and the various test instruments used in the study indicate a higher correlation for sophomores than for seniors on each instrument. Comparison of correlations further indicate that sophomore GPA's correlated more highly than those of juniors on three of the four instruments. The exception cited was a higher correlation for juniors than for sophomores on the Numerical Ability subtest of the Differential Aptitude Tests.

Evidence presented in this study indicates that both hypotheses to be tested must be rejected. Sophomores did not achieve the lowest mean GPA and correlations of GPA and the various test instruments indicated higher correlations for sophomores than for juniors of seniors in all but one instance.

That sophomores be excluded from enrollment in a first-year

bookkeeping or accounting course for any reason other than the time lag factor in vocational application of their skills cannot be supported by the results of this study.

Based on the correlations of test instruments and GPA, it must be concluded that sophomores will achieve as high as or higher than juniors or seniors. The predictability of their success based on this study suggests that sophomores will score equally as high or higher than juniors or seniors based on GPA.

RECOMMENDATIONS

Recommendations made on the basis of data collected and literature reviewed are as follows:

1. All available test results should be examined when screening prospective enrollees in a first-year bookkeeping or accounting course. No student should be excluded on the basis of the results of a single test instrument.
2. No student should be excluded from a first-year course in bookkeeping or accounting on the basis of class standing; i.e., sophomore, junior, or senior, but purely on their past achievement record.

APPENDIX

APPENDIX

SAMPLE DATA COLLECTION SHEET

Sophomores

Code*	VR	AR	NA	IQ	GPA
1H6	25	40	70	102	3.0
1K2	80	55	50	106	4.5
1H5	75	85	65	111	4.0
1H5	35	45	65	96	2.0
1H6	95	30	97	119	3.0
1H6	45	60	80	104	2.0
1R3	35	3	40	88	3.5
1H6	70	50	30	99	3.0
1R3	85	85	80	130	5.0
1R3	90	95	97	131	5.0
1R3	40	35	30	110	3.0
1R3	60	25	40	101	1.5
1H6	70	85	75	98	2.5

*Code Example

1H6

- 1 - Designates sophomore status when enrolled in bookkeeping or accounting
- 2 - Identifies instructor for reference to class permanent record cards
- 3 - Identifies class period for reference to class permanent record cards

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