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THE SURVEY OF STUDY HABITS AND ATTITUDES AS A
PREDICTOR OF COLLEGE GRADE POINT AVERAGE
AT MONTANA STATE UNIVERSITY

by

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

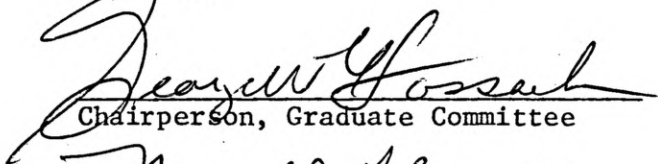
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ABSTRACT

This investigation was made to determine if a non-intellective factor would improve the academic achievement prediction formula used at Montana State University. The Brown-Holtzman Survey of Study Habits and Attitudes (SSHA) was the measurement used. Subjects were those counselees of the Montana State University Testing and Counseling Service who took the SSHA in the years 1968 through 1976. Fair correlation, .19 to .32 was shown between SSHA scores and actual college grade point average (CGPA) but SSHA scores did not aid in the prediction of CGPA for tested population. Computations showed the population to be homogeneous so results could not be generalized to include the Montana State University student body. It was concluded that for this population the SSHA was of no value as a predictor of CGPA. The results could not be considered final because of a lack of heterogeneous sample. The SSHA showed promise as a predictor and it was recommended that a future study be done using the SSHA and a heterogeneous population.

THE SURVEY OF STUDY HABITS AND ATTITUDES AS A
PREDICTOR OF COLLEGE GRADE POINT AVERAGE

Prediction of college grade point average has been of use to students, counselors, admissions and financial aid officials, and education policy makers. Accurate prediction can save time and funds for both student and university. It can decrease the level of student frustration by giving the student information that will help him make a more realistic curriculum choice. The prediction process can increase the efficiency of admission and financial aid officers. It also can be of aid to departments in advising students as to entry level into specific course areas such as mathematics and English.

Montana State University Testing and Counseling Service performed the function of gathering, processing and disseminating grade point prediction data at the institution. Data gathering began when high school grades were received and arranged into a University Computed High School Grade Point Average (UCHSGPA). During Freshman Orientation Week freshmen were given a scholastic aptitude test and separate quantitative and verbal scores were obtained. The UCHSGPA, the quantitative score, and the verbal score were entered into a prediction formula developed by the Testing and Counseling Service and the resulting college grade point predictions were forwarded to proper university officials. All data required and used in this prediction process were measurements based upon intellectual factors.

There had been no use made of non-intellective measurements as predictors of college grade point average (CGPA) at Montana State University. There have been many studies done nationwide using non-intellective factors as predictors of CGPA and some results from those studies seemed to be quite promising. A particular test that seemed to have some promise of utility in prediction of CGPA was the Brown-Holtzman Survey of Study Habits and Attitudes (SSHA).

Statement of Problem

The problem of this study was to determine the worthiness of adding a measurement of a non-intellective factor to the existing grade prediction formula at Montana State University. The non-intellective measurement chosen for this investigation was the SSHA.

General Questions to be Answered

1. Would the scores from SSHA show correlation with college grade point average?
2. Would the SSHA add significantly to the existing grade prediction formula?

Application to Education

The grade prediction formula that was in use at Montana State University yielded good results, but there was no consideration of

non-intellective factors were an untapped source for improving the accuracy of CGPA prediction.

It was noted by Hoyt (Note 1) and many other researchers that each college should develop its own prediction formula to account for its unique student population. The SSHA has been applied to CGPA prediction at several institutions but no study had been done at Montana State University. Results obtained in previous studies seemed to make the SSHA a worthwhile measuring device to investigate with at Montana State University. This investigation would hopefully aid the Montana State University Testing and Counseling Service in developing a better prediction formula relevant to its unique population.

It was thought that possible results beneficial to Montana State University would be savings in time and money for students and the university, improved admission and financial aid procedure, and a lowering of student frustration.

General Procedure

The basic idea of this investigation was to add scores from the SSHA to the existing prediction formula to determine if an improvement in the formula would result.

Data needed were SSHA scores, UCHSGPA, scholastic aptitude quantitative and verbal scores, and the CGPA. The only difference in data collection for this investigation and for the existing grade

prediction formula was the obtaining of SSHA scores.

The SSHA had been administered from 1968 through 1976 to scholastic probationary students and to various other counselees as part of regular counseling procedure by the Montana State University Testing and Counseling Service. It was decided to make use of those available scores rather than go to additional time and expense of setting up a testing administration. This method gave a longitudinal effect to this investigation but also produced the possibility of a homogeneous population.

SSHA scores, UCHSGPA, scholastic aptitude quantitative and verbal scores, and CGPA were all on file at the Montana State University Testing and Counseling Service. During the time period covered by this investigation there were 281 administrations of the SSHA but research yielded only 112 subjects for which a complete set of data could be obtained.

Once the data had been compiled it was entered into the Montana State University computer and intercorrelations, partial correlations, and a prediction formula were determined.

Limitations

1. The SSHA scores were received from college experienced students rather than from high school seniors.
2. The SSHA scores were from various college grade levels.

3. Most subjects were scholastic probation counselees or were referred to counselors for other reasons and therefore could not be considered as a normal Montana State University population.

4. The SSHA is self reporting and therefore depends upon student motivation and honesty.

Definition of Terms

UCHSGPA: The University Computed High School Grade Point Average is basically an average of nine different grade point averages and grades compiled from each student's high school record.

CGPA: The College Grade Point Average was considered to be the cumulative grade point average achieved at the end of the freshman year.

Summary

Prediction of grade point average was important to students, university officials, and education policy makers at Montana State University. The Montana State University Testing and Counseling Service was fulfilling the mission of predicting freshman grade point average by using strictly intellectual factors. This investigation sought to determine if the use of a non-intellectual factor would increase the prediction accuracy of the existing formula. The SSHA showed promise as a non-intellectual factor that could be used as an additional variable in a grade prediction formula. The goal of this

investigation was to add SSHA scores to the existing prediction formula to determine if more accurate grade point average prediction would result.

REVIEW OF LITERATURE

There had been a large number of studies done concerning the prediction of CGPA. It was impossible to mention all the types and results of the studies in that area, but one of the goals in this chapter was to present a general review of work done with intellectual factors and non-intellectual factors. The scope was then considerably narrowed to consider the studies done using the SSHA as a predictor. Also covered in this review were other studies done using study attitude factor measurements other than the SSHA and studies done at Montana State University in the area of grade prediction for Montana State University students.

Intellectual Factors as Predictors of CGPA

Most researchers agreed that the most reliable predictor of college grade point average (CGPA) was the high school record. This record was presented as high school rank (HSR) in graduating class, high school grade point average (HSGPA), or in some form such as Montana State University's UCHSGPA.

The most extensive work, with respect to size of population of sample was done by Astin (1971) who in the 1960's twice used 35,000 students and found that high school grades were the best predictors of CGPA. Among those many researchers who concurred with Astin was Perry (Note 2) who determined a .54 correlation between HSA and CGPA.

Most findings were similar to Perry's and usually tended to be slightly higher (Gell * Bliel, Note 3); Judy, (Note 4).

The high school record was considered the most effective predictor but many colleges also used either the Scholastic Aptitude Test (SAT) or the test from the American College Testing Program (ACT). While some researchers found correlation between SAT and CGPA and ACT and CGPA that went up to .58 (Cole and Miller, 1967) and .55 (Lins, Abell & Hutchins, 1966) the most commonly reported correlations were lower than .50. Lenning (Note 5) found a .46 correlation between ACT and CGPA in one study and in a later study with Maxsey (1973) they found the correlations with ACT ranged from .17 to .56 and SAT ranged from .16 to .57. Most of their results gathered from 17 different colleges were in the .30 to .40 range. Their wide fluctuations were due, they thought, to the variety of types of schools they investigated.

Other intellectual factor measures, such as the Minnesota Scholastic Aptitude Test, were quite widely used by colleges. Studies using those tests yielded similar results to correlations found for the ACT and SAT.

When high school grades were in multiple or step-wise regression with an achievement or aptitude test the correlation results were approximately .60 between the measurements and CGPA. Jex (Note 6) produced correlations ranging from .53 to .73, Lunnenborg (Note 7)

found .57, Pugh and Morgan (Note 8) found .58, Lins et al. (1966) determined .60 for men and a .63 for women, and Lenning (Note 5) found a .58.

Non-Intellective Factors as Predictors of CGPA

A great variety of studies had been done using non-intellective factors as predictors of CGPA. Factors varied from race and sex to whether studying was done in bed or at a desk. It was not the intent of this investigation to report all studies done in this area but some were mentioned to establish a feeling of work done and results obtained in the broad field.

Interest tests. Almvig (Note 9) used interest scale results from the Strong Vocational Interest Battery (SVIB) and found no significant correlation with CGPA. Johnson (Note 10) used scales devised by himself from the SVIB and found correlation between those scales and CGPA that ranged from .24 to .40. Although Johnson's findings were worth mentioning most researchers using interest tests as predictors agreed with Humphreys (1968) who maintained that interest variables were not of much use in CGPA prediction.

Attitude measurements. Various attitudes had been studied and the best results seemed to be a correlation of .30 with CGPA. In a study of the importance of achievement to an individual Cole and Miller (1967) found that this measured attitude correlated .20 to

.27 with CGPA. Stroup (1970) used the Responsibility rating from the California Psychological Inventory and found correlations of .22 to .29. Using scales of internal-external control and high-low social desirability Nowicki (Note 11) felt he was able to predict degree of college achievement for certain types of students.

Menges (Note 12) used the Productive Thinking Scale from Wallach and Wing's questionnaire and found correlations of .24 for males and .07 for females between productive thinking and CGPA. Using Dean's Alienation Scale subscore of powerlessness value for CGPA. Lin and McKeachie (1970) determined that measures of anxiety were of little value in prediction but Desiderato and Koskinen (1969) found evidence in a later study that disagreed in part with Lin and McKeachie. Desiderato and Koskinen found that extreme anxiety or lack of anxiety is a good indicator of high or low college achievement.

High school counselor and teacher ratings. Ratings by high school teachers and counselors showed to be a fairly good predictor of CGPA. Lins et al. (1962) found that results from the Teachers Marking Motivation Scale, produced correlation of .42 to .52 between that scale and CGPA. Nicholson (Note 14) used his Admission Index, a ranking based on counselor ratings of students, and found that his device was not as good as high school grade records but was a better predictor than the SAT scores.

National Merit finalists. In a study of a very homogeneous

group, the National Merit Finalists, Nichols (1966) found that by combining non-intellective factor measurements from the California Psychological Inventory and the Objective Behavior Inventory he received a correlation of .27 between that combination and CGPA. This was not an especially good correlation but deserved consideration because that same group yielded a HSA correlation of .33 with CGPA and the SAT gave a correlation of only .12 with CGPA.

Disadvantaged students. Increased attention given to disadvantaged students also produced studies done in prediction of CGPA for those individuals. The results were not definitive. Creighton (Note 15) found that peer prediction gave a .28 correlation with CGPA, counselor prediction gave a correlation of .19, and the ethnic group showed correlation of .25 with CGPA. Creighton's highest figure showed a .62 correlation between CGPA and hours of credits attempted in college.

Sedlacek and Brooks (Note 16) demonstrated that the HSGPA had a very low .08 correlation with CGPA and a measure of internal-external control had a .24 correlation with CGPA. Hammond and Rosik (Note 17) used teacher recommendations and found a relationship of .28 between CGPA and teacher ratings. This correlation was higher than that demonstrated for SAT scores (.17) and for California Achievement Test scores (.23).

Extracurricular achievement. Correlation between extra-

curricular achievement and college grade achievements did not show much promise for CGPA predictions. Holland and Richards (1965) found such a correlation to be small or non-existent and Richards' (Note 18) findings produced correlations of $-.05$ and $.14$, figures not worth including in a prediction formula.

Self-Reports. The highest correlations between a non-intellective factor and a CGPA found in this review of literature were in a study by Hossack (Note 19). Using an instrument called Self-Reports, How Well Do You Know Your Abilities for College Work? he found correlations of $.35$ to $.66$ between CGPA and results of that self-rating survey. In multiple regression with Opinion, Attitude, and Interest Survey, Hossack demonstrated correlation rising to $.82$, an outstanding figure.

Miscellaneous. There had been many studies done using various non-intellective factors that did not easily fit into any category. Among those that were described as miscellaneous was Call's (Note 20) study in which he found no difference in predictions for commuter and resident students. Ragan (Note 21) found nothing to help prediction when using time of application to college as the independent variable. In his extensive study Astin (1975) found that the amount of family income, while showing correlation with CGPA, would add nothing significant to a multiple regression that was already using HSA as an independent variable. There were many similar investigations but

there did not seem to be any usable results.

Results from studies using non-intellective factors as predictors were, on the whole, not as effective as intellective factor predictors.

Research Using the SSHA

Results gathered using the SSHA as a predictor of CGPA ranged from insignificant to outstanding.

Beach (Note 22) in a study using marginally accepted college students, found the SSHA to be of no use in predicting CGPA for that group of students. Lenning (Note 23) concluded that while the SSHA showed good correlation with CGPA it did not add to existing prediction formulas.

Brown (1964) used the SSHA in predicting CGPA for students enrolled in home economics, science and humanities, and engineering. In that study the SSHA, though it showed good correlation, did not add appreciably in a multiple regression formula. In another investigation Brown and Dubois (1964) found that among high ability male freshman the SSHA gave a better correlation than HSGPA. The SSHA yielded .44 for engineering students while HSGPA for those same students yielded a .38.

Barrilleaux (Note 24) termed the SSHA a useful predictor that had low correlation with scholastic aptitude tests. He noted, however, that when used with HSR in multiple regression the SSHA did not cause

sufficient increase in predictive power to warrant its use. A very high correlation of .64 between CGPA and SSHA scores was determined by Corlett (Note 25) in a study done at Portland State University. Lin and McKeachie (1970) used an abridged version of the SSHA and found good correlation in three of four groups they studied.

Wigel and Wigel (1967) conducted a study in which they asked students to answer the SSHA from two points of reference - the real and the ideal. The real was to signify their true feelings and ideal was to signify what each student felt ideal study habits and attitudes would be. The results showed correlations of .43 for males and .39 for females between SSHA real answers and CGPA. The ideal results produced a low .10 correlation for females but an astounding .86 for males. The sample size was less than 20, so the authors suggested more research.

Other Study Attitude Factor Measurement

The SSHA had been the most widely used instrument in trying to determine relationships between study habits and attitudes and CGPA but there had been other studies done using different instruments.

Hinrichsen (1972) found a correlation of .55 between SAT verbal scores and CGPA but by adding a self-reported score he raised that .55 correlation to .65. This was a replication of his earlier study and it caused him to feel strongly that self-reported study

behaviors were a valuable tool in predicting CGPA.

The Carter California Study Methods Survey was used by Michael, Baker and Jones (1964) who found that most subscale scores were low but they did find that one of the scores produced a correlation of .42. Zedeck (1971) used scores from the Wrenn Study Habit Inventory and found a .38 correlation with CGPA.

Grade Prediction Studies at
Montana State University

There have been no studies at Montana State University involving prediction of CGPA from measurement of study habits and attitudes but there were several other studies done using both intellectual and non-intellectual factors.

Billis (Note 26) used Bell's projective instrument in an attempt to find relationships between Montana State University students' CGPA and the six personality types listed by Bell. Billis' results showed that the group of students classed as achievers received higher grades than students classed as avoiders or pleasers.

High school science grades were used to predict college science grades by Craven (Note 27). He demonstrated a .61 correlation between high school and college science grades and a .41 correlation between number of high school science courses taken and college science grades.

Slaughter (Note 28) in his study of relationships between size

of high school and CGPA found that the size was important but did not warrant the extra effort needed to add it to the existing prediction formula. Frideres (Note 29) thought that size of high school made no difference on the CGPA at Montana State University but he showed that High School Honor Scholarship recipients received higher college grades than did non-recipients.

Suvak (Note 30) did the most comprehensive study of CGPA prediction at Montana State University. In that study he used high school records and found correlation between HSGPA and CGPA was .56. Suvak devised the UCHSGPA which produced a correlation of .65. This study was the basis for prediction of CGPA at Montana State University from that time to the time of the writing of this paper.

In an investigation using high school science grades Himmel (Note 31) found that HSGPA correlated to .60 with CGPA but high school science grades added very little to the prediction of CGPA.

Summary

This review of literature revealed that most researchers think that the most accurate predictor of CGPA was some form that used high school grades. The commonly used ACT and SAT tests were not considered as accurate as high school records. On the whole, intellectual factors were considered to be more dependable predictors than non-intellectual factors.

Many researchers thought that non-intellective factors were definitely worth investigating as possible predictors of CGPA. The variety of factors was large and results were wide-spread. Measurements of study habits and attitudes showed good promise of being predictors of CGPA.

Research by Suvak at Montana State University produced the prediction formula for that school. No other research at Montana State University yielded definitive usable material for prediction purposes at that college.

PROCEDURES

The purpose of this investigation was to determine whether the SSHA could improve upon the existing grade prediction formula at Montana State University. Two general steps to making that determination were to (1) find if any correlation did exist between SSHA scores and CGPA, and if there were sufficient correlations, (2) add the SSHA scores to the existing formula to determine if a higher correlation did result between the new formula and the CGPA.

This chapter included a discussion of the population, the method of data collection, and the methods of analyzing the data.

Population

SSHA administrations took place between 1968 and 1976 and were administered to Montana State University students who had contact with the Testing and Counseling Service. Most of the students who took the SSHA were scholastic probationary students and were of freshman or sophomore level. The fact that nearly all of the subjects were counselees gave the investigation a possibility of a homogeneous population. This possibility was accepted and it was felt to be offset by the advantages of a longitudinal type investigation and by the savings in time and expense of a completely new administration of the SSHA.

Data Collection

The following items of data were collected from the files of the Testing and Counseling Service and were entered into the computer at Montana State University:

1. The seven scores resulting from administration of the Survey of Study Habits and Attitudes.
2. The University Computed High School Grade Point Average.
3. Quantitative score from the freshman scholastic aptitude entrance examination.
4. Verbal score from the freshman scholastic aptitude entrance examination.

The SSHA was administered to 281 students in the period from 1968 to 1976, but complete data information was only available for 112 students. The freshman CGPA was defined to be the cumulative CGPA after a student had attempted a total of 30 credits. The upper limit for credits attempted was set at 70. This 30 to 70 range, though beyond the university defined 45 credits for freshman level, was felt to be acceptable. This range allowed the sample size to be statistically plausible.

Procedures

The actual computations of this investigation were greatly simplified by use of the computer. The data was placed into the

computer and a multiple regression program was run to yield the following information:

1. A mean and standard deviation for each of the 11 variables.
2. A correlation pairing between the 11 variables.
3. A partial correlation using the actual CGPA as the dependent variable and the other 10 variables as independent variables.
4. A multiple regression correlation coefficient for CGPA determined from the 10 independent variables.
5. An F ratio to determine the significance of the multiple correlation coefficient.
6. A prediction formula using 10 independent variables to determine the dependent variable, the CGPA.

The results compiled by the computer were presented in tabular form in the next chapter.

Summary

The purpose of this investigation was to determine if the SSHA could add to the accuracy of the existing academic achievement prediction formula. This determination was accomplished by using a multiple regression program in which seven SSHA scores, the UCHSGPA, and quantitative and verbal scholastic aptitude scores were independent variables and the actual CGPA was the dependent variable.

The results of this multiple regression program were then

analyzed in the next chapter.

FINDINGS

Under the procedure section in the previous chapter six program results were listed. These results were presented in this chapter in the same order and with appropriate comment.

Mean and Standard Deviation

The scores for the 11 variables were tabulated and a mean and standard deviation were found. The results were presented in Table 1.

Table 1
Mean and Standard Deviation of Scores
For Prediction Equation Variables

N=112		
Variables	Mean	Standard Deviation
1. UCHSGPA	2.34	.597
2. Quantitative (Q)	4.73	1.80
3. Verbal (V)	4.48	2.00
4. Delay Avoidance (DA)	15.1	2.77
5. Work Methods (WM)	19.9	8.24
6. Study Habits (SH)	34.7	12.7
7. Teacher Approval (TA)	28.0	8.39
8. Education Acceptance (EA)	23.1	7.17
9. Study Attitudes (SA)	51.2	14.5
10. Study Orientation (SO)	86.0	24.1
11. CGPA	1.88	.525
Note: Variables numbered 4 through 10 are SSHA scores		

The most important information noticed in Table 1 was the mean CGPA. The grade point average was far below the CGPA for the normal college population. The possibility of a homogeneous population became the reality of a homogeneous population and all results received had to be viewed with that observation in mind.

Table 2
Correlation Pairings Between Prediction Equation Variables

N=112		Q	U	DA	WM	SH	TH	EA	SA	SO	CGPA
1.	UCH-SGPA	.40	.42	-.02	.31	.19	.02	.00	.00	.09	.45
2.	Q		.68	-.03	.40	.24	.26	.08	.20	.23	.14
3.	U			-.14	.38	.19	.34	.14	.27	.28	.24
4.	DA				.38	.82	.37	.56	.49	.71	.24
5.	WM					.81	.42	.47	.49	.70	.28
6.	SH						.50	.62	.60	.87	.32
7.	TH							.70	.94	.82	.19
8.	EA								.90	.87	.28
9.	SA									.91	.22
10.	SO										.30

Note: Variables numbered 4 through 10 are SSHA scores

Some very high correlations appeared in Table 2 but examination showed they were correlations between scores of the SSHA.

The amount of correlation between SSHA scores and CGPA was one of the questions answered by Table 2. The correlations ranged from a low of .19 for Teacher Approval (TA) to a high of .32 for Study Habits (SH). These were mediocre figures when compared to correlations demonstrated in other studies.

It was noted with interest that the Q and V scores used in the existing prediction formula did not fare as well as the SSHA scores. The Q score of .14 was the lowest correlation in Table 2 with CGPA and the V score of .24 did only as well as 3 of the 7 SSHA scores.

The highest correlation with CGPA came from the UCHSGPA which showed a figure of .45. This was considerably lower than the .64 Suvak (Note 30) received in his 1966 study.

Investigation of the correlation between UCHSGPA and SSHA scores showed that five of the seven scores showed nearly nonexistent correlation with UCHSGPA and the two remaining scores Work Methods (WM) and SH showed .31 and .19.

Partial Correlation

The third item procured from the computer programming were partial correlations. The results were presented in Table 3.

Table 3

Partial Correlations for Academic Prediction Variables

N=112	
Variable	Partial Correlation
1. UCHSGPA	.42
2. Q	-.11
3. V	.13
4. DA	.00
5. WM	-.06
6. SH	-.01
7. TA	-.80
8. EA	-.03
9. SA	.05
10. SO	.04

Note: Variables numbered 4 through 10 are SSHA scores

Using standard computations involving partial correlation it was determined that anything over .195 would make the partial correlation significant at the .05 level. This meant that the only acceptable figure for correlation between the 10 independent variables and the dependent variable CGPA, was the UCHSGPA which had a partial correlation of .42.

This partial correlation was important to this investigation because it served as a check on the correlations received in Table 2.

The figures in Table 3 indicated that once the common influences the independent variables had on CGPA were removed, the only real correlation worth putting in a prediction formula was the UCHSGPA. The other variables were, in effect, duplicating the information the UCHSGPA had already given the formula.

Multiple Correlation Coefficient and F Ratio

The observed multiple correlation coefficient for this investigation was computed to be .56. This meant that the 10 variables listed in this study combined to give a .56 correlation for prediction of CGPA.

To determine if this multiple correlation coefficient was significantly different from zero an F ratio was computed. To be significant in this investigation a value of higher than 2.76 was needed. This study showed an F value of 4.69 and therefore, the multiple correlation of .56 was significantly different from zero.

Prediction Formula

Using all 10 independent variables to predict CGPA the following formula was the result of the multiple regression program run for this investigation:

$$\text{Predicted CGPA} = .5539 + (.3904 \times \text{UCHSGPA}) - (.398 \times \text{Q}) + \\ (.0458 \times \text{V}) - (.0003 \times \text{DA}) - (.0111 \times \text{WA}) - (.0049 \times \text{SH}) - (.0507 \times \text{TH})$$

$$- (.0198 \times EA) + (.0220 \times SA) + (1.0179 \times SO),$$

The constant given in the prediction formula was determined during the computing of the multiple regression. It was used for adjustment purposes so the result of the formula completion would appear as a CGPA.

The final chapter will present a summary and conclusions of this investigation.

SUMMARY, DISCUSSION, AND CONCLUSIONS

The purpose of this investigation was to determine if the SSHA would improve upon the existing prediction formula at Montana State University. Scores from SSHA administrations, the UCHSGPA, and the CGPA, and separate quantitative and verbal scores from scholastic aptitude tests were entered into a computer. A multiple regression was run to determine correlation pairing between variables and a prediction formula for CGPA. Tests of significance were computed to determine the validity of correlations received.

This investigation found that a prediction formula using SSHA scores plus variables used by the existing Montana State University formula produced a correlation coefficient of .56. Tests of significance showed that SSHA scores were responsible for only a very small part of that .56 correlation. The SSHA scores did show correlations with CGPA that ranged from .19 to .32 but a partial correlation showed that the SSHA did not add correlation power that was independent from the UCHSGPA correlation with CGPA.

DISCUSSION

The purpose of this investigation was to determine if SSHA scores could make CGPA prediction more accurate. The prediction formula using SSHA scores showed a correlation coefficient of .56. This figure was not nearly as good as was produced by the existing

formula. This led to the conclusion that the SSHA was not of value in improving the existing prediction process for the population tested.

The results of this investigation were not considered conclusive for the entire Montana State University population because of the homogeneous nature of the sample population. The population was declared homogeneous because of the mean CGPA for the sample being 1.88, a figure well below the normal CGPA at Montana State University. In addition to this low CGPA the subjects were alike in that most of them were counselees of the Testing and Counseling Service. The decision to use existing SSHA scores instead of generating a new study detracted from the ability to reach firm conclusions about original questions asked in this investigation.

The SSHA scores showed some correlation with CGPA. This indicated that the SSHA may have some value in prediction of CGPA. Further evidence of the possible value of the SSHA for use in CGPA prediction was the low correlation shown between UCHSGPA and SSHA scores. Five of the seven SSHA scores showed correlation of nearly zero with UCHSGPA.

CONCLUSIONS AND RECOMMENDATIONS

It was concluded that for the population used in this investigation the SSHA would not be a good addition in predicting of CGPA. The SSHA would not improve upon the existing prediction

mechanism.

It was further concluded that the value of this investigation was diminished because of the homogeneous nature of the sample population.

The SSHA showed some correlation with CGPA and showed very little correlation with UCHSGPA. This would indicate that it has possible value as a predictor of CGPA at Montana State University. The lack of heterogeneous sample prevents a final conclusion concerning the value of SSHA as a predictor of CGPA for the entire student population.

It is recommended that there be a future study using the SSHA as a predictor and to use a more representative sample than was used in this investigation.

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