An Exploratory Study of the Relationship of High School Non-Academic Achievements to Community College Academic Achievement

Ira C. Livingston
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AN EXPLORATORY STUDY OF THE RELATIONSHIP
OF HIGH SCHOOL NON-ACADEMIC ACHIEVEMENTS TO
COMMUNITY COLLEGE ACADEMIC ACHIEVEMENT

by

I! C. Livingston, Jr.

A Project Report
Submitted to the
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of the
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Correlations of High School Non-Academic Achievements, High School Academic Achievement, Academic Potential, and Community College Academic Achievement
CHAPTER I

THE PROBLEM

One of the obvious trends in American education today is the increasing number of high school students who are seeking post high school education. To some students, college represents a path to social mobility while to others it is preparation for a vocation or profession. Most people would agree that a college education should be a preparation for life, both in the community and in a vocation.

A recurring problem of colleges is the establishing of procedures for selecting the applicants for admission. Hills (6) suggests that no institution is unselective. Measures of academic potential are the chief methods used to determine admission of students to college (2). The emphasis by colleges and universities on these measures may lead to the neglect of other equally important talents. To rely on only one kind of measure and to neglect others which might be equally important, may result in the loss of talent. Since academic potential may be only one of several dimensions of talent, it may need to be used with discrimination. In the interest of human and social values, educational institutions may need to be concerned with non-academic achievements as well as success in the classroom.

A study by Irvine (10) indicates that improved prediction of graduation might depend upon the use of non-intellective factors. Lins, Abell, and Hutchins (11) in their prediction-of-academic-
success study, state that one of the principal emphasis in the task of refining the techniques of prediction would be seeking new prediction variables, particularly non-intellective variables. In addition, they indicate that research has not thus far disclosed all that needs to be known about academic prediction.

Many of the procedures used in academic assessment may be of doubtful value. Giusti (5) states that there is a need, not only for intensive research studies within individual institutions, but also for co-operative research studies in which the efforts of several research programs can be co-ordinated so that a common attack can be made on prediction problems.

The selection of students for college is usually based in part on a prediction of the student's performance in college. Nichols (13) indicates that the growing uniformity of selection practices might lead one to assume that the prediction of college performance has reached a state of stable maturity satisfactory to most practitioners. He argues that there is increasing concern and dissatisfaction with the current state of the practice.

Research on the relationship of all sorts of variables should be continued in understanding students and other approaches should be utilized. Mayhew (12) indicates that the admissions problems of various types of institutions are so varied that generalizations have little applicability. He believes that junior colleges with their open door policies, state institutions, prestigious private institutions, and the garden variety of private institutions each
have different perplexities. Thus, solutions should be approached on an institutional rather than a national basis.

The two-year colleges are probably the fastest growing segment of American higher education. By 1970, it is estimated there will be one thousand two-year colleges in the United States which will enroll nearly two million students. Richards and Braskamp (14) state that the two-year college will be the first college attended by an increasing proportion of entering college freshmen. In addition, they state that the growing importance to American society of two-year colleges emphasizes the need for comprehensive information about these institutions.

In view of the rapid growth of the two-year colleges and the scant knowledge regarding predictability of success for two-year college enrollees, it is important that research be done on factors that could assist educators in better predicting academic outcome.

Statement of the Problem

The present study explores the relationship of high school non-academic achievements to community college academic achievement.

Setting of the Problem

The subjects for this research were full-time freshmen students enrolled in Jackson Community College. The college was established in 1926, as a Community College Department of the Union School District of Jackson. On July 1, 1965, the college began operations as an independent county community college district.
Jackson Community College is a comprehensive school of higher education composed of divisions in Arts and Sciences, Technical, Business, and Vocational Education. Students may spend the equivalent of two years at Jackson Community College and then transfer to a senior college or they may take one- or two-year programs in various fields without transfer to another school. The majority of the students enrolled in the college are residents of Jackson County. There are, however, out-of-county, out-of-state, and foreign students enrolled at the college.

Limitation of the Study

A distinct limitation of this study is that less than 100 percent of the population was included. Because of administrative policies and procedures, complete data were not available on all of the full-time freshmen.

Assumptions

The basic assumptions underlying this research are:

1. The high school non-academic achievements used in this study are notable accomplishments.

2. The school grades at the end of the first semester of college attendance represent academic achievement.

Definitions of Terms

Terms basic to the understanding of this study which are used frequently throughout the paper are defined as follows:
1. High school achievements. As defined by the American
College Testing Program (20), high school achievements are the num-
ber (0-8) of the student's notable achievements during high school
in each of six areas -- leadership, music, dramatic arts, art, lit-
erature and science. All items refer to achievements outside of
the classroom and not done as part of a class assignment.

Some examples are as follows:

Leadership: appointed to a student office; organized a school
political group or campaign; participated in a student movement to
change institutional rules, procedures, or policies; participated
in off-campus political campaign.

Music: composed music; played in school musical organization;
participated in a state music contest; performed with a professional
musical group (such as an orchestra, band, choral group); won recog-
nition in a state music contest.

Dramatic arts: placed first, second, or third in a regional
or state speech or debate contest; entered a school speech or de-
bate contest; had lead in play sponsored by high school or church;
read for part in high school play.

Art: finished a work of art (such as painting or sculpture)
on his own; won a prize or award in a statewide or regional artistic
competition (painting, sculpture, ceramics, etc.); had photo-
graphs, drawings, or other artwork published in a public newspaper

1 The list of non-academic high school achievements is found
in Appendix A.
Literature: edited a school newspaper or yearbook; wrote an original but unpublished creative piece; won a prize or award for creative writing; had creative work published in school literary magazine or newspaper.

Science: won a prize or award for scientific work or study; built a piece of equipment or laboratory apparatus; placed in a regional or state science contest; did an independent scientific experiment.

2. **Full-time students.** As defined in the 1968-1970 Jackson Community College catalog (19), full-time students are enrolled for at least 12 semester hours of credit.

3. **Academic achievement.** According to the 1968-1970 Jackson Community College catalog (19), the grades the student receives indicate academic achievement.

The Hypothesis

The present study was designed to investigate the hypothesis\(^2\) that high school non-academic achievements are related to academic achievement of full-time freshmen community college students.

\(^2\)Reformulation of the hypothesis to testable null form is found in Chap. III, p. 15.
CHAPTER II

A REVIEW OF SELECTED RELATED STUDIES

The prediction of academic achievement has been given a great deal of attention in the last 20 years. More recently there has been considerable interest expressed in non-academic factors as predictors of academic achievement at the college or university level.

It is the purpose of this chapter to review pertinent studies dealing with the relationship of non-academic achievements and college academic achievement. These findings do present the reader with recent literature concerning the problem.

In a study by Richards, Holland, and Lutz (15) a questionnaire was designed to assess the non-academic accomplishments of college students. The questionnaire consisted of 12 scales to measure notable extra-classroom accomplishment and one scale to assess recognition for academic accomplishment. To determine the statistical characteristics of the scales, they were administered as part of a larger survey to different groups of college students -- 3,147 freshmen, 5,127 sophomores, and 1,566 seniors -- in a variety of colleges. The results suggest that non-academic scales possess some construct validity and that they are relatively independent of academic grades and recognition.

Holland and Richards (7) in an attempt to determine if academic and non-academic accomplishment were related, found that the cor-
relations were generally negligible. The sample for the study consisted of 7,262 college freshmen, of whom 3,770 were female, enrolled in 24 colleges. The academic accomplishment was represented by a test of academic potential, the American College Testing Program (ACT), and by average high school grade. The assessment device used to estimate various student characteristics was called the American College Survey. The student scores for the academic achievement tests, the student scores of extra-curricular achievement, and the student average school grades were compared. The results suggest that academic and non-academic accomplishment are relatively independent dimensions of talent.

Another study by Holland and Richards (8) of 18,378 college applicants correlated the student scores on the American College test battery, the student scores for the non-academic achievement scales on the Student Profile Section of the ACT battery, and the student high school grades. The non-academic achievement scales included the following areas: leadership, music, drama and speech, art, writing, and science. In general, the accomplishments involve public action or recognition. Each scale consisted of eight items ranging from common and less important accomplishments to rarer and more important accomplishments. The score on each scale is simply the number of accomplishments. Students with high scores on one or more of these simple scales presumably have attained a high level of accomplishment, which requires complex skills, long-term persistence, or originality. The results of the study strongly suggest that academic and non-academic accomplishment are relatively
independent dimensions of talent.

The prediction of student accomplishment in college was the
focus of a study of 7,208 students at 22 colleges by Richards,
Holland, and Lutz (16). Criteria included college grades, 12 scales
designed to measure notable extra-classroom accomplishment in college,
and one scale to assess recognition for academic accomplishment.
Predictors included scores on ACT tests, high school grades, and six
scales measuring non-academic accomplishments in high school.
Results of this study indicate that non-academic accomplishments
can be assessed with moderate reliability, that both academic and
non-academic accomplishments can be predicted to a useful degree,
and that non-academic accomplishment is largely independent of
academic potential and achievement.

A study to evaluate the predictive validity of the ACT tests
and the non-academic achievement scales of the Student Profile Sec-
tion of the American College Testing Program was conducted by Rich-
ards and Lutz (17). The sample for this study included a repre-
sentative sample of students from 35 colleges. Fourteen of these
were two-year colleges and 21 offered four years of undergraduate
education. Criteria included college grades, 12 scales designed to
measure notable extra-classroom accomplishments in college, and one
scale to assess recognition for academic accomplishment. Predictors
included scores on ACT tests, high school grades, and the six scales
measuring non-academic accomplishments in high school. The results of
this study indicate that non-academic accomplishment can be assessed
with moderate reliability, that both academic and non-academic accomplishment can be predicted to a useful degree, and that non-academic accomplishment is largely independent of academic potential and achievement.

Baird and Richards (1) examined the use of academic and non-academic achievement in the selection of 8,908 college students at 35 diverse colleges. Complete follow-up data were obtained for 5,695 students. The results of this study indicated the following:

1. Selecting solely on academic achievement in high school admitted many students who obtain satisfactory college grades and excluded many dropouts but also excluded the majority of college non-academic achievers.

2. Selecting solely on high school non-academic achievements admitted students who achieved in non-academic areas in college but also admitted many academic failures and dropouts.

3. A combined strategy of first requiring a C average in high school and then selecting on high school non-academic achievements admitted the majority of college non-academic achievers and excluded the majority of academic failures and dropouts, but also excluded many students who earned college grades of C or above.

4. Combining a B average in high school with non-academic achievement excluded most college achievers in all areas.

The results also support earlier correlational studies showing that academic and non-academic achievements are largely independent, and that both academic and non-academic achievement can be predicted to a useful degree.

The degree of relationship between selected non-intellectual factors and the academic success of freshmen during their first semester at the University of Illinois was studied by Spencer and
Stellings (18). There were 4,967 students included in the sample. Non-intellective factors were defined by certain biographical and demographic characteristics of students. Academic success was defined by first semester grade-point average (GPA) and by student status. GPA was coded A = 5; B = 4; C = 3; D = 2; E = 1. Student status was coded: clear = 3; probation = 2; dropped = 1. The results of the study indicated that the validity coefficients were significant but relatively low and that there appears to be the possibility that certain non-intellective factors are associated with academic achievement at the University of Illinois. However, the non-intellective data added virtually nothing to ACT aptitude scores in predicting first semester GPA.

Summary:

Based on a review of selected related studies, it would appear that non-academic and academic accomplishments are relatively independent dimensions of talent.
CHAPTER III

DESIGN AND METHODOLOGY

The design and methodology used in this study are described under the following headings: Impetus for the Study; Population; Procedure Used in the Collection of Data; Null Hypothesis; and Examination and Analysis of Data.

Impetus for the Study

The motivation to conduct a study dealing with the relationship of high school non-academic achievements and academic achievement of full-time freshmen students at Jackson Community College was an outgrowth of the concern of the college administrators, counselors, and faculty with the problem of college academic achievement of full-time freshmen students.

Results of this study would provide information and understanding of the students. College administrators, counselors, and faculty might base decisions pertaining to admission, curriculum, and counseling services for entering students on the basis of this information.

Population

The Registrar of Jackson Community College reported that 752 full-time freshmen students were registered for the 1967 fall semester.
There were 327 students eliminated from the population for the following reasons: foreign students do not participate in the American College Testing Program; reduction of course load below 12 semester hours of credit; withdrawal; disenrollment; did not participate in American College Testing Program or did not complete the Student Profile Section; incomplete grades reported; and information not available on students who entered with the General Educational Development Test.

The total sample studied was 425 full-time freshmen students who registered at Jackson Community College in the fall of 1967, completed the fall semester, and participated in and completed the American College Testing Program.

Procedures Used In The Collection Of Data

The American College Testing Program is an independent, nonprofit corporation chartered under the laws of the state of Iowa. It was founded in 1959. The program regularly collects, processes, analyzes, and reports information for use in educational planning by college-bound students, their high schools, and colleges. Its principal function is to transmit timely information that is particularly relevant to educational planning during the period of transition from high school to college.

Some of the main purposes of the services are to provide estimates of a student's academic and non-academic potentials that will be useful in the admissions process, to provide dependable and comparable
information for precollege counseling in high schools and for on-campus educational guidance, and to help students present themselves as persons with special patterns of educational potentials and needs.

The student information provided by ACT to its participating institutions is collected through a national Student Assessment Program. This program uses four tests of educational development, a set of self-reported high school grades, and a student information blank. The tests and grades afford information about the student's potential for academic achievement in various areas. The information blank, or Student Profile Section, furnishes information about his background, special needs, and potential for achievement in non-academic areas.

The major portion of the ACT battery consists of four tests -- English, mathematics, social studies, and natural sciences. The composite is an average of the four test scores and represents general academic potential. The reliabilities of the ACT tests\textsuperscript{1} and the high correlations between the ACT test battery and other similar measures, Eells (4), all indicate that the ACT battery is an appropriate measure of academic potential.

As a regular part of the ACT procedure, persons taking the ACT battery report the grades they have received in high school courses in four areas. These self-reported grades are the most recent grade prior to his senior year in high school in each of four subject areas -- English, mathematics, social studies, and natural sciences. Research

\textsuperscript{1}A table of the reliability of the ACT tests is found in Appendix B.
by Davidsen (3) indicates that such self-reported grades correspond closely to the high school transcripts. The study revealed that 69.8 to 85.4 percent of the student reports agree exactly with the school records.

Persons taking the ACT battery also report their non-academic high school achievements in six areas -- science, art, literature, leadership, music, and dramatic arts. All items refer to achievements outside the classroom and not done as part of a class assignment.

Part of the admission procedure for all full-time students, except foreign students, of Jackson Community College is participation in the American College Testing Program. Participating colleges receive the students' results on a Prospective Student Profile Report form.

The 1967 fall grade report forms from the Registrar's Office of Jackson Community College were used to determine the academic achievement of the subjects included in this study.

Null Hypothesis

The following is a restatement of the hypothesis in null form.

High School non-academic achievements are not related to academic achievement of full-time freshmen community college students.

Examination and Analysis of Data

In this study the high school non-academic achievements, the high

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2 A table of the reliability of the non-academic accomplishments is found in Appendix C.
school grades, and the academic potential were reported on the ACT Student Profile Report form. Academic achievement at Jackson Community College is represented by the grades at the end of the first semester of attendance.

Correlations were computed between the measures of high school non-academic achievements, high school academic achievement, academic potential, and community college academic achievement. These correlations are shown in Table 3.1.

Table 3.1

Correlations* of High School Non-Academic Achievements, High School Academic Achievement, Academic Potential, and Community College Academic Achievement

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<th>Academic Potential (ACT Composite)</th>
<th>Jackson Community College Academic Achievement</th>
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<tr>
<td>High School Academic Achievement</td>
<td>.25</td>
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<td>.51</td>
<td></td>
</tr>
<tr>
<td>Academic Potential (ACT Composite)</td>
<td>.22</td>
<td>.54</td>
<td>.37</td>
<td></td>
</tr>
<tr>
<td>Jackson Community College Academic Achievement</td>
<td>.11</td>
<td>.51</td>
<td>.37</td>
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* All correlations were significant at or beyond the .05 level.
These correlation coefficients were significant at the .05 level.

The correlation coefficient for the high school non-academic achievements and the Jackson Community College academic achievement was .11 which is statistically significant but slight.\footnote{An interpretation of correlation coefficients is found in Appendix D.}

The degree of correlation existing between high school non-academic achievements and the high school academic achievement was .25. The correlation between the high school non-academic achievements and the academic potential was .22. Though these correlations are slight also, they do represent a higher correlation than did the high school non-academic achievements with the Jackson Community College academic achievement.

The high school academic achievement correlated .54 with the academic potential and .51 with the Jackson Community College academic achievement. These moderate correlations show that a relationship exists.

The correlation coefficient between the academic potential and the Jackson Community College academic achievement was .37. This represents a low correlation.

An analysis of the data indicates that there is a slight correlation at the .05 level of significance between high school non-academic achievements and academic achievement at Jackson Community College. Therefore, the conclusion can be drawn that there is not
much relationship between these two variables. The correlation of high school non-academic achievements with high school academic achievement and with academic potential was also slight.

A further analysis of the data indicates that there is a moderate correlation between high school academic achievement and academic potential. A moderate correlation also exists between high school academic achievement and Jackson Community College academic achievement. Predictions based on this correlation would be useful in educational programs such as admissions, class sectioning, or advising.

There is a low correlation between academic potential and the Jackson Community College academic achievement which is indicative of a small relationship between these variables.

The null hypothesis that high school non-academic achievements are not related to academic achievement for full-time freshmen community college students is rejected at the .05 level of confidence. However, the correlation of .11 between high school non-academic achievements and Jackson Community College academic achievement is so slight that it would not be useful in community college grade predictions.
CHAPTER IV

SUMMARY, CONCLUSIONS, DISCUSSION, AND RECOMMENDATIONS

Summary

The present study was an outgrowth of the concern by Jackson Community College personnel regarding the college academic achievement of full-time freshmen students. The purpose of the study was to investigate the relationship of high school non-academic achievements to community college academic achievement.

Four hundred twenty-five full-time freshmen students attending Jackson Community College in the fall of 1967, completing the first semester, and participating in and completing the American College Testing Program constituted the subjects for this study.

Data relevant to the study were obtained from the Student Profile Report form of the American College Testing Program and from the fall semester grade reports from the Registrar's Office of Jackson Community College.

Correlations were computed between the measures of high school non-academic achievements, high school academic achievement, academic potential, and community college academic achievement. The correlation between high school non-academic achievements and community college academic achievement was statistically significant but slight. The relationship of high school non-academic achievements with high
school academic achievement and with academic potential was also slight. The relationship between high school academic achievement and academic potential was moderate. There was also a moderate relationship between high school academic achievement and Jackson Community College academic achievement. Academic potential had a low correlation with the Jackson Community College academic achievement.

The results of this study suggest that high school non-academic achievements and community college academic achievement are relatively independent dimensions of talent and that the measures of high school academic achievement and academic potential are more useful in determining community college academic achievement.

Conclusions

The following conclusions have been reached, within the limitations noted in Chapter I, page 4.

1. A slight correlation was found between high school non-academic achievements and community college academic achievement.

2. A slight relationship exists between high school non-academic achievements and high school academic achievement.

3. There is a slight relationship between high school non-academic achievements and academic potential.

4. High school academic achievement and academic potential have a moderate correlation.
5. A moderate correlation exists between high school academic achievement and Jackson Community College academic achievement.

6. There is a low correlation between academic potential and Jackson Community College academic achievement.

Discussion

The results of this study imply that the relationship between high school non-academic achievements and community college academic achievement, as defined, are generally negligible. It is reasonable to believe that these non-academic and academic achievements are relatively independent kinds of talent. These findings extend and support earlier studies.

High school academic achievement and tests of academic potential are better techniques at the present time for choosing the students who will do well in the college classroom. The use of these predictors is acceptable if students who will do well in the classroom are the only interest of the college.

A review of the literature by Hoyt (9) concerning the relationship between college grades and adult achievement strongly suggests that college grades bear little or no relationship to any measures of adult achievement. Should colleges be interested in students who will do outstanding things outside of the classroom and in later life? It seems reasonable to assume that a college education should be preparation for life and not mainly preparation for more education.
in graduate school. College grades are generally good predictors for graduate school, but not necessarily good predictors of real life success.

Should non-academic achievements be considered important in their own right and not as weak supplementary measures to remedy the slight defects of conventional aptitude and achievement tests? Should colleges rely on only one kind of measure and exclude others? Should college administrators, counselors, and faculty be willing to act on the fact that there is not one kind of excellence, but many? Should efforts continue to develop measures of many kinds of achievement and originality, and a more active effort be made to secure a more reliable and valid record of each student's past achievement and involvement?

The use of non-academic achievements by the colleges would encourage high school students to participate in these activities. Such an outcome hardly seems undesirable as high school non-academic achievements may be the best predictor of non-academic performance in the freshman year in college.

One can only speculate about the results of future studies of non-academic achievements. It would seem that additional studies on this subject would be appropriate in the interest of human and social values and the preservation of talent.

Recommendations

Throughout this study, implications for future research became evident.
1. The findings of this study should be verified by other studies using larger samples and other groups. It is possible that larger samples and other groups may reveal change in the kinds of conclusions indicated in the present study.

2. Replication of this study should extend over a two-semester period to allow more time for academic achievement.

3. A follow-up study of the population used in this study or replication of this study should be conducted a year after graduating or leaving college.

4. Replication of this study could be made using other non-academic variables. It is possible that measures of academic achievement and potential may have substantial positive correlations with some non-academic accomplishments not considered in this study.
BIBLIOGRAPHY


APPENDIX A

Non-Academic High School Achievement 1

Leadership

1. Appointed to a student office
2. Actively campaigned to elect another student to a school office
3. Organized a school political group or campaign
4. Participated in a nonschool political campaign
5. Participated in a student movement to change institutional rules, procedures, or policies
6. Initiated or organized a student movement to change institutional rules, procedures, or policies
7. Was elected to one or more student offices
8. Received an award or special recognition for leadership (of any kind)

Music

1. Composed music
2. Performed with a professional musical group (orchestra, band, choral group)
3. Played in a school musical organization
4. Gave a public recital
5. Gave music lessons
6. Played a musical instrument
7. Received a rating of "Good" or "Excellent" in a state music contest
8. Participated in a state music contest

Drama and speech

1. Placed first, second, or third in a regional or state speech or debate contest
2. Entered a school speech or debate contest
3. Had leads in high school or church-sponsored plays
4. Gave a recital in speech

---

1 The American College Testing Program. The Student Profile Section. Iowa City, 1966.
5. Wrote a play
6. Had minor roles in plays (not high school or church-sponsored)
7. Appeared on radio or TV as a performer
8. Read for a part in high school play

Art

1. Finished a work of art (painting, ceramics, sculpture, etc.) on my own (not as part of a course)
2. Exhibited a work of art at my school
3. Exhibited a work of art in a city or county art show
4. Exhibited a work of art in a statewide or regional show
5. Won a prize or award in an art competition at my high school
6. Won a prize or award in a statewide or regional artistic competition
7. Won a prize or award in an art competition in a citywide or county art show
8. Had photographs, drawings, or other artwork published in a public newspaper or magazine

Writing

1. Edited a school paper or yearbook
2. Edited a school literary magazine
3. Had poems, stories, essays, or articles published in a school publication
4. Wrote an original but unpublished piece of creative writing on my own (not as part of a course)
5. Had poems, stories, or articles published in a public newspaper or magazine (not school paper) or in a state or national high school anthology
6. Won literary award or prize for creative writing
7. Work of creative writing published in a public magazine or book
8. Work of creative writing published in a school literary magazine or newspaper

Science

1. Wrote an independent paper on a scientific topic which received the highest possible mark in my school
2. Did an independent scientific experiment (not as part of a course)
3. Built a piece of equipment or laboratory apparatus on my own (not as part of a course)
4. Participated in a National Science Foundation summer program for high school students
5. Won a prize or award (of any kind) for scientific work or study
6. Placed first, second, or third in a regional or state science contest
7. Placed first, second, or third in a school science contest
8. Participated in a scientific contest or talent search
APPENDIX B

Reliability of ACT Tests

Each new form of the examination is subjected to a reliability study. The odds-evens procedure recommended by Gulliksen was used. The table summarizes results of this procedure when applied to nine forms of each examination; the student samples range from 864 to 1155. The median reliabilities of the ACT test range from .84 for a single test to .95 for the composite score.

Summary of Reliability Figures for the ACT Tests

<table>
<thead>
<tr>
<th>ACT tests</th>
<th>Number of forms</th>
<th>Median reliability</th>
<th>Range of reliabilities</th>
<th>Median standard error</th>
<th>Range of standard errors</th>
</tr>
</thead>
<tbody>
<tr>
<td>English</td>
<td>9</td>
<td>.89</td>
<td>.84-.90</td>
<td>1.54</td>
<td>1.45-1.89</td>
</tr>
<tr>
<td>Mathematics</td>
<td>9</td>
<td>.88</td>
<td>.85-.89</td>
<td>2.20</td>
<td>2.00-2.57</td>
</tr>
<tr>
<td>Social Studies</td>
<td>9</td>
<td>.84</td>
<td>.82-.86</td>
<td>2.15</td>
<td>2.01-2.55</td>
</tr>
<tr>
<td>Natural Sciences</td>
<td>9</td>
<td>.84</td>
<td>.82-.87</td>
<td>2.34</td>
<td>2.12-2.45</td>
</tr>
<tr>
<td>Composite</td>
<td>9</td>
<td>.95</td>
<td>.94-.96</td>
<td>1.03</td>
<td>.96-1.12</td>
</tr>
</tbody>
</table>

APPENDIX C

Retest Reliability of the Non-academic Accomplishment Scales in ACT's Student Profile Section¹

<table>
<thead>
<tr>
<th>Scale</th>
<th>Items</th>
<th>Correlation</th>
<th>First Testingᵃ</th>
<th>Second Testingᵇ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leadership (N=315)</td>
<td>8</td>
<td>.749</td>
<td>2.86 1.87</td>
<td>3.06 1.82</td>
</tr>
<tr>
<td>Music (N=315)</td>
<td>8</td>
<td>.771</td>
<td>1.67 1.86</td>
<td>1.72 1.89</td>
</tr>
<tr>
<td>Drama and speech (N=315)</td>
<td>8</td>
<td>.728</td>
<td>1.51 1.57</td>
<td>1.54 1.60</td>
</tr>
<tr>
<td>Art (N=315)</td>
<td>8</td>
<td>.542</td>
<td>.60 1.33</td>
<td>.54 1.25</td>
</tr>
<tr>
<td>Writing (N=289)</td>
<td>8</td>
<td>.691</td>
<td>1.24 1.48</td>
<td>1.37 1.59</td>
</tr>
<tr>
<td>Science (N=289)</td>
<td>8</td>
<td>.648</td>
<td>.81 1.42</td>
<td>.88 1.54</td>
</tr>
</tbody>
</table>

ᵃRegular ACT Program

ᵇTwo weeks later in state scholarship program

APPENDIX D

Interpretation of Correlation Coefficients

Less than .30  A slight correlation. There is not much relationship between predictors and criterion. Grade predictions based on these predictors will be little better than chance. Unusual campus conditions probably exist and should be investigated. Correlations this low occur rarely.

.30 to .40  A low correlation. A definite but small relationship exists. Grade predictions based on these predictors may be useful in selecting extreme groups (such as scholarship winners) from much larger groups (applicants).

.40 to .70  A moderate correlation. A marked relationship exists. Grade predictions based on these predictors will be useful in most educational programs, such as admissions, class sectioning, or advising. Normally, correlations between ACT data and college grades are in this range.

.70 to .80  A high correlation. A substantial relationship exists. As with R's in the .40 to .70 range, grade predictions based on these predictors may be useful in most educational programs.

.80 or above  A very high correlation. Unusual campus conditions probably exist and should be examined. Correlations this high are rare.

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¹Hoyt, Donald P. and Munday, Leo A., Your College Freshman. Iowa City: The American College Testing Program, 1968.