

AN ANALYSIS OF CORRELATION AND VARIANCE  
OF THE RATINGS OF DEBATE VALUES  
BY COACHES AND STUDENTS

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## CHAPTER I

### INTRODUCTION

Aristotle wrote, "If it is a disgrace to a man when he cannot defend himself in a bodily way, it would be odd not to think him disgraced when he cannot defend himself with reason. Reason is more distinctive of man than is bodily effort."<sup>1</sup>

In all phases of life--at home, in business, in government, in social activities--man attempts to influence the opinion of other people. In a democratic society it is believed that by integrating the results of individual thinking a consensus of the best thoughts can be obtained. This is made possible in large part through discussion and debate--implements of democracy.

Discussion emphasizes the search for truth; Debate seeks to persuade others to accept the truth. Discussion purposes the discovery of the best solution of a problem; Debate advocates the adoption of the

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<sup>1</sup>Aristotle, *The Rhetoric of Aristotle*, trans. Lane Cooper (New York: Appleton-Century-Crofts, Inc., 1932), pp. 5-6.



solution discovered. Both techniques are indispensable in a democracy; and indeed, throughout modern society.<sup>2</sup>

Debate thus becomes a procedure designed to give proponents and opponents of a proposition equal opportunity to present evidence and to argue conclusions before the voters make the decision.<sup>3</sup>

Academicians, laymen and teachers of debate have often expressed the belief that debate is one of the best methods by which reasoning skills can be taught. Nichols and Baccus in Modern Debating mention that debate helps in teaching the student to develop mental habits in using facts to form judgments, to reserve judgment until all the facts are in, to weigh the evidence, and to test the conclusion.<sup>4</sup> Franklin Delano Roosevelt supported debate as is evidenced in his article appearing in The Harvard Crimson, October 24, 1903, when he pointed out that one of the peculiar values of

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<sup>2</sup>Alan Nicols, Discussion and Debate (New York: Harcourt, Brace and Company, 1941), p. 4.

<sup>3</sup>Henry Ewbank and J. Jeffery Auer, Discussion and Debate (New York: F. S. Crofts and Co., 1946), p. 394.

<sup>4</sup>Egbert Ray Nichols and Joseph H. Baccus, Modern Debating (New York: W. W. Norton and Company, Inc., 1936), pp. 48-62.

debating was the training it gave one in thinking clearly and quickly.<sup>5</sup> Walter Lippman believes one of our most cherished liberties, freedom of speech, can be maintained only through creating and perpetuating debate.<sup>6</sup> H. L. Ewbank in his article, "What's Right With Debate?" tells us that "members of high school debate squads tend to out-gain non-debaters in ability to think critically."<sup>7</sup> Freeley maintains that debate is the study of argumentation; debate will help us to make rational decisions ourselves and to secure rational decisions from others.<sup>8</sup> Debate teaches the desirability of free speech and promotes the ability to use that right according to Robert Turner.<sup>9</sup> Learning to reason

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<sup>5</sup>The Harvard Crimson, October 24, 1903, p. 2, as cited by Hochmuth, (ed.), A History and Criticism of American Public Address (New York: Longmans, Green and Company, 1955), p. 463.

<sup>6</sup>Walter Lippman, Essays in the Public Philosophy (Boston: Little, Brown and Company, 1955), pp. 129-130.

<sup>7</sup>Henry Lee Ewbank, "What's Right With Debate?," The Quarterly Journal of Speech, XXXVII, p. 197.

<sup>8</sup>Austin J. Freeley, Argumentation and Debate (San Francisco: Wadsworth Publishing Company, 1961), p. 1.

<sup>9</sup>Robert G. Turner, "Whither High School Forensics?," The Quarterly Journal of Speech, XXVII (December, 1941), pp. 550-554.

logically is one of the worthwhile objectives debating offers states Leroy Lewis in the February, 1942, issue of The Quarterly Journal of Speech.<sup>10</sup>

In reviewing debate-related articles one finds a preponderance of positive statements to the effect that there are values inherent in the debate activity. These suggested values have been subjectively proposed by students and coaches. Would an objective study of the values support the statements made? What is the relationship between debate values as seen by the debate teacher and as seen by the debate student? The answers to these questions contain many ramifications. First, if there is a positive relationship it would seem to further substantiate the theory that debate does contain certain values. Secondly, if there is no relationship, one of the two following alternatives might be indicated:

- (1) Speech teachers are not teaching debate so as to make it a recognizably valuable experience, or

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<sup>10</sup>Leroy Lewis, "The Effect on High School Debating on College Speech Training," The Quarterly Journal of Speech, XXVIII, pp. 27-30.

- (2) There is very little value in debate training and participating in the activity.

Writers have advanced the premise that debate has certain inherent values. It would seem important to find out if there is a point of agreement in the importance of these values.

### I. THE PROBLEM

Statement of the problem. The problem of this study was to determine what correlation exists between the rating of debate values by directors of debate and students of debate in the three classifications of debating high schools in Kansas.

For the purposes of specific consideration the problem was analyzed on the basis of three questions.

- (1) What relationship exists between the ratings of debate values by directors of debate in class AA and class A high schools; by directors of debate in class AA and class B high schools; and by directors of debate in class A and class B high schools of Kansas?

- (2) What relationship exists between the ratings of debate values by students of debate in class AA and class A high schools; by students of debate in class AA and class B high schools; and by students of debate in class A and class B high schools of Kansas?
- (3) What relationship exists between the ratings of debate values by directors of debate and students of debate in class AA high schools; by directors of debate and students of debate in class A high schools; and by directors of debate and students of debate in class B high schools of Kansas?

Thus, the null hypothesis to be tested in the study was that there would be no significant correlation between directors' ratings of debate values and debaters' ratings of debate values.

## II. DEFINITIONS OF TERMS USED

Value. The term "value" was defined for purposes of this study as: worth, excellence, usefulness, and importance in the educational process. The sources investigated by the

writer used the terms objectives, goals, advantages, and values on an interchangeable basis. This was accepted on the basis that when a debate director sets up certain goals, advantages, and objectives for his program it would follow that the student should realize through these goals the values of debate. Thus, when searching for values of debate, goals, advantages, and objectives of debate were interpreted as possible "values" derived from debate participation.

Debate. The term "debate" in this study refers to the contest debating common to Kansas high schools in which each team of two members is given an equal opportunity to present a case for or against a resolution.

Classification of high schools. The Kansas State High School Activities Association has divided the high schools of Kansas into three classifications for interscholastic purposes. Class AA schools include the fifty-six high schools with the largest enrollment; class A the next sixty-four, and class B the remainder.<sup>11</sup>

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<sup>11</sup>Kansas State High School Activities Association, Handbook 1962-63 (Topeka, Kansas, 1963), p. 17.

The literature in the area of the study is reviewed in the following pages. Procedures and techniques are presented in Chapter II while the data received is collected and analyzed in Chapter III. The summary, conclusions, and recommendations for further study appear in Chapter IV.

### III. REVIEW OF THE LITERATURE

Hargis, through the use of a questionnaire, investigated the scholastic standing, leadership ability, and extracurricular activities of championship Michigan high school debaters. The questionnaire included 27 state championship teams dating from 1917 to 1948 and included 154 debaters.

Scholastically, 84 per cent of the debaters were in the upper 20 per cent of their graduating classes, 66 per cent were in the upper 10 per cent, 6 per cent were in the average of the graduating class. None of the debaters questioned was below average. Considered excellent in the qualities of leadership were 82 per cent of the debaters, 11 per cent were not rated highly and no answers were determined for the remaining 7 per cent. College was

attended by 70 per cent of the debaters and 40 per cent graduated from college.

Hargis received data from twenty-nine of the debaters who agreed high school debating was worthwhile and recommended that a student in high school take debate. They felt debate helped them in their adult life. Contest debating was favored and the consensus was debate gave them individual self-confidence and assurance; debate gave them poise, and dissipated their stage fright. They also thought debate aroused their interest in questions of public concern.<sup>12</sup>

From the results of this study it appeared the successful debaters from Michigan ranked high as leaders, as scholars, and pursued their academic interest on the college level. Debate was also credited with being of value in overcoming stage fright, increasing poise, self-confidence, and assurance.

Olson secured attitudes toward debating from more than one hundred and fifty former University of Nebraska debaters representing the fields of law, sales and advertising, teaching, and some twenty-five other occupations.

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<sup>12</sup>Donald E. Hargis, "A Note on Championship Debaters," The Quarterly Journal of Speech, XXXIV (February, 1948), p. 57.



More than 95 per cent believed that debating had given them help in their present occupation; 93 per cent stated that probably, and yes, they would advise those entering their profession to study debate; 96 per cent said probably and yes, they would advise any interested person to debate.<sup>13</sup>

Lockwood recognized the need for establishing some tangible relationship between debating and preparation for life. She thought the worth of debating as part of the curriculum of the secondary school could only be justified by showing the contribution of debating to the fulfillment of the objectives of secondary education.

Lockwood's survey of textbooks led her to the conclusion the five major objectives of debate training are:

- (1) Skill in public speaking
- (2) Thinking
- (3) Capacity for social adjustment
- (4) Development of worthy citizenship, and
- (5) Development of personality.

In comparing these objectives with those of secondary education, Lockwood concluded that debate training does contribute to the attainment of each of these objectives

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<sup>13</sup>Donald O. Olson, "An Evaluation of Debate," The Gavel, XXX (January, 1948, pp. 31-34, cited by Craig A. Baird, Argumentation, Discussion and Debate (New York: McGraw-Hill Book Company, Inc., 1950), p. 5.

and that the results of this correlation justify the existence of debating as part of the high school curriculum.<sup>14</sup>

Curry conducted a study for the purpose of evaluating the use of speech contests in high schools. She evaluated oratorical, declamatory, extempore and debating contests. To accomplish this, she set up standards of judgment, traced the development of each contest, made suggestions for improvement and finally set forth an estimate of the worth of each in American education. Her procedure involved making a study of the treatises of Aristotle, of articles by directors and critics of the speech arts, of critical estimates by administrators of speech contests, of books on educational theory, of pamphlets dealing with particular investigations of contest practices and of bulletins used by forensic associations of various states.

As a result of her study, Curry found debate the most valuable of the four types of contests because it contributed

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<sup>14</sup>Bonnie Jean Lockwood, "A Survey of Debating in the Senior High Schools of the Los Angeles District," (unpublished Master's thesis, University of Southern California, Los Angeles, California, 1931), pp. 80-100.

most to the student's intelligence and social development; it required more extensive reading, more mental alertness, more time per contest in actual presentation of material, more cooperation with associates, and gave more people an opportunity to practice speaking.

The specific values of speech contests according to Curry are summarized as follows:

- (1) Speech contests train the student in language art,
- (2) They make the contestant a more enlightened citizen,
- (3) Develop his social nature,
- (4) Train him in using leisure time,
- (5) Keep him mentally fit,
- (6) Prepare him for public leadership,
- (7) Develop physical poise and confidence,
- (8) Provide the satisfaction of achievement,
- (9) Fit the student for life competition,
- (10) They prepare him in some measure to converse with greater profit.<sup>15</sup>

George W. Martin's study was an attempt to appraise the administrative attitude toward debate as it was practiced in the high schools of Iowa, Illinois, and Wisconsin.

Martin's central purpose was to discover what principals

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<sup>15</sup>Mary Beth Curry, "A Study of the Value of Speech Contests in High School Curricula," (unpublished Master's thesis, University of Southern California, Los Angeles, California, 1934), pp. 57-83.

and superintendents of high schools thought was good and what they thought objectionable in debate.

Martin's conclusion was that the more important alleged educational values of debate are actually being realized to a large degree according to secondary school administrators. The objections to debate as an educational device has been over-emphasized. The most valid objections were those which attacked the manner in which the activity was conducted, rather than the inherent nature of debate.<sup>16</sup>

One of the purposes of Robert Stockdale's study was to help clarify the values of interscholastic speech. Stockdale sent questionnaires to 175 alumni who had been members of the National Forensic League at Ravenna, Ohio.

The results of the study showed that 95.1 per cent of the respondents felt that interscholastic speech made a contribution to the cardinal principles of education. There seemed to be much carry-over value from high school to college through the interscholastic speech program and this

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<sup>16</sup>George W. Martin, "An Administrative Appraisal of High School Debating in Three Midwestern States," (unpublished Master's thesis, State University of Iowa, Iowa City, Iowa, 1946), pp. 49-72.

value was scholastic as well as social. Of the respondents, 92.4 per cent felt this training helped them scholastically and 91.5 per cent believed it helped them socially. Of those who went on to college, 57.3 per cent participated in college forensics. Over 90 per cent of the respondents felt that the interscholastic speech program should continue to be emphasized with 49 per cent indicating that even more time should be devoted to it. Over 99 per cent would encourage their children to participate in this activity.<sup>17</sup>

Howell studied the effects of high school debating on critical thinking. His results showed that debaters tended to rate higher on tests of critical thinking than did non-debaters. However, Howell goes on to warn that "We cannot conclude from this . . . experiment that debate training . . . significantly increases skill in critical thinking."<sup>18</sup>

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<sup>17</sup>Robert Edmonds Stockdale, "The Value to the Participants of Interscholastic Speech at Ravenna High School (1928-1949)," (unpublished Master's thesis, Kent State University, Kent, Ohio, 1950), pp. 53-80.

<sup>18</sup>William H. Howell, "The Effects of High School Debating on Critical Thinking," The Speech Monograph, X (1943), p. 100.

According to Howell:

The wide variation of debate gains among the schools indicates that in some situations debate experience is very effective in accomplishing this purpose while in others it apparently does not influence critical thinking ability at all. . . . Debate, like many another academic exercise, can be directed so that transfer to daily habits of thinking takes place. Or, it can be taught without generalization beyond the subject matter, with the result that old thinking patterns remain unchanged.<sup>19</sup>

Further theoretical support for the value of debate was advanced by William S. Smith:

Debate found its place as a liberalizing discipline by teaching students methods of investigation, analysis, and reasoning; use of evidence, organization, and critical thinking; and by providing training in public speaking. Many students came to realize that debate contributed as much to their education as did English, history, science, and many other subjects. Other students recognized its value as pre-professional training for law, the ministry, and teaching.<sup>20</sup>

In discussing debating as a practical training for gifted students, Bradley focuses attention on seven values of debating which speech teachers can advance to justify debate in a program for superior students in the non-sciences.

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<sup>19</sup>Ibid.

<sup>20</sup>William S. Smith, "Coordinating Classroom Instruction in Debate with the Extracurricular Program," The Speech Teacher, XI (1957), p. 214.

In the first place, working with a debate proposition develops and improves the student's ability to do research. . . . secondly, debate develops and improves thinking ability. . . . thirdly, in creating an understanding for an appreciation of orderly change . . . . Regardless of the alternatives selected, or the final outcome of the debate, the important result is that the debaters come to look upon changes as a meaningful and logical process to be rejected when unwarranted, to be accepted when justified. . . . A fifth value of debate is that it teaches emotional control. . . . Debate activity is valuable, in the sixth place, because it prepares the student for the democratic society in which we live . . . it also prepares the student to assume a leadership role in our democratic government. . . . For those who insist that an activity have economic rewards for its participants, there is a seventh value of debate . . . . One researcher . . . studying executives in the business world discovered "a clear and consistent trend for people with 'substantial' college extra-curricular achievement to receive more of the higher salaries and for people with no college extra-curricular achievement to receive more of the lower salaries."<sup>21</sup>

The literature clearly indicates that debate is credited with inherent values. Hargis' study supports the premise that debate provides certain specific values such as building self-confidence, poise, and interest in public questions. Olson's study indicated debate also contained a practical value for 95 per cent of the personnel in his

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<sup>21</sup>Bert E. Gradley, Jr., "Debate--A Practical Training for Gifted Students," The Speech Teacher, VIII (1959), pp. 134-138.

study believed debating had helped them in their present occupation. Other studies cited have shown that debate-related textbooks attribute certain values to debate as well as the derivative value of contest debating.

The following chapter will explain the procedures used in determining the correlation of debate values as rated by directors of debate and by students of debate.



CHAPTER II of the  
more expedient  
PROCEDURES

The research produced a long and unwieldy listing of values which this writer synthesized since many of the values were duplicated in different sources, and many of them varied only in the wording of the statement. The basic criterion for the synthesis was to retain the essence of the values, and at the same time bring each down to a more concise and manageable form for questionnaire usage. For example, one source stated that "debate was valuable as it helped a student to improve his composure." Another source mentioned that debate was valuable for it "aided the student in becoming more self-confident." These two values could be combined and stated as follows without distracting from the essence of each: Debate is valuable as it helps a student gain poise and self-confidence.

The Construction and Validation of a Closed Questionnaire. (Appendix A) A closed questionnaire was chosen because it was easier for the recipient to complete and thus was more likely to be completed and returned to

the writer. Also, for the purposes of this particular study, a closed questionnaire was more expedient for compiling the returned data.

A closed questionnaire also encompassed many of the characteristics of an ideal measuring instrument.

1. A perfect instrument should be administratively feasible to construct and use.
2. A perfect instrument should be adapted to the range of the characteristic to be evaluated.
3. A perfect instrument should be calibrated so that the units of measurement are equal.
4. A perfect instrument should yield absolute rather than relative readings, or scores.
5. A perfect instrument should be sensitive.
6. A perfect instrument should be available in duplicate form.
7. A perfect instrument should be accompanied by norms or standards for interpretation.
8. A perfect instrument should yield readings, or scores, free from error.<sup>22</sup>

The closed questionnaire encompassed the first characteristic as it was administratively feasible to

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<sup>22</sup>James E. Wert, Charles O. Neidt, and J. Stanley Ahmann, Statistical Methods in Education and Psychological Research (New York: Appleton-Century-Crofts, Inc., 1954), p. 320.

construct and use. The closed-rating questionnaire with the following five-step scale was adaptable to the items to be rated. For example,

Debate aids you in developing poise and self-confidence.

1	2	3	4	5
One of the poorest 2 or 3 courses	Somewhat below average	Average	Somewhat above average	One of the better 2 or 3 courses

While any rating of an intangible is highly subjective, the wording of the values provided for equal units of measurement as much as possible. By using a numbered scale the instrument yielded absolute rather than relative readings or scores. Those who used the "five" rating for any item felt it to be two levels above average--or "three." Conversely, one who gave a rating of "three" to an item thought of the item as being two levels below the highest--or "five." The difference in ratings would be subjective from the standpoint of the participant, not from the actual rating scale.

The instrument was sensitive for the purposes of this study as it dealt directly with the values of debate and enabled a participant to measure the suggested "values"

numerically. If necessary, a different wording of the values would provide for a duplicate form and yet retain the essence of each value. The standards or norms needed to interpret the instrument were contained within the actual instrument, i.e., the directions.

The eighth characteristic of a perfect instrument is that it should yield readings or scores free from error. There is no perfect instrument in this respect; however, the closed questionnaire did not lend itself to more errors than other instruments of the same design. In addition to the rating scale, an opportunity was provided for debaters and directors to "write in" values which they thought should have been included.

Validation of Questionnaire. (Appendix B) The questionnaire was "pretested" with thirty Kansas State Teachers College varsity debaters and Kansas State Teachers College students not directly concerned with debate. The purpose of this validation was an attempt to make certain the instrument was as precise as possible and was valid. The validation showed no need for revising the questionnaire.

The analysis of the data was carried out by two statistical procedures: (1) Spearman-Brown Rank Order Coefficient of Correlation<sup>23</sup> and (2) the F-test for Analysis of Variance.<sup>24</sup>

Mailing of the Questionnaire. The population for this study was limited to those students and their alternates who were eligible to represent their respective high schools at the Kansas AA, A, and B State Debate Tournaments in 1963 (Appendix C).

The rationale for this decision was the premise: if these students had demonstrated their debating activities well enough to represent their respective high schools at the state tournament, they were more likely to be able to recognize a larger number of values in debating than those with abilities of a lesser degree. This does not imply that only state debaters can recognize values; it is simply based on the assumption these students may have become more deeply

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<sup>23</sup>Ibid., p. 88.

<sup>24</sup>Ibid., p. 180.

involved with debate and as a result were able to appreciate its values to a more significant degree than debaters less involved.

The questionnaire was mailed to 55 students in class AA, 24 students in class A, 26 students in class B high schools. Ten directors of class AA schools received the questionnaire as did 6 directors in class A, and 6 directors of class B schools. The total mailing was 105 questionnaires to students and 22 questionnaires to directors of debate.

Enclosed with each questionnaire was a letter from the writer and a letter from two thesis committee members of the speech department faculty explaining the purposes of the project (Appendices D, E, F, and G). Two weeks after the date of mailing, follow-up letters were sent to those who had not responded.

Interpretation of Data. When the questionnaires had been returned and tabulated, the data were analyzed by the application of two statistical techniques. The Spearman-Brown Rank Order Coefficient of Correlation<sup>25</sup>  $\left( p=1 - \frac{6ED^2}{N(N^2-1)} \right)$

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<sup>25</sup>Ibid., p. 88.

was used to determine the consistency of agreement between the students within their three classes, the directors within their three classes, and between the different classes of students and directors (Appendix H).

An analysis of variance<sup>26</sup>  $\left( S.S.+ = EK - \frac{(EX)^2}{N} \right)$  of the ratings for values among different classes of high school students was run as was an analysis of variance of the ratings for values among different classes of high school debate directors (Appendix I).

These data and the results of this analysis are presented and interpreted in Chapter III.

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<sup>26</sup>Ibid., p. 180.

## CHAPTER III

### PRESENTATION AND INTERPRETATION OF DATA

The problem of this study was to determine if any correlation exists between the rating of debate values by directors of debate and students of debate in the high schools of Kansas. The null hypothesis was that there would be no significant differences between directors' ratings of debate values and debaters' ratings of debate values. The Spearman-Brown Rank Order Correlation was used to determine if any correlation existed.

What relationship exists between the ratings of debate values by directors of debate in class AA and class A high schools; by directors of debate in class AA and class B high schools; and by directors of debate in class A and class B high schools of Kansas?

Examination of Table I between the ratings of debate values by directors of debate in class AA, class A, and class B high schools of Kansas reveals no significant relationships were found. Thus, the sub hypothesis that



there would be no significant differences between directors' ratings of debate values in the three classifications of high schools was accepted.

TABLE I

CORRELATION OF RATINGS OF "VALUES" BETWEEN  
DEBATE COACHES OF CLASS AA, A, AND  
B HIGH SCHOOLS

Number of Coaches	Classification	Number of Coaches	Classification	P
9	AA	6	A	.5516
9	AA	6	B	.3531
6	A	6	B	.2426

A possible explanation for the lack of significant differences could be the coaches have such a divergence of debate training. It is not unlikely coaches in smaller schools have had little, if any, formal experience in debating. Obviously, there would be a disparity in the rating of "values" between those who had little or no experience and those who had much forensic background and training.

What relationship exists between the ratings of debate values by students of debate in class AA and class A high schools; by students of debate in class AA and class B high schools; and by students of debate in class A and class B high schools in Kansas?

The data in Table II indicate the students in class AA and class A schools had greater agreement than any of the other comparisons made between students and students, coaches and coaches, and coaches and students. There was a significant relationship revealed in all three comparisons. Thus, the sub hypothesis that there would be no significant difference between ratings of values between students of class AA, A, and B high schools was rejected.

TABLE II

CORRELATION OF RATINGS OF "VALUES" BETWEEN STUDENTS OF CLASS AA, A, AND B HIGH SCHOOLS

Number of Coaches	School Classification	Number of Coaches	Classification	P
48	AA	21	A	*.8241
48	AA	25	B	*.7945
21	A	25	B	** .7204

\* Significant at 1 per cent level

\*\* Significant at 5 per cent level

There are several possible explanations why the students showed a significant relationship and the coaches did not. It must be remembered that this study dealt with teen-age students, and as teen-agers, their values vary widely from those accepted at the adult level. Students in this age group are usually more interested in gaining experience on a personal and social basis as opposed to the academic subject matter. For example, students had the highest level of agreement on value number 20, "debate helps in better understanding viewpoints of people with whom you work," which is a personal and social value. The coaches showed the least agreement on this value.

Another possible explanation why students agreed significantly and coaches did not is that coaches undoubtedly ranked the values from the academic and intellectual aspect of debate. The intellectual and academic factors would include other elements to be considered in the ratings of values which would in turn, tend to minimize the similarities between ratings.

What relationship exists between the ratings of debate values by directors of debate and students of debate

in the class AA high schools; by directors and students of debate in class A high schools; and by directors and students of debate in class B high schools of Kansas?

In comparing students from the three different classes of schools with the coaches from the same respective class (Table III), a deviation from the two preceding patterns was discovered. It was found that the students and coaches from class B schools had the highest agreement in their rating of the values. Students and coaches from class A schools had the lowest point of agreement with a rho value of  $-.1204$ .

TABLE III

CORRELATION OF "VALUES" BETWEEN DEBATE STUDENTS AND COACHES OF CLASS AA, A, AND B HIGH SCHOOLS

School Classification	Number of Students	Number of Coaches	P
AA	48	9	.4264
A	21	6	$-.1204$
B	25	6	.5260

As shown, there were no significant differences indicated by these correlations. The sub hypothesis that

there would be no significant differences between the ratings of values between debate students and coaches of class AA, A, and B high schools was accepted.

As stated, these findings were inconsistent with the previous pattern in which the most agreement was between class AA and class A schools. Several possible reasons can be offered in explanation. Although the term "value" was defined in this study, it was still difficult to give a precise and discrete connotation of the words (values) to all the students and coaches. Varying interpretations of the values would affect the ratings and correlations.

It is also possible the students had higher agreement if they emphasized personal values--i.e., number 19, poise and self-confidence; number 15, making more satisfactory social adjustments--while the teachers emphasized the more academic values such as number 14, reasoning; number 16, searching for the truth; or number 18, seeing both sides of an issue.

There remains the possibility there are some values not formally recognized by debate students until several years after their training.

Analysis of Variance of the Ratings of Values Among Coaches in Different High School Classifications. There were only three values with significant variance: value number 20, "debate is valuable in helping better understand the viewpoints of people with whom you work; value number 18, "seeing both sides of an issue," and value number 19, "gaining poise and self-confidence." Debate coaches showed the most agreement on value number 2, "debate is helpful in phrasing concepts in clear and concise language." Their greatest disagreement was on value number 20.

A plausible explanation for agreement on these three values could be that almost every academic area can claim their particular subject gives these same values. These three values are so much a by-product of the educational process that it is difficult to separate any one of the three and say it applies specifically to debate. It is entirely possible academicians within several different areas would agree that these three values are a by-product of their specific area of knowledge and research. It is also

interesting to note each of these three values refer to the Cardinal Principles of Education.<sup>27</sup>

Comparison of Analysis of Variance of the Ratings for Values Among Coaches and Students. Table IV also shows the analysis of variance among students in comparison to the coaches' variance on the identical value. It is interesting to note that the value on which the students expressed the most agreement was the same value on which the coaches expressed the most disagreement--number 20, "debate helps in better understanding viewpoints of people with whom you work."

Conversely, the value with which the students disagreed the most--number 3, "gaining qualities of good leadership"--was a value on which the coaches had close agreement. The F-ratio for coaches was .1965; for students, 6.2529. Another value on which the students had much agreement--number 15, "making satisfactory social adjustment"--is shown on the lower scale of the coaches' table which indicates they had much disagreement over this value.

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<sup>27</sup>Waldo W. Braden (ed.), Speech Methods and Resources (New York: Harper and Brothers, 1961), pp. 83-84.

TABLE IV

ANALYSIS OF VARIANCE OF THE RATINGS OF VALUES  
AMONG COACHES AND STUDENTS IN DIFFERENT  
CLASSIFICATIONS OF SCHOOLS

Debate activity is valuable in:	Coaches F	Students F
1. phrasing your concepts in clear and concise language	.0875	.0290
2. gaining a more clear understanding of yourself	.1028	.0012
3. gaining qualities of good leadership	.1965	**6.2529
4. stimulating your interest in questions of public concern	.3188	.1209
5. serving as a motivation to do better work in other courses	.3467	2.0745
6. selecting materials from a variety of sources	.5395	1.8200
7. being more objective in analyzing issues	.5892	.2403
8. developing a questioning attitude	.6090	.4464
9. organizing and integrating many arguments into a coherent whole	.7102	2.8045
10. utilizing library facilities	.7302	1.1167
11. extracting information from source materials	.8413	.8160
12. supporting your positions with pertinent and carefully documented factual material	.8880	.0115



TABLE IV (continued)

Debate activity is valuable in:	Coaches F	Students F
13. distinguishing between fact and opinion	.9797	1.1930
14. reasoning	1.2850	.1639
15. making more satisfactory social adjustments	1.5427	.0060
16. searching for truth	1.6663	.2703
17. analyzing and influencing audiences	1.8383	1.0537
18. seeing both sides of an issue	**5.3264	.2357
19. gaining poise and self-confidence	*6.6650	1.0357
20. better understanding viewpoints of people with whom you work	*27.4246	.0001

\*significant at 1 per cent level

\*\*significant at 5 per cent level

The only two values on which the coaches and students seemed to approach agreement were: number 1, "debate helps in phrasing your concepts in clear and concise language," and number 2, "debate helps in gaining a more clear understanding of yourself."

The only value with a significant F-ratio was number 3, "gaining qualities of good leadership." Again, it was found that a general value such as this, is one which could apply to almost any academic endeavor.

Several students wrote in additional values; however, analysis showed these values to be identical in meaning with those listed on the questionnaire. For example, one student wrote "debate is valuable as it helped improve one's language." It was assumed that this could come under the value, "debate is valuable in phrasing your concepts in clear and concise language."

The summary, conclusions, and recommendations for further study are presented in Chapter IV.

## CHAPTER IV

### SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

#### I. SUMMARY

In reviewing debate-related publications, one finds a preponderance of positive statements to the effect there are values inherent in the debate activity. These suggested values have been subjectively proposed by students and coaches. Would an objective study of the values support the statements made: What is the relationship between the value of debating as seen by the coach and as seen by the student?

This study was undertaken with these questions in mind. An attempt was made to provide at least partial answers to these and related questions in order to determine if some relationship exists between coaches' and students' ratings of debate values. Studies have been done which arbitrarily give "values" to debate--but little has been done to compare the coaches' values with those of the students!

The problem of this study was to determine if any correlation existed between the rating of debate values by directors of debate and students of debate in Kansas high

schools. The null hypothesis was there would be no significant correlation between directors' ratings of debate values and debaters' ratings of these values.

Student and coach participants in the 1962-63 State Debate Tournament in class AA, A, and B high schools of Kansas were selected for this study. Each was given a list of debate values to rate in terms of their degree of importance. Opportunity was given for students and coaches to write in values they thought should be included.

## II. CONCLUSIONS

Analysis of the rankings between directors and students of debate in selected Kansas high schools was carried out by the Spearman-Brown Rank Order Correlation and the F-test for analysis of variance.

1. What relationship exists between the ratings of debate values by directors of debate in class AA and class A high schools; by directors of debate in class AA and class B high schools; and by directors of debate in class A and class B high schools of Kansas?

Analysis of the ratings between directors of debate in class AA, A and B high schools of Kansas indicate no significant relationships. Thus, the sub hypothesis there

would be no significant differences between directors' ratings of debate values in the three classifications of high schools was accepted.

2. What relationship exists between the ratings of debate values by students of debate in class AA and class A high schools; by students of debate in class AA and class B high schools; and by students of debate in class A and class B high schools in Kansas?

These data indicated the students in class AA and class A schools had greater agreement than any of the other comparison groups. In this case there was a significant relationship among the three groups. Thus, the null hypothesis there would be no significant difference between ratings of values between students of class AA, A, and B high schools was rejected.

3. What relationship exists between the ratings of debate values by directors of debate in the class AA high schools; by directors and students of debate in class A high schools; and by directors and students of debate in class B high schools of Kansas?

The students and coaches from class B schools had the highest agreement in their rating of the "values." Students and coaches from class A schools had the lowest point of agreement ( $P = -.1204$ ).

On the basis of the rho calculations, there was no significant difference between the groups. The null hypothesis there would be no significant differences between the ratings of values between debate students and coaches of class AA, A, and B high schools was accepted.

#### 4. Analysis of Variance of the Ratings of Values Among Coaches in Different High School Classifications.

Only three variances were found to be significant. These values were: number 20, "debate is valuable in helping understand the viewpoints of people with whom you work"; number 18, "seeing both sides of an issue"; and number 19, "gaining poise and self-confidence."

#### 5. Comparison of Analysis of Variance of the Ratings for Values Among Coaches and Students.

The only "value" with a significant F ratio was number 3, "gaining qualities of good leadership."

#### 6. Write-in Values.

Several students wrote in additional values; however, analysis showed these values to be identical in meaning with those listed on the questionnaire.

### III. RECOMMENDATIONS

This study showed that there is little correlation between the rating of debate "values" between coaches and students and among coaches. However, there was some agreement among students on the "value" of debate.

These findings suggest the following propositions for further study:

1. Research comparing the ratings given each value by coaches and debaters. This would make available more information concerning the specific disagreements.
2. A follow-up of this study with similar personnel could prove valuable in showing whether or not the students and coaches changed their emphasis on debate "values" as they mature. The results could then be compared in an effort to stabilize our subjectivity in discussing debate "values."
3. Research could be conducted to determine why there is disagreement among coaches and, more specifically, what the disagreement is.

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## BIBLIOGRAPHY

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APPENDIX A

100-1000  
1000-10000  
10000-100000

## RATING SCALE OF DEBATE VALUES

Please circle the response that applies to you. Sex: Male Female  
 School: Class AA, Class A, Class B

**DIRECTIONS:** Below are listed possible debate values. Please **CIRCLE** the number which you feel most accurately describes the degree to which debate activity contributes to each value described, or has been of value to you as an individual debater. As you rate each value, please rate them in comparison to other courses you are taking.

One of the poorest 2 or 3 courses	Somewhat below average	Average	Somewhat above average	One of the better 2 or 3 courses
1	2	3	4	5

In your opinion, debate activity is valuable in:

- 1 2 3 4 5 reasoning
- 1 2 3 4 5 seeing both sides of an issue
- 1 2 3 4 5 gaining poise and self-confidence
- 1 2 3 4 5 better understanding viewpoints of people with whom you work
- 1 2 3 4 5 distinguishing between fact and opinion
- 1 2 3 4 5 analyzing and influencing audiences
- 1 2 3 4 5 searching for the truth
- 1 2 3 4 5 organizing and integrating many arguments into a coherent whole
- 1 2 3 4 5 gaining a more clear understanding of yourself
- 1 2 3 4 5 being more objective in analyzing issues
- 1 2 3 4 5 selecting materials from a variety of sources
- 1 2 3 4 5 supporting your positions with pertinent and carefully documented factual material
- 1 2 3 4 5 phrasing your concepts in clear and concise language

- 1 2 3 4 5 developing a questioning attitude
- 1 2 3 4 5 stimulating your interest in questions of public concern
- 1 2 3 4 5 extracting information from source materials
- 1 2 3 4 5 utilizing library facilities
- 1 2 3 4 5 gaining qualities of good leadership
- 1 2 3 4 5 making more satisfactory social adjustments
- 1 2 3 4 5 serving as a motivation for you to do better work in your other courses

In the space provided below, feel free to write in and rate any additional values not mentioned above which you feel are inherent in debate activity.

1 2 3 4 5 \_\_\_\_\_

1 2 3 4 5 \_\_\_\_\_

1 2 3 4 5 \_\_\_\_\_

1 2 3 4 5 \_\_\_\_\_

1 2 3 4 5 \_\_\_\_\_

Please check the activities in which you either have, or are participating.

- \_\_\_ MUSIC (band, chorus, ensemble, etc.)
- \_\_\_ PUBLICATIONS (yearbook, school paper, etc.)
- \_\_\_ SPEECH (debate, declam, etc.)
- \_\_\_ DRAMATICS (plays, etc.)
- \_\_\_ ATHLETICS (basketball, track, inter-mural, etc.)
- \_\_\_ STUDENT GOVERNMENT (student council, etc.)
- \_\_\_ OFFICER IN ANY SCHOOL-SPONSORED ACTIVITY (N.F.L., F.H.A., Pep Club, etc.)

APPENDIX B

THOMAS WALKER

VALIDATION OF QUESTIONNAIRE

Attached you will find a questionnaire to be used in a study attempting to find the correlation of debate values as rated by debaters and debate coaches.

Please follow the directions and complete the questionnaire. If there is any part of the questionnaire you do not understand (directions not clear, poorly worded "values," unclear values, etc.) please write your comments either on the bottom of page two, or by the portion of the questionnaire you are questioning. Thank you.

Terry Williams  
Department of Speech

I've thought you  
fully appreciated that

(over)

**RATING SCALE OF DEBATE VALUES**

Please circle the response that applies to you. Sex: Male Female  
 School: Class AA, Class A, Class B

**DIRECTIONS:** Below are listed 19 possible debate values. Please **CIRCLE** the number which you feel most accurately describes the degree to which debate training teaches each value described, or has been of value to you as an individual debater.

1	2	3	4	5	
Very little value	Less than average value	Average value	Above average in value	A superior amount of value	
1	2	3	4	5	Debate has given you training in reasoning
1	2	3	4	5	Debate forces you to see both sides of an issue
1	2	3	4	5	Debate aids you in developing poise and self-confidence in speaking
1	2	3	4	5	Debate teaches you how to work with other people and to better understand their viewpoints
1	2	3	4	5	Debate teaches you about collecting and judging information, distinguishing between fact and opinion
1	2	3	4	5	Debate has given you training in analysing and influencing audiences
1	2	3	4	5	Debate has taught you to search for truth
1	2	3	4	5	Debate has given you training in how to think quickly as well as critically
1	2	3	4	5	Debate has provided training in organizing and integrating many arguments into a coherent whole
1	2	3	4	5	Debate training has given you a more clear understanding of yourself
1	2	3	4	5	Debate has taught you to be more open-minded about issues
1	2	3	4	5	Debate teaches you to pull together ideas and materials drawn from a variety of sources
1	2	3	4	5	Your debate experiences have taught you to support your positions with pertinent and carefully documented factual material

(turn to next page)



Rating Scale of Debate Values  
page two

1 2 3 4 5 Debate teaches you to phrase your concepts in clear and concise language

1 2 3 4 5 Debate teaches you to develop a questioning attitude and has aroused your interest in questions of public concern

1 2 3 4 5 Debate has taught you to scan newspaper and magazine articles and how to get the material out of them in a minimum of time

1 2 3 4 5 Debate teaches you how to use the library and the technique of evaluating materials as to source, importance, and desirability

1 2 3 4 5 Debate teaches you the qualities of good leadership

1 2 3 4 5 Your debate experiences has enabled you to make more satisfactory social adjustments

In the space provided below, feel free to write in any additional values not mentioned above, which you feel inherent in debate training.

1 2 3 4 5 \_\_\_\_\_

1 2 3 4 5 \_\_\_\_\_

1 2 3 4 5 \_\_\_\_\_

1 2 3 4 5 \_\_\_\_\_

APPENDIX C

KANSAS HIGH SCHOOLS THAT ATTENDED THE 1963 STATE HIGH SCHOOL

DEBATE TOURNAMENTS TO WHOM QUESTIONNAIRES WERE MAILED

Class AA

Atchison Senior High School  
Atchison, Kansas

Shawnee Mission North  
Shawnee Mission, Kansas

Coffeyville Senior High School  
Coffeyville, Kansas

Topeka West Senior High  
Topeka, Kansas

Emporia Senior High School  
Emporia, Kansas

Washington (Bethal) High School  
Bethal, Kansas

Hutchinson Senior High School  
Hutchinson, Kansas

Wichita Southeast High School  
Wichita, Kansas

Salina Senior High School  
Salina, Kansas

Winfield Senior High School  
Winfield, Kansas

Class A

Ellsworth Senior High School  
Ellsworth, Kansas

Russell Senior High School  
Russell, Kansas

Fredonia Senior High School  
Fredonia, Kansas

Ulysses Senior High School  
Ulysses, Kansas

Nickerson Senior High School  
Nickerson, Kansas

Valley Center Senior High School  
Valley Center, Kansas

Class B

Ford Senior High School  
Ford, Kansas

Moundridge Senior High School  
Moundridge, Kansas

Inman Senior High School  
Inman, Kansas

College High  
Pittsburg, Kansas

Meade Senior High School  
Meade, Kansas

Pretty Prairie Senior High School  
Pretty Prairie, Kansas

APPENDIX D



THE KANSAS STATE TEACHERS COLLEGE - EMPORIA

*100th Anniversary*

May 7, 1963

Dear Debate Student

As a graduate student of speech at the Kansas State Teachers College of Emporia, I am conducting a study of debate values.

This study is limited in the respect that only schools who participated in this years State Debate Tournaments are eligible. You can see that it is important to have as many returns as possible.

Will you please rate the values on the enclosed rating sheet and return it to me in the enclosed self-addressed envelop.

As a typical student I am afraid I am battling a May 17 deadline. I would appreciate hearing from you as soon as possible. A summary of the results of the study will be forwarded to all who participate.

Thank you for your cooperation.

Sincerely

Terry W. Williams

Enclosure

*"What is past, is prologue."*

148

1875-1876

APPENDIX E

of the past.



THE KANSAS STATE TEACHERS COLLEGE - EMPORIA

*100th Anniversary*

May 7, 1963

Dear Debate Student

Enclosed you will find a rating scale of debate values which is a part of a research project being conducted by Mr. Williams.

The Department of Speech here at Kansas State Teachers College feels that this project will be valuable to debate students and we urge you to complete the form and return it as soon as possible.

Thank you for your cooperation.

Sincerely

Richard A. Hildreth  
Associate Professor of Speech  
Thesis Advisor

George R. R. Pflaum  
Professor of Speech  
Thesis Committee member

enc

*"What is past, is prologue."*

**APPENDIX F**





# THE KANSAS STATE TEACHERS COLLEGE - EMPORIA

*100th Anniversary*

May 7, 1963

Dear Debate Coach

As a graduate student of speech at the Kansas State Teachers College of Emporia, I am conducting a study of debate values.

This study is limited in the respect that only schools who participated in this years State Debate Tournaments are eligible. You can see that it is important to have as many returns as possible.

Will you please rate the values on the enclosed rating sheet and return it to me in the enclosed self-addressed envelop.

As a typical student I am afraid I am battling a May 17 deadline. I would appreciate hearing from you as soon as possible. A summary of the results of the study will be forwarded to all who participate.

Thank you for your cooperation.

Sincerely

Terry W. Williams

enc

*"What is past, is prologue."*

APPENDIX G



THE KANSAS STATE TEACHERS COLLEGE - EMPORIA

*100th Anniversary*

May 7, 1963

Dear Debate Coach

Enclosed you will find a rating scale of debate values which is a part of a research project being conducted by Mr. Williams.

The Department of Speech here at Kansas State Teachers College feels that this project will be valuable to debate coaches and we urge you to complete the form and return it as soon as possible.

Thank you for your cooperation.

Sincerely

Richard A. Hildreth  
Associate Professor of Speech  
Thesis Advisor

George R. R. Pflaum  
Professor of Speech  
Thesis Committee Member

Enclosure

*"What is past, is prologue."*

**APPENDIX H**

RANK ORDER DISTRIBUTION OF COACHES

Value	Class AA N = 9		Class A N = 6		Class B N = 6	
1	42	3.5	25	10	30	2
2	37	15	25	10	29	7
3	37	15	24	15.5	30	2
4	35	17	21	19	24	17
5	43	1.5	27	1	23	19
6	39	12.5	20	17	29	7
7	32	19.5	26	2.25	27	13
8	41	5.5	26	2.25	28	11
9	32	19.5	21	19	23	19
10	40	9	25	10	29	7
11	43	1.5	26	2.25	29	7
12	40	9	25	10	29	7
13	40	9	25	10	26	15.5
14	40	9	25	10	29	7
15	41	5.5	25	10	27	13
16	42	3.5	25	10	29	7
17	40	9	26	2.25	20	2
18	39	12.5	24	15.5	26	15.5
19	37	15	21	19	27	13
20	34	18	25	10	23	19

RANK ORDER DISTRIBUTION OF DEBATERS

Value	Class AA N = 48		Class A N = 21		Class B N = 25	
1	235	1	99	3	110	4.5
2	225	4.5	100	2	112	2
3	231	2	101	1	113	1
4	193	15	87	16	98	16
5	185	17	88	14.5	105	9.5
6	225	4.5	96	8	110	4.5
7	184	18	79	18.5	103	11.5
8	229	3	97	6	109	6.5
9	176	19	80	17	89	20
10	218	6	94	10	101	14
11	216	8.5	90	11.5	105	9.5
12	217	7	98	4	109	6.5
13	207	11.5	97	6	103	11.5
14	212	10	95	9	102	13
15	207	11.5	97	6	108	8
16	216	8.5	88	14.5	111	3
17	199	14	78	20	96	17
18	203	13	89	13	100	15
19	187	16	90	11.5	90	19
20	162	20	79	18.5	93	18

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APPENDIX I

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SUMS OF X AND X<sup>2</sup> FOR F RATIOS OF COACHES AND DEBATERS

COACHES

Value	Class AA N = 9		Class A N = 6		Class B N = 6	
	X	X <sup>2</sup>	X	X <sup>2</sup>	X	X <sup>2</sup>
1	3.4 = 12 6.5 = <u>30</u> 40	3.16 = 48 6.25 = <u>150</u> 198	1.1 = 1 1.4 = 4 4.5 = <u>20</u> 25	1.1 = 1 1.16 = 16 4.25 = <u>100</u> 117	6.5 = <u>30</u> 30	6.25 = <u>150</u> 150
2	3.4 = 12 5.5 = <u>25</u> 37	3.16 = 48 6.25 = <u>150</u> 198	1.2 = 2 2.4 = 8 3.5 = <u>15</u> 25	1.4 = 4 2.16 = 32 3.25 = <u>75</u> 111	1.4 = 4 5.5 = <u>25</u> 29	1.16 = 16 5.25 = <u>125</u> 141
3	3.4 = 12 5.5 = <u>25</u> 37	3.16 = 48 5.25 = <u>125</u> 173	1.1 = 1 1.3 = 3 4.5 = <u>20</u> 24	1.1 = 1 1.9 = 9 4.25 = <u>100</u> 110	6.5 = <u>30</u> 30	6.25 = 150
4	2.3 = 6 6.4 = 24 1.5 = <u>5</u> 35	2.9 = 18 6.16 = 96 1.25 = <u>25</u> 139	1.1 = 1 1.3 = 3 3.4 = 12 1.5 = <u>5</u> 21	1.1 = 1 1.9 = 27 3.16 = 48 1.25 = <u>25</u> 101	1.3 = 3 4.4 = 16 1.5 = <u>5</u> 24	1.9 = <u>9</u> 4.16 = 64 1.25 = <u>25</u> 98
5	2.4 = 8 7.5 = <u>35</u> 43	2.16 = 32 7.25 = <u>175</u> 207	1.2 = 2 5.5 = <u>25</u> 27	1.4 = 4 5.25 = <u>125</u> 129	1.3 = 3 4.5 = <u>20</u> 23	1.9 = 9 4.25 = <u>100</u> 109
6	1.2 = 2 3.4 = 12 5.5 = <u>25</u> 39	1.4 = 4 3.16 = 48 5.25 = <u>125</u> 177	1.1 = 1 1.3 = 3 2.4 = 8 2.5 = <u>10</u> 22	1.1 = 1 1.9 = 9 2.16 = 32 2.25 = <u>50</u> 92	1.4 = 4 5.5 = <u>25</u> 29	1.16 = 16 5.25 = <u>125</u> 141
7	1.2 = 2 4.3 = 12 2.4 = 8 2.5 = <u>10</u> 32	1.4 = 4 4.9 = 36 2.16 = 32 2.25 = <u>50</u> 122	1.2 = 2 1.4 = 4 4.5 = <u>20</u> 26	2.4 = 8 1.16 = 16 4.25 = <u>100</u> 124	3.4 = 12 3.5 = <u>15</u> 27	3.16 = 48 3.25 = <u>75</u> 123
8	4.4 = 16 5.5 = <u>25</u> 41	4.16 = 64 5.25 = <u>125</u> 189	1.2 = 2 1.4 = 4 4.5 = <u>20</u> 26	1.4 = 4 1.16 = 16 4.25 = <u>100</u> 120	2.4 = 8 4.5 = <u>20</u> 28	2.16 = 32 4.25 = <u>100</u> 132



COACHES

Value	Class AA N = 9		Class A N = 6		Class B N = 6	
	X	X <sup>2</sup>	X	X <sup>2</sup>	X	X <sup>2</sup>
9	1.2 = 2 3.3 = 9 4.4 = 16 1.5 = $\frac{5}{32}$	1.4 = 4 3.9 = 27 4.16 = 64 1.25 = $\frac{25}{120}$	1.1 = 1 1.3 = 3 3.4 = 12 1.5 = $\frac{5}{21}$	1.1 = 1 1.9 = 9 3.16 = 48 1.25 = $\frac{25}{83}$	1.2 = 2 2.3 = 6 3.5 = $\frac{15}{23}$	1.4 = 8 2.9 = 18 3.25 = $\frac{75}{101}$
10	1.3 = 3 3.4 = 12 5.5 = $\frac{25}{40}$	1.9 = 9 3.16 = 48 5.25 = $\frac{125}{182}$	1.1 = 1 1.4 = 4 4.5 = $\frac{20}{25}$	1.1 = 1 1.16 = 16 4.25 = $\frac{100}{117}$	1.4 = 4 5.5 = $\frac{25}{29}$	1.16 = 16 5.25 = $\frac{125}{141}$
11	2.4 = 8 7.5 = $\frac{35}{43}$	2.16 = 32 7.25 = $\frac{175}{207}$	1.1 = 1 5.5 = $\frac{25}{26}$	1.1 = 1 5.25 = $\frac{125}{126}$	1.4 = 4 5.5 = $\frac{25}{29}$	1.16 = 16 5.25 = $\frac{125}{141}$
12	5.4 = 20 4.5 = $\frac{20}{40}$	5.16 = 80 4.25 = $\frac{100}{180}$	1.1 = 1 1.4 = 4 4.5 = $\frac{20}{25}$	1.1 = 1 1.16 = 16 4.25 = $\frac{100}{117}$	1.4 = 4 5.5 = $\frac{25}{29}$	1.16 = 16 5.25 = $\frac{125}{141}$
13	5.4 = 20 4.5 = $\frac{20}{40}$	5.16 = 80 4.25 = $\frac{100}{180}$	1.1 = 1 1.4 = 4 4.5 = $\frac{20}{25}$	1.1 = 1 1.16 = 16 4.25 = $\frac{100}{117}$	1.1 = 1 5.5 = $\frac{25}{26}$	1.1 = 1 5.25 = $\frac{125}{126}$
14	2.3 = 6 1.4 = 4 6.5 = $\frac{30}{40}$	2.9 = 18 1.16 = 16 6.25 = $\frac{150}{184}$	1.1 = 1 1.4 = 4 4.5 = $\frac{20}{25}$	1.1 = 1 1.16 = 16 4.25 = $\frac{100}{117}$	1.4 = 4 5.5 = $\frac{25}{29}$	1.16 = 16 5.25 = $\frac{125}{141}$
15	4.4 = 16 5.5 = $\frac{25}{41}$	4.16 = 64 5.25 = $\frac{125}{189}$	1.1 = 1 1.4 = 4 4.5 = $\frac{20}{25}$	1.1 = 1 1.16 = 16 4.25 = $\frac{100}{117}$	3.4 = 12 3.5 = $\frac{15}{27}$	3.16 = 48 3.25 = $\frac{75}{123}$
16	3.4 = 12 6.5 = $\frac{30}{42}$	3.16 = 48 6.25 = $\frac{150}{198}$	1.1 = 1 1.4 = 4 4.5 = $\frac{20}{25}$	1.1 = 1 1.16 = 16 4.25 = $\frac{100}{117}$	1.4 = 4 5.5 = $\frac{25}{29}$	1.16 = 16 5.25 = $\frac{125}{141}$
17	2.3 = 6 1.4 = 4 6.5 = $\frac{30}{40}$	2.9 = 18 1.16 = 16 6.25 = $\frac{150}{184}$	1.1 = 1 5.5 = $\frac{25}{26}$	1.1 = 1 5.25 = $\frac{125}{126}$	6.5 = 30	6.25 = 150

COACHES

Value	Class AA N = 9		Class A N = 6		Class B N = 6	
	X	X <sup>2</sup>	X	X <sup>2</sup>	X	X <sup>2</sup>
18	1.3 = 3 4.4 = 16 4.5 = <u>20</u> 39	1.9 = 9 4.14 = 64 4.25 = <u>100</u> 173	1.1 = 1 1.3 = 3 4.5 = <u>20</u> 24	1.1 = 1 1.9 = 9 4.25 = <u>100</u> 110	1.3 = 3 2.4 = 8 3.5 = <u>15</u> 26	1.9 = 9 2.16 = 32 3.25 = <u>75</u> 116
19	1.2 = 2 5.4 = 20 3.5 = <u>15</u> 37	1.4 = 4 5.16 = 80 3.25 = <u>75</u> 159	1.1 = 1 1.3 = 3 3.4 = 12 1.5 = <u>5</u> 21	1.1 = 1 1.9 = 9 3.16 = 48 1.25 = <u>25</u> 83	3.4 = 12 3.5 = <u>15</u> 27	3.16 = 48 3.25 = <u>75</u> 123
20	4.3 = 12 3.4 = 12 2.5 = <u>10</u> 34	4.9 = 36 3.16 = 48 2.25 = <u>50</u> 134	1.2 = 2 2.4 = 8 3.5 = <u>15</u> 25	1.4 = 4 2.16 = 32 3.25 = <u>75</u> 111	2.3 = 6 3.4 = 12 1.5 = <u>5</u> 23	2.9 = 18 3.16 = 48 1.25 = <u>25</u> 91

3.3  
1.1 = 1  
2.4 = 8  
3.5 = 15  
1.16 = 176  
4.5 = 20  
111

## STUDENTS

Value	Class AA N = 48		Class A N = 21		Class B N = 25	
	X	X <sup>2</sup>	X	X <sup>2</sup>	X	X <sup>2</sup>
1	4.5 = 20 5.43 = <u>215</u> 235	5.16 = 80 43.25 = <u>1075</u> 1155	1.1 = 1 2.4 = 8 5.18 = <u>90</u> 99	1.1 = 1 2.16 = 32 18.25 = <u>450</u> 483	2.1 = 2 1.3 = 3 5.4 = 20 5.17 = <u>85</u> 110	2.1 = 2 1.9 = 9 5.16 = 80 25.17 = <u>425</u> 516
2	3.3 = 9 9.4 = 36 36.5 = <u>180</u> 225	3.9 = 27 9.16 = 144 36.25 = <u>900</u> 1071	2.3 = 6 1.4 = 4 18.5 = <u>90</u> 100	2.9 = 18 1.16 = 16 18.25 = <u>450</u> 484	2.1 = 2 1.3 = 3 3.4 = 12 19.5 = <u>95</u> 112	2.1 = 2 1.9 = 9 3.16 = 48 19.25 = <u>475</u> 534
3	9.4 = 36 39.5 = <u>195</u> 231	9.16 = 144 39.25 = <u>975</u> 1119	1.2 = 2 1.4 = 4 19.5 = <u>95</u> 101	1.4 = 8 1.16 = 16 19.25 = <u>475</u> 499	2.1 = 2 1.3 = 3 2.4 = 8 20.5 = <u>100</u> 113	2.1 = 2 1.9 = 9 2.16 = 32 20.25 = <u>500</u> 543
4	1.1 = 1 4.2 = 8 6.3 = 18 19.4 = 76 18.5 = <u>90</u> 193	1.1 = 1 4.4 = 16 6.9 = 54 19.16 = 304 18.25 = <u>450</u> 825	4.3 = 12 10.4 = 40 7.5 = <u>35</u> 87	4.9 = 36 10.16 = 160 7.25 = <u>175</u> 371	1.1 = 1 2.2 = 4 3.3 = 9 11.4 = 44 8.5 = <u>40</u> 98	1.1 = 1 2.4 = 8 3.9 = 27 11.16 = 176 8.25 = <u>200</u> 412
5	2.1 = 2 3.2 = 6 7.3 = 21 9.4 = 36 24.5 = <u>120</u> 185	2.1 = 2 3.4 = 12 7.9 = 63 12.16 = 192 24.25 = <u>600</u> 869	1.1 = 1 4.3 = 12 5.4 = 20 11.5 = <u>55</u> 88	1.1 = 1 4.9 = 36 5.16 = 80 11.25 = <u>275</u> 392	2.1 = 2 2.3 = 6 8.4 = 32 13.5 = <u>65</u> 105	2.1 = 2 2.9 = 18 8.16 = 128 13.25 = <u>325</u> 473
6	2.3 = 6 6.4 = 24 39.5 = <u>195</u> 225	3.6 = 18 6.16 = 96 39.25 = <u>975</u> 1089	1.1 = 1 1.2 = 2 2.4 = 8 17.5 = <u>85</u> 96	1.1 = 1 1.4 = 4 2.16 = 32 17.25 = <u>425</u> 462	2.1 = 2 1.3 = 3 5.4 = 20 17.5 = <u>85</u> 110	2.1 = 2 1.9 = 9 5.16 = 80 17.25 = <u>425</u> 516
7	5.1 = 5 2.2 = 4 10.3 = 30 10.4 = 40 21.5 = <u>105</u> 184	5.1 = 5 2.4 = 8 10.9 = 90 10.16 = 160 21.25 = <u>525</u> 788	1.1 = 1 1.2 = 2 8.3 = 24 3.4 = 12 8.5 = <u>40</u> 79	1.1 = 1 1.4 = 4 8.9 = 72 3.16 = 48 8.25 = <u>200</u> 325	2.1 = 2 1.2 = 2 2.3 = 6 7.4 = 28 13.5 = <u>65</u> 103	2.1 = 2 1.4 = 4 2.9 = 18 7.16 = 112 13.25 = <u>325</u> 461

## STUDENTS

Class AA  
N = 48Class A  
N = 21Class B  
N = 25

Value	X	X <sup>2</sup>	X	X <sup>2</sup>	X	X <sup>2</sup>
8	3.3 = 9	3.9 = 27	1.2 = 2	1.4 = 4	2.1 = 2	2.1 = 4
	5.4 = 20	5.16 = 80	2.3 = 6	2.9 = 18	1.2 = 2	1.4 = 4
	40.5 = <u>200</u>	40.25 = <u>1000</u>	1.4 = 4	1.16 = 16	5.4 = 20	5.16 = 80
		<u>1107</u>	17.5 = <u>85</u>	17.25 = <u>425</u>	17.5 = <u>85</u>	17.25 = <u>425</u>
				<u>97</u>		<u>109</u>
						<u>511</u>
9	3.1 = 3	3.1 = 3	3.2 = 6	3.4 = 12	1.1 = 1	1.1 = 1
	2.2 = 4	2.4 = 8	5.3 = 15	5.9 = 45	3.2 = 6	3.4 = 12
	15.3 = 45	15.9 = 95	6.4 = 24	6.16 = 96	9.3 = 27	9.9 = 81
	16.4 = 64	16.16 = 256	7.5 = <u>35</u>	7.25 = <u>175</u>	5.4 = 20	5.16 = 80
	12.5 = <u>60</u>	12.15 = <u>180</u>		<u>328</u>	7.5 = <u>35</u>	7.25 = <u>175</u>
		<u>542</u>			<u>89</u>	<u>349</u>
10	1.1 = 1	1.1 = 1	1.1 = 1	1.1 = 1	1.1 = 1	1.1 = 1
	3.3 = 9	3.9 = 27	7.4 = 28	7.16 = 112	2.2 = 4	2.4 = 8
	12.4 = 48	12.16 = 192	13.5 = <u>65</u>	13.25 = <u>325</u>	4.3 = 12	4.9 = 36
	32.5 = <u>160</u>	32.25 = <u>800</u>		<u>438</u>	6.4 = 24	6.16 = 96
		<u>1020</u>			12.5 = <u>60</u>	12.25 = <u>300</u>
					<u>101</u>	<u>441</u>
11	5.3 = 15	5.9 = 45	1.1 = 1	1.1 = 1	2.1 = 2	2.1 = 2
	14.4 = 56	14.16 = 224	5.3 = 15	5.9 = 45	2.3 = 6	2.9 = 18
	29.5 = <u>145</u>	29.25 = <u>725</u>	1.4 = 4	1.16 = 16	8.4 = 32	8.16 = 128
		<u>994</u>	14.5 = <u>70</u>	14.25 = <u>350</u>	13.5 = <u>65</u>	13.25 = <u>325</u>
				<u>412</u>	<u>105</u>	<u>473</u>
12	2.1 = 2	2.1 = 2	1.2 = 2	1.4 = 4	2.1 = 2	2.1 = 2
	1.3 = 3	1.9 = 9	4.4 = 16	4.16 = 64	1.3 = 3	1.9 = 9
	13.4 = 52	13.16 = 208	16.5 = <u>80</u>	16.25 = <u>400</u>	6.4 = 24	5.16 = 96
	32.5 = <u>160</u>	32.25 = <u>800</u>		<u>468</u>	16.5 = <u>80</u>	16.25 = <u>400</u>
		<u>1019</u>			<u>109</u>	<u>507</u>
13	2.2 = 4	2.4 = 8	1.1 = 1	1.1 = 1	2.1 = 2	2.1 = 2
	16.3 = 48	16.9 = 144	4.4 = 16	4.16 = 64	2.2 = 4	2.4 = 8
	31.5 = <u>155</u>	31.25 = <u>775</u>	16.5 = <u>80</u>	16.25 = <u>400</u>	8.4 = 32	8.16 = 128
		<u>927</u>		<u>465</u>	13.5 = <u>65</u>	13.25 = <u>325</u>
					<u>103</u>	<u>463</u>
14	1.2 = 2	1.4 = 4	1.1 = 1	1.1 = 1	1.1 = 1	1.1 = 1
	7.3 = 21	7.9 = 63	1.3 = 3	1.9 = 9	2.2 = 4	2.4 = 8
	11.4 = 44	11.16 = 176	4.4 = 16	4.16 = 64	4.3 = 12	4.9 = 36
	29.5 = <u>145</u>	29.25 = <u>725</u>	15.5 = <u>75</u>	15.25 = <u>375</u>	5.4 = 20	5.16 = 80
		<u>968</u>		<u>449</u>	13.5 = <u>65</u>	13.25 = <u>325</u>
					<u>102</u>	<u>450</u>

## STUDENTS

Value	Class AA N = 48		Class A N = 21		Class B N = 25	
	X	X <sup>2</sup>	X	X <sup>2</sup>	X	X <sup>2</sup>
15	1.1 = 1	1.1 = 1	1.1 = 1	1.1 = 1	2.1 = 2	2.1 = 2
	1.2 = 2	1.4 = 4	4.4 = 16	4.16 = 64	3.3 = 9	3.9 = 27
	6.3 = 18	6.9 = 54	16.5 = 80	16.25 = 400	3.4 = 12	13.25 = 325
	14.4 = 56	14.16 = 224		465	17.5 = 85	17.25 = 425
	26.5 = <u>130</u>	26.25 = <u>650</u>		97		108
		207		933		779
16	1.2 = 2	1.2 = 2	1.1 = 1	1.1 = 1	2.1 = 2	2.1 = 2
	5.3 = 15	5.9 = 45	4.3 = 12	4.9 = 36	6.4 = 24	6.16 = 96
	11.4 = 44	11.16 = 176	5.4 = 20	5.16 = 80	17.5 = 85	17.25 = 425
	31.5 = <u>155</u>	31.25 = <u>775</u>	11.5 = <u>55</u>	11.25 = <u>275</u>		111
		216		392		523
17	1.1 = 1	1.1 = 1	1.1 = 1	1.1 = 1	2.1 = 2	2.1 = 2
	2.2 = 4	2.4 = 8	1.2 = 2	1.4 = 4	2.2 = 4	2.4 = 8
	6.3 = 18	6.9 = 54	1.3 = 3	1.9 = 9	5.3 = 15	5.9 = 45
	19.4 = 76	19.16 = 304	8.4 = 32	8.16 = 128	5.4 = 20	5.16 = 80
	20.5 = <u>100</u>	20.25 = <u>500</u>	8.5 = <u>40</u>	8.40 = <u>320</u>	11.5 = <u>55</u>	11.25 = <u>275</u>
		199		462		96
		867		78		410
18	3.2 = 6	3.4 = 12	1.1 = 1	1.1 = 1	2.1 = 2	2.1 = 2
	6.3 = 18	6.9 = 54	4.3 = 12	4.9 = 36	6.3 = 18	6.9 = 54
	16.4 = 64	16.16 = 256	4.4 = 16	4.16 = 64	5.4 = 20	5.16 = 80
	23.5 = <u>115</u>	23.25 = <u>575</u>	12.5 = <u>60</u>	12.25 = <u>300</u>	12.5 = <u>60</u>	12.25 = <u>300</u>
		203		401		100
		897		89		436
19	3.1 = 3	3.1 = 3	1.2 = 2	1.2 = 2	2.1 = 2	2.1 = 2
	2.2 = 4	2.4 = 8	5.3 = 15	5.9 = 45	3.2 = 6	3.4 = 12
	9.3 = 27	9.9 = 81	2.4 = 8	2.8 = 16	4.3 = 12	4.9 = 36
	17.4 = 68	17.16 = 272	13.5 = <u>65</u>	13.25 = <u>325</u>	10.4 = 40	10.16 = 160
	17.5 = <u>85</u>	17.25 = <u>425</u>		90	6.5 = <u>30</u>	6.25 = <u>150</u>
		187		388		90
		789		325		360
20	5.1 = 5	5.1 = 5	2.1 = 2	2.1 = 2	6.1 = 6	6.1 = 6
	7.2 = 14	7.4 = 28	1.2 = 2	1.4 = 4	3.2 = 6	3.4 = 12
	13.3 = 39	13.9 = 117	4.3 = 12	4.9 = 36	3.3 = 9	3.9 = 27
	11.4 = 44	11.16 = 176	7.4 = 28	7.16 = 112	8.4 = 32	8.16 = 128
	12.5 = <u>60</u>	12.25 = <u>300</u>	7.5 = <u>35</u>	7.25 = <u>175</u>	8.5 = <u>40</u>	8.25 = <u>200</u>
		162		329		93
		626		79		373