

A STUDY OF SELECTED CHARACTERISTICS OF MEMBERS OF GIRLS'
SENIOR DIVISION TENNIS TEAMS OF CONFERENCE AAAA
SECONDARY SCHOOLS IN DISTRICTS THIRTEEN,
FIFTEEN, AND SIXTEEN, OF THE TEXAS
UNIVERSITY INTERSCHOLASTIC LEAGUE

A THESIS
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We hereby recommend that the **thesis** prepared under
our supervision by ALICE CAROLYN BELL

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MEMBERS OF GIRLS' SENIOR DIVISION TENNIS TEAMS
OF CONFERENCE AAAA SECONDARY SCHOOLS IN
DISTRICTS THIRTEEN, FIFTEEN, AND SIXTEEN, OF
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be accepted as fulfilling this part of the requirements for the Degree of
Master of Arts.

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TABLE OF CONTENTS

ACKNOWLEDGMENT	Page iii
CHAPTER	
I. INTRODUCTION	1
Orientation to the Study	1
Presentation of the Problem	5
Limitations of the Study	6
Definitions and Explanations of Terms	7
Review of Related Literature	8
Summary	17
II. PROCEDURES	19
Sources of Data	19
Selection of Participants	20
Selection of Instruments for Collecting	
Data	22
Methods of Collecting Data	24
Treatment of Data	25
Summary	29
III. FINDINGS	30
Findings from the Otis Quick-Scoring	
Mental Ability Test, Gamma Form E M	32
Findings from the Guilford-Zimmerman	
Temperament Survey	32

CHAPTER	Page
Findings from the Investigator's	
Check List	37
Summary	44
IV. SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS	
FOR FURTHER STUDIES	45
Summary	45
Conclusions	48
Recommendations for Further Studies . . .	49
APPENDIX	51
BIBLIOGRAPHY	68

CHAPTER I

INTRODUCTION

Orientation to the Study

This study was undertaken because of the investigator's interest in certain mental and physical characteristics of members of girls' High School Senior Division Tennis teams. The interest developed during a period of two years while the investigator was teaching and coaching girls' tennis at William B. Travis High School in Austin, Texas.

A tennis coach must supervise her team members' tennis activities during school hours, after school and on week-end trips to tennis tournaments. The great amount of time spent with a tennis team provides opportunities for the coach to observe closely the characteristics of her team members as well as those of members of the team with whom they are competing. The characteristics investigated in this study were selected because of the investigator's interest and because of the frequency with which these traits are discussed by tennis coaches and tennis enthusiasts throughout Texas. The investigator has been associated for two years with tennis players and tennis

coaches who are members of the Texas University Interscholastic League.

"The Texas University Interscholastic League was first organized in December, 1910, at the State Teachers Meeting in Abilene."¹ This organization sponsors and controls amateur competition in music, art, drama, journalism, academic subjects and athletics in the Texas public schools. The league establishes, interprets, and enforces rules and sets standards of participation for all competitive activities under its sponsorship.

The state championship contest in girls' tennis was inaugurated in 1920, and until 1950 it was the only state championship contest for girls sponsored by the League.² Participants in state tennis tournaments are girls who have won first place in their district and regional contests. Although the goal of a tennis team member is to be selected to represent her team in a district tournament, only a limited number reach this goal; still fewer earn the privilege of playing in a regional or the state tennis tournament.

Competitive tennis requires exceptional ability in skills which must be practiced daily. For example, the

¹Committee on Publications, Constitution and Contest Rules of The University Interscholastic League for 1959-1960 (Austin: Division of Extension, The University of Texas, 1959), p. 5.

²Roy Bedichek, Educational Competition, The Story of the University Interscholastic League of Texas (Austin: University of Texas Press, 1956), p. 386.

serve, volley, and overhead smash are tennis skills that cannot be developed or executed properly without concentrated and continued practice. Ordinarily a member of the tennis team practices a minimum of two hours every day during the tennis season. Tennis requires not only physical skill and endurance but also quick-thinking, self-confidence, self-control, concentration, and analytical ability based on a thorough understanding of the game and those who play it. The game of tennis is described by Paret J. Parmly in this manner:

The play is spectacular also, and appeals to the love of excitement as well as to the admiration of skill and the eternal contest between human beings for physical supremacy, with its accompanying test of endurance and strength as well as manual dexterity. For tennis combines all that, as well as the struggle between the minds of the players which is going on constantly in the psychology of the contest.¹

In the typical AAAA high school in Texas, only those girls who are willing to devote time to practicing for competitive tennis are selected to be on a tennis team. These girls may or may not be enrolled in a tennis class in physical education. Tennis team members may have completed their physical education requirements; however, some tennis team members receive physical education credit for participating on a tennis team. This depends upon the individual school and its requirements.

¹Paret J. Parmly, Methods and Players of Modern Lawn Tennis (New York: American Lawn Tennis, Inc., 1931), p. 9.

During the spring semester the potential team members begin practice during the last period of the school day and continue into the after-school hours in practice, and in matches. The number of matches scheduled depends upon the tennis budget and the teams available for competition. Tournaments are held on week ends. The Texas University Interscholastic League sets no limits on the number of matches or tournaments but the coach tries to schedule at least four interschool invitational tournaments prior to the district tournament.

In the opinion of the investigator playing on a Texas University Interscholastic League tennis team contributes to the physical, mental, and social development of the participants. Girls in properly supervised Texas University Interscholastic League tennis programs should gain in physical endurance, speed, agility, alertness, and neuromuscular coordination. The team members need to be alert; they must exert self-control and the powers of concentration; and they must be able to analyze the strategies of their opponents in simultaneous defensive and offensive play. Tennis is commonly called "a gentleman's game," or "the game for a lady," so it is important that tennis players exhibit such socially accepted attributes as courtesy, honesty, fair play, good sportsmanship, poise, and grace. One cannot say that all individuals who are members of Texas University Interscholastic League tennis

teams possess all of the physical, mental, and social characteristics noted; however, a highly skilled player who conforms to the rules and etiquette of the game may be expected to exhibit these traits.

Presentation of the Problem

The problem was to study selected characteristics of high school girls who were members of Senior Division tennis teams in Conference AAAA secondary Schools of Districts Thirteen, Fifteen, and Sixteen in the Texas University Interscholastic League during the academic year 1959-1960. In addition to studying these selected characteristics the problem was to determine whether there were any significant differences in the selected characteristics of the team members chosen to compete in the Texas University Interscholastic League tennis tournaments of Districts Thirteen, Fifteen, and Sixteen and of those members who were not chosen to participate in the tournaments.

The characteristics selected for the study were mental ability, temperament, tennis experiences and interests, and participation in various other sports. Specifically the study attempted to accomplish the following: (1) to determine the mental ability and temperament of high school girls who were members of Senior Division tennis teams in Conference AAAA secondary schools of Districts Thirteen, Fifteen, and Sixteen in the Texas University Interscholastic League during the academic year

1959-1960; (2) to determine the tennis experiences and interests and participation in various other sports of high school girls who were members of Senior Division tennis teams in Conference AAAA secondary schools of Districts Thirteen, Fifteen, and Sixteen in the Texas University Interscholastic League during the academic year 1959-1960; and (3) to determine if there were any significant differences in the mental ability, temperament, tennis experiences, and interests and participation in various other sports of the team members chosen to participate in the Texas University Interscholastic League tennis tournaments of Districts Thirteen, Fifteen, and Sixteen and those same characteristics of members of these teams who were not chosen to participate in the District tournaments.

Limitations of the Study

The investigation was limited to girls who were members of Senior Division tennis teams in Conference AAAA secondary schools of Districts Thirteen, Fifteen, and Sixteen in the Texas University Interscholastic League during the academic year 1959-1960. The study was also limited to: (1) facts about mental ability as revealed through the administration of the Otis Quick-Scoring Mental Ability Test, Gamma Form E M; (2) data concerning temperament as indicated by the administration of the Guilford-Zimmerman Temperament Survey; and (3) information about tennis experiences and interests and participation in other

sports gained through the administration of a check list prepared by the investigator.

Definitions and Explanations of Terms

So that the reader may have a clear understanding of the study, the terms used in this investigation are defined as follows:

Texas University Interscholastic League--This is an organization that sponsors and controls interscholastic competition in the public schools of Texas.¹

Conference AAAA--Conferences in the Texas University Interscholastic League are used to classify schools for competition according to school enrollments; Conference AAAA schools are defined as schools with enrollments of 900 or more students.²

Districts--Each Conference of the Texas University Interscholastic League is divided into districts. These districts are established by the State Executive Committee of the Texas University Interscholastic League in order to permit the best possible competitive arrangements.³

Senior Division for Girls' Tennis--This division of the Texas University Interscholastic League defines the competitive unit in tennis for girls who are from fifteen

¹Committee on Publications, op. cit., p. 9.

²Ibid., p. 145.

³Ibid., p. 28.

to nineteen years of age on the first day of September preceding the school year during which participation in Texas University Interscholastic League tennis tournaments occurs.¹

Review of Related Literature

The following review of studies is confined to selected studies which are most closely related to the proposed problem.

In 1955, Bell reported a study in which an investigation of the relationships of participation in interscholastic basketball and selected personality traits was conducted.² Bell administered the California Psychological Inventory and a sociometric test to 244 high school girls. Data regarding participation by these same girls in extracurricular activities and the number of elective offices the girls held in school organizations were secured by forms designed specifically for the investigation. Of the 244 participants, 109 had participated in interscholastic basketball and 135 had not participated in interscholastic basketball.

The results of Bell's study indicated that those girls who did participate in interscholastic basketball

¹Ibid., p. 14.

²Mary Monroe Bell, "Measurement of Selected Outcomes of Participation in Girls High School Interscholastic Basketball (unpublished Ph.D. dissertation, Graduate Division, Department of Physical Education, University of Iowa, June, 1955).

were, in varying degrees, less feminine, more impulsive, and more dominant; they demonstrated higher degrees of social presence and of self-acceptance; they held more elective offices; and they took part in more extracurricular activities than those girls who did not participate in interscholastic basketball.

Winter conducted a study to compare intelligence, motor educability, skill, and knowledge in the game of tennis for beginners, and to evaluate those specific factors for purposes of awarding marks to students in beginning tennis classes.¹ The tests used in the study were (1) the Otis Intelligence Test, Higher Examination, Form D., (2) the Motor Educability Test--the Iowa Revision of the Brace Motor Ability Test, (3) the Dyer Backboard Test of Tennis Ability, and (4) an Original Tennis Information Test.

The subjects selected for the study were 175 students enrolled in beginning tennis classes in three colleges located in different parts of the state of Texas.

Findings of this study indicated that: (1) a tennis skill test is available for grading beginning tennis

¹Katherine Winter, "A Study of Unselected Beginning Tennis Players With Respect to Intelligence, Motor Educability, Fundamental Skills, and Knowledge of the Game With Implications of These Factors for More Objective Grading" (unpublished Master's thesis, Graduate Division, Department of Health and Physical Education, Texas State College for Women, now known as Texas Woman's University, Denton, Texas, 1938).

players objectively; (2) the Iowa Revision of the Brace Test is useful for measuring motor educability and for classifying students tentatively according to scores made on the test; (3) a beginner's knowledge of tennis can be ascertained objectively by administering the Tennis Information Test; and (4) the Otis Intelligence Test is not usable for classifying students tentatively according to scores made on the test.

Afflerbach reported a study undertaken to determine the relationship of intelligence, reaction time using large muscle groups, and motor ability of 125 high school girls enrolled in physical education classes at Denton High School, Denton, Texas.¹

A total of 125 girls enrolled in physical education classes at Denton High School, Denton, Texas, served as subjects for the study. Of this total, forty-nine were sophomores, forty-one were juniors, and thirty-five were seniors.

The Otis Self-Administering Test of Mental Ability, Form D, was administered to determine the intelligence, the Keller Reaction Time Test was used to establish reaction time using large muscle groups, and the Scott Motor Ability

¹Helen J. Afflerbach, "The Relationship of Intelligence, Reaction Time Using Large Muscle Groups and Motor Ability of 125 High School Girls Enrolled in Physical Education Classes at Denton High School, Denton, Texas" (unpublished Master's thesis, Graduate Division, College of Health, Physical Education and Recreation, Texas Woman's University, Denton, Texas, 1959).

Test, Battery Two, was administered to determine the motor ability of the 125 participants.

The results of the study based upon the data obtained were: (1) senior girls at Denton High School tend to have higher intelligence quotients than do sophomore and junior girls; (2) there was a relationship between reaction time and motor ability; and (3) there was very little relationship between intelligence and motor ability.

Closs made a study to compare the mental ability, the extra-class activities, and the academic grades of 100 freshmen, 100 sophomores, 100 juniors, and 100 seniors enrolled during the fall semester of the 1953-1954 school year at the Texas State College for Women in Denton, Texas.¹

Form B of the Otis Self-Administering Tests of Mental Ability was administered to determine the mental ability of the subjects. A check list for the evaluation of extra-class participation was constructed and administered by the investigator to determine the degree of participation in extra-class activities. In addition, a

¹Elizabeth Lee Closs, "A Comparative Study of the Mental Ability, the Participation in Extra-Class Activities, and the Academic Grades of 400 Students Enrolled During the Fall Semester of the 1953-1954 School Year at the Texas State College for Women in Denton, Texas" (unpublished Master's thesis, Graduate Division, Department of Health, Physical Education and Recreation, Texas State College for Women, now known as Texas Woman's University, Denton, Texas, 1954).

special form was developed and utilized for the recording of academic grades.

Closs concluded that the average mental ability of the students in the four classes was the same and that scholastic classification had not influenced the mental ability of the students in the classes. From the results of the check list the investigator concluded that the students in the senior class participated more in extra-class activities than students in the freshman, sophomore, and junior classes, respectively, and that the degree of participation in extra-class activities increased as the students progressed in scholastic classification. According to the results obtained from the academic grades the students in the four classes achieved approximately the same academic grades and the scholastic classification did not influence the grades of students in the study.

The findings of the study indicated that the students who possessed high mental ability achieved high academic grades, and the students with low mental ability achieved low grades. The investigator also concluded that the students who participated to a high degree in extra-class activities also achieved high academic grades, and the students who participated to a lesser extent in activities achieved lower academic grades.

An investigation was undertaken by White to make a comparative study of ten temperament traits of 108

undergraduate students majoring in Health, Physical Education and Recreation, and 105 students majoring in Biology, Chemistry, Library Science, and Foods and Nutrition in the Texas State College for Women at Denton, Texas.¹

The Guilford-Zimmerman Temperament Survey was selected to measure the ten temperament traits of the 213 participants in the study. The survey was administered to the following number of undergraduate students in each department: forty-four in Biology, seventeen in Chemistry, nineteen in Library Science, and twenty-five in Foods and Nutrition.

The following conclusions were based on the findings from the study: (1) the 213 undergraduate student majors in the five departments were below average in the qualities of emotional stability; (2) the 213 undergraduate student majors in the five departments were below average in the qualities of femininity; (3) the undergraduate student majors in the Department of Chemistry were considerably above average in the qualities of personal relations; (4) the 108 undergraduate student majors in the Department of Health, Physical Education and Recreation were above average in the qualities of ascendance and friendliness; (5) the 105 undergraduate student majors in

¹Elaine Ruth White, "A Comparative Study of Ten Temperament Traits of 213 Major Students in Five Selected Departments at the Texas State College for Women in Denton, Texas" (unpublished Master's thesis, Graduate Division, Department of Health, Physical Education and Recreation, Texas State College for Women, now known as Texas Woman's University, Denton, Texas, 1952).

the Departments of Biology, Chemistry, Library Science, and Foods and Nutrition were above average for the qualities of restraint, objectivity, thoughtfulness, and personal relations; (6) the girls in the freshman class in the Department of Health, Physical Education and Recreation were below the average in qualities of restraint, friendliness, and personal relations; (7) the freshman girls in the Department of Health, Physical Education and Recreation were low in the qualities of objectivity which indicated that the self-development program conducted by the Department of Health, Physical Education and Recreation may have influenced the students in the upper three classes in the qualities of objectivity; (8) the scores indicated that there was a decline in the qualities of ascendance, sociability, and femininity in the students after their freshman year; (9) the scores indicated that the degree of the qualities of objectivity and friendliness increased as the students progressed in educational classification; and (10) the scores indicated that the degree of the qualities of general activity, thoughtfulness, and personal relations decreased as the students progressed in educational classifications.

Hearn used the California Test of Personality, Secondary Series, Form A, to study the personalities of 100 sophomore, 100 junior, and 100 senior girls in physical

education classes in Sunset High School in Dallas, Texas.¹

The investigator drew the following conclusions based on the findings from the study: (1) the 100 sophomores, 100 juniors, and 100 seniors in Sunset High School, Dallas, Texas, were slightly above the average in self-adjustment; (2) the sophomores and juniors were above the average, and the seniors were below the average in social adjustment; (3) the sophomores and juniors were above the average, and the seniors were below the average in total adjustment; (4) the sophomores and the juniors were above the average in the self-adjustment components; (5) the seniors were below the average in the self-adjustment components; (6) the critical ratios between the sophomores and juniors for self, social, and total adjustment indicated no significant differences in adjustment in favor of either group; (7) the highly significant critical ratios between the sophomores and seniors indicated superior adjustment in social and total adjustment in favor of the sophomores; (8) superior adjustment in social and total adjustment was indicated in favor of the juniors; (9) superior adjustment in self adjustment was indicated in favor of the sophomores;

¹Maurine Hearn, "A Study of the Personality of Three Hundred Girls in Physical Education in Sunset High School, Dallas, Texas" (unpublished Master's thesis, Graduate Division, Department of Health, Physical Education and Recreation, Texas State College for Women, now known as Texas Woman's University, Denton, Texas, 1950).

(10) superior adjustment in self-adjustment and in social adjustment components was indicated in favor of the sophomores; and (11) between the juniors and seniors superior adjustment in self-adjustment and social adjustment components was indicated in favor of the juniors.

Fisher studied the total temperament adjustment of ninety-three women and sixty-one men enrolled in beginning folk dance, and the changes in total temperament adjustment of 104 women and 118 men enrolled in beginning social dance at the Central Michigan College, Mount Pleasant, Michigan, during the second semester of the academic year, 1957-1958.¹

The investigator administered the Guilford-Zimmerman Temperament Survey to the participants at the beginning and termination of the respective dance classes in which the participants were enrolled.

The author stated that there was no way to determine the degree to which the dance activities affected changes in temperament because of other influences in the academic environment as well as those exerted by the home, the church, and the community.

¹Jane Phyllis Fisher, "A Study of the Changes in Total Temperament Adjustment of College Men and Women Enrolled in Beginning Folk and Social Dance Classes at the Central Michigan College, Mount Pleasant, Michigan" (unpublished Master's thesis, Graduate Division, College of Health, Physical Education and Recreation, Texas Woman's University, 1958).

The following conclusions were drawn from the findings presented in the study: (1) there was a significant improvement in total temperament adjustment for the ninety-three college women enrolled in beginning folk dance; (2) there was a significant improvement in total adjustment for the sixty-one college men enrolled in beginning folk dance; (3) the men enrolled in beginning folk dance improved more in total adjustment than did the women enrolled in beginning folk dance; (4) there was a significant improvement in total adjustment for the 104 college women enrolled in beginning social dance; (5) there was a significant improvement in total temperament adjustment for the 118 college men enrolled in beginning social dance; (6) the women enrolled in beginning social dance improved more in temperament adjustment than did the men enrolled in beginning social dance; and (7) all groups enrolled in the beginning folk or social dance classes improved in temperament adjustment except the freshman men enrolled in beginning folk dance.

Summary

The report of this study is organized into four chapters. Chapter I introduced the subject, stated the problem, the purposes and limitations of the study, explained the sources of data, defined the terminology essential to the study, and presented a review of related

literature. Chapter II reviews the procedures used in pursuing the problem, and Chapter III presents the findings and interpretations. A summary of the study, conclusions drawn, and recommendations for further study appear in Chapter IV.

CHAPTER II

PROCEDURES

The present study was developed as a result of the investigator's interest in certain mental and physical characteristics of members of girls' High School Senior Division tennis teams. This chapter includes the procedures used in developing the study.

Sources of Data

The sources of data used in this study were both human and documentary. The human sources included the selected coaches and their girls' Senior Division tennis teams of Conference AAAA secondary schools in Districts Thirteen, Fifteen, and Sixteen of the Texas University Interscholastic League during the academic year 1959-1960, and staff members of the College of Health, Physical Education and Recreation at Texas Woman's University in Denton, Texas.

The documentary sources of data used were books, periodicals, and reports of research pertinent to the present study. Bulletins and pamphlets from the Texas University Interscholastic League publications were also used in the study.

Selection of Participants

To be selected for this study it was essential that: (1) the subjects be enrolled in a school which is a member of the AAAA Conference of the Texas University Interscholastic League and located in Districts Thirteen, Fifteen, or Sixteen within 200 miles of Austin, Texas; (2) the participants be members of a girls' Senior Division tennis team during the academic year 1959-1960; and (3) the girls and their coaches be willing to participate in the study.

A list of the schools in Texas including the district and conference classifications was obtained from the Texas University Interscholastic League office in Austin, Texas. The League office had no list of the names of the schools having girls' Senior Division tennis teams, nor could it provide a list of names of the coaches in the schools that had girls' Senior Division tennis teams.

A letter was mailed to the girls' tennis coaches in eighteen high schools in Districts Thirteen, Fifteen, and Sixteen. A copy of this letter may be found in the Appendix on page 53. The investigator enclosed in the initial letter a self-addressed postal card requesting the coaches to provide information related to the following statements:

1. Our school has a girls' tennis team.
2. We will take part in the proposed study of characteristics of members of the girls' tennis teams.

3. There are ____ girls on the tennis team in our school.
4. The tennis team's coach is willing to administer the tests.

A copy of this postal card may be found in the Appendix on page 55. Accompanying the initial letter and postal card was a letter from Doctor Hazel A. Richardson, Professor in the College of Health, Physical Education and Recreation at Texas Woman's University in Denton, Texas. Doctor Richardson's letter gave a brief statement concerning the proposed study and also stated that the staff members in the College of Health, Physical Education and Recreation at Texas Woman's University approved of the study. A copy of Doctor Richardson's letter may be found in the Appendix on page 54.

Eighteen initial letters were mailed to the selected coaches; from these letters sixteen postal cards were returned to the investigator. Only ten of the eighteen coaches indicated that they had girls' Senior Division tennis teams; six coaches indicated that they did not have girls' tennis teams, and two coaches did not respond. The coaches in the ten schools in Districts Thirteen, Fifteen, and Sixteen of the Texas University Interscholastic League having girls' Senior Division tennis teams indicated their willingness to take part in the study

and to administer the mental ability test, the temperament survey, and the check list to their team members.

Selection of Instruments for Collecting Data

In order to obtain data about the mental ability, and the temperament of girls who are members of Senior Division tennis teams, the investigator reviewed information on tests designed to measure mental ability and temperament. Criteria for selecting the tests were validity, reliability, economy of time in administering and scoring, and suitability for the purposes stated and the subjects included in the study. After reviewing information on available tests that met the established criteria, the investigator selected the Otis Quick-Scoring Mental Ability Test, Gamma Form E M, and the Guilford-Zimmerman Temperament Survey.

The Otis Quick-Scoring Mental Ability Test is a standardized test for measuring mental ability. The Gamma Form E M is designed to test the mental ability of high school and college students. The author of the test reported a corrected split-half reliability coefficient of .88, based on 489 college freshmen entering the College of Holy Cross, Worcester, Massachusetts, in 1953.¹ The mean

¹Arthur S. Otis, Manual of Directions for Gamma Test Forms AM and BM and New Edition Forms EM and FM (New York: World Book Company, Yonkers-On-Hudson, 1954), pp. 5-6.

validity index of the test items is approximately .50. The Otis Quick-Scoring Mental Ability Test also met the criterion of economy of time in administering and scoring. The test takes thirty minutes to administer and is scored in a minimum of time.

The Guilford-Zimmerman Temperament Survey is designed to assess an individual's temperament on the basis of ten traits. The authors report reliability coefficients on the ten traits ranging from .75 to .87. The reliability coefficients were established by odd-even and first-half-second-half correlation.¹

The internal validity or factorial validity of the scores is fairly well assured by the foundation of factor-analysis studies plus the successive item-analysis directed toward internal consistency and uniqueness. It is believed that what each score measures is fairly well defined and that the score represents a confirmed dimension of personality and a dependable descriptive category.²

Because it is designed for all ages the survey met the established criteria of suitability for the subjects in the study.

The investigator designed a check list to obtain information pertaining to the subjects' tennis experiences and their interests and participation in various other

¹J. P. Guilford and Wayne S. Zimmerman, The Guilford-Zimmerman Temperament Survey, Manual of Instructions and Interpretation (Beverly Hills, California: Sheridan Supply Company, 1949), p. 6.

²Ibid., pp. 6-8.

sports. The items on the check list were selected on the basis of the investigator's knowledge of what experiences a high school girl might have in tennis and various other sports. The check list was submitted to a committee of staff members in the College of Health, Physical Education and Recreation at Texas Woman's University in Denton, Texas, for suggestions. The committee made suggestions which were incorporated into the check list. The revised check list was submitted to the same committee who then approved it for use in the present study.

Methods of Collecting Data

After determining the eligibility of the participants and the willingness of the coaches to take part in the study, the investigator mailed to the coaches the Otis Quick-Scoring Mental Ability Tests, Gamma Form E M, test booklets and answer sheets, the Guilford-Zimmerman Temperament Survey and answer sheets, the investigator's check list, detailed information on administering the selected tests and the check list, and a self-addressed, stamped envelope for returning the completed tests and check lists to the investigator. The coaches administered the tests and the investigator's check list, and returned the tests, booklets, completed answer sheets, and check lists to the investigator. There were 126 individual tennis team members who were tested for the study; however, test scores of

eight girls were deleted from the study because these girls did not participate in their District tennis tournament. After eliminating this one team of eight girls, there were 118 subjects for the present study.

April 16, 1960, was the last date designated by the Texas University Interscholastic League for holding District tennis tournaments. After the District tennis tournaments were completed, the investigator mailed another letter to each participating coach requesting the names of the girls who represented their school in the District tennis tournaments. The coaches were asked to list the girls' names on the self-addressed postal card which was enclosed in the letter and to return it to the investigator. This letter also expressed appreciation to the coaches for their cooperation in the study. A copy of this letter may be found in the Appendix on page 57.

Treatment of Data

The test booklets, completed answer sheets, and check lists were returned to the investigator and grouped according to the schools they represented. To facilitate the organization and treatment of data, objective keys were used to score the Otis Quick-Scoring Mental Ability Tests, Gamma Form E M, and the Guilford-Zimmerman Temperament Survey. The responses from the investigator's check list were tallied and frequencies recorded for each item on the check list. The scores from the two tests and the check

list were then grouped into two categories, one for the girls who were chosen to participate in the District Thirteen, Fifteen, and Sixteen Texas University Interscholastic League tennis tournaments; the other groups for girls who were not chosen to participate in these tournaments. Hereafter these groups will be designated as Group I and Group II, respectively. There were twenty-six participants in Group I and ninety-two participants in Group II.

The investigator used the same statistical procedures in handling results from the Otis Quick-Scoring Mental Ability Tests, Gamma Form E M, and the Guilford-Zimmerman Temperament Survey. The mean score on the mental ability tests, and the mean score for each of the ten traits in the temperament survey were established through the use of the formula:¹

$$MEAN = \text{Sum of } X \text{ over } N$$

The mean scores were compared with Fisher's "t" test. Fisher's "t" test is a statistical procedure recommended for use with two small independent or uncorrelated samples of data and the value of "t" is calculated through the use of the following formula:²

¹Francis Stroup, Measurement in Physical Education (New York: The Ronald Press Company, 1957), p. 18.

²G. Milton Smith, A Simplified Guide to Statistics (New York: Rinehart and Company, Inc., 1958), p. 70.

$$t = \frac{M_1 - M_2}{\sqrt{\left(\frac{\sum X_1^2 + \sum X_2^2}{N_1 + N_2 - 2} \right) \left(\frac{N_1 + N_2}{N_1 N_2} \right)}}$$

The "t" test is interpreted in terms of probability levels and the probability levels for the "t" test are expressed in terms of chance variations in sampling. A probability value of .01 means that the probability is 1 in 100 that the obtained "t" value could occur on the basis of chance variations in sampling. A probability of .05 or less was accepted as significant in this study. A probability level of .05 indicates that the probability is 5 chances in 100 that the obtained "t" value could occur on the basis of chance variations in sampling. Fisher's Table of "t" was used to interpret the "t" Test in this study.¹ The mean score on the mental ability tests was established for the girls in Group I and for the girls in Group II. Through the use of the "t" test the mean scores of the two groups were compared to determine if there were any significant differences between the mean mental ability of those girls in Group I and the mean mental ability of those girls in Group II.

The mean score for each of the ten traits in the temperament survey was established for the girls in Group I and for the girls in Group II. The mean scores for each

¹Ibid., pp. 68-69.

trait were compared to determine if there was any significant difference in the temperament of those girls in Group I and the temperament of those girls in Group II.

The frequencies of responses to items on the check list were tallied for Group I and Group II. Chi-Squares were used to compare the frequencies of responses of those girls in Group I and those girls in Group II. The Chi-Square is a statistical procedure recommended for use with data that are in the form of frequencies. According to Smith, the Chi-Square technique for testing hypotheses is defined as ". . . a method of determining whether the differences between the theoretical and the observed frequencies in any number of categories can reasonably be attributed to chance variations in sampling."¹

The formula for Chi-Square is as follows:

$$\chi^2 = \frac{\sum (O - E)^2}{E}$$

A Chi-Square test is interpreted in terms of probability values. The probability values are expressed in terms of chance variations in sampling. A probability value of .01 means that the probability is 1 in 100 that the obtained Chi-Square value could occur on the basis of chance variations in sampling. A probability value of .05 or less was accepted as significant in this study. A probability of .05 means that the probability is 5 chances in 100 that the

¹Ibid., p. 86.

obtained Chi-Square value could occur on the basis of chance variations in sampling. Fisher's Table of Chi-Square was used to interpret the Chi-Square Test in this study.¹

Conclusions were drawn, recommendations for further study were made, and a written report was prepared. A selected bibliography was compiled, a copy of which may be found in the Appendix.

Summary

This chapter presented procedures used in developing the study, including the sources of data, the methods of selecting the participants, the selection of instruments for collecting the data, the methods of collecting data, and treatment of data.

Chapter IV will present the findings and interpretations of data.

¹Ibid., pp. 86-88.

CHAPTER III

FINDINGS

A study was made to determine the mental ability, temperament, tennis experiences, and interests and participation in various other sports of 118 high school girls who were members of Senior Division tennis teams in Conference AAAA of Districts Thirteen, Fifteen, and Sixteen in the Texas University Interscholastic League during the academic year 1959-1960. Specifically the study attempted to determine if there were any significant differences in the mental ability, temperament, tennis experiences, and interests and participation in various other sports of the twenty-six team members chosen to participate in the Texas University Interscholastic League tennis tournaments of Districts Thirteen, Fifteen, and Sixteen and those same characteristics of the ninety-two team members who were not chosen to participate in the District tournaments. These groups were designated as Group I and Group II, respectively.

The data were obtained through the administration of the Otis Quick-Scoring Mental Ability Test, Gamma Form E M, the Guilford-Zimmerman Temperament Survey, and the investigator's check list. The following findings were

derived from the statistical treatment of the data as outlined in the preceding chapter.

The means of the two groups on mental ability and the ten temperament traits, along with the "t" values and probability levels, are presented in Table I.

TABLE I

THE MEAN SCORES OF GROUP I AND GROUP II ON THE OTIS QUICK-SCORING MENTAL ABILITY TEST, GAMMA FORM E M, AND THE TEN TEMPERAMENT TRAITS AS INDICATED BY THE GUILFORD-ZIMMERMAN TEMPERAMENT SURVEY, THE "t" VALUES, AND THE PROBABILITY LEVELS OF CONFIDENCE

Characteristics Tested	Group I Mean	Group II Mean	"t" Value	Probability Level
Mental ability	114.08	107.13	2.25	.05
General ability	18.16	17.46	.64	.60
Restraint	12.80	13.13	.27	.80
Ascendancy	13.83	13.80	.03	.95
Sociability	19.46	19.32	.12	.90
Emotional Stability	13.50	12.97	.42	.90
Objectivity	13.65	12.84	.64	.90
Friendliness	14.28	12.93	1.16	.90
Thoughtfulness	16.13	17.32	.96	.90
Personal Relations	15.80	15.11	.59	.90
Masculinity	11.40	9.34	2.11	.05

Findings from the Otis Quick-Scoring Mental
Ability Test, Gamma Form E M

Mental Ability

The mental ability mean score of 114.08 obtained from Group I and the mental ability mean score of 107.13 obtained from Group II resulted in a mean difference of 6.95. The "t" value of 2.25 with a probability level of .05 indicated that the difference of 6.95 between the means was large enough to be considered statistically significant. The probability level of .05 indicated that the difference is unlikely to have occurred by chance alone; it may be assumed, therefore, that there is some true difference in the mental ability of these two groups. Hence, as indicated by the Otis Quick-Scoring Mental Ability Test, Gamma Form E M, the mental ability of those girls in Group I is slightly higher than the mental ability of those girls in Group II.

Findings from the Guilford-Zimmerman Temperament Survey

The findings from the Guilford-Zimmerman Temperament Survey are discussed in relation to the qualities of the traits as described in the Manual of Instructions and Interpretations for the Survey.¹

General Activity

The mean score on the general activity trait was

¹Guilford and Zimmerman, op. cit., p. 2.

18.16 for Group I and the mean score on the general activity trait for Group II was 17.46. This resulted in a mean difference of .70. The "t" value of .64 indicated that the difference of .70 between the means was not large enough to be considered statistically significant. It may be assumed, therefore, that there is no true difference in the rapid pace of activities, energy, keeping in motion, production, liking for speed, hurrying, quickness of action or enthusiasm of those girls in Group I and those girls in Group II.

Restraint

The mean score on the restraint trait was 12.80 for Group I and the mean score on the restraint trait for Group II was 13.13. This resulted in a mean difference of .33. The "t" value of .27 indicated that the difference of .33 between the means was not large enough to be considered statistically significant. It may be assumed, therefore, that there is no true difference in the serious-mindedness, deliberateness, persistence, and self-control of those girls in Group I and those girls in Group II.

Ascendance

The mean score on the ascendance trait was 13.83 for Group I and the mean score on the ascendance trait for Group II was 13.80. This resulted in a mean difference of .03. The "t" value of .03 indicated that the difference of

.03 between the means was not large enough to be considered statistically significant. It may be assumed, therefore, that there is no true difference in self-defense, leadership habits, speaking with people, speaking in public, persuading others, being conspicuous, and bluffing of those girls in Group I and those girls in Group II.

Sociability

The mean score on the sociability trait was 19.46 for Group I and the mean score on the sociability trait for Group II was 19.32. This resulted in a mean difference of .14. The "t" value of .12 indicated that the difference of .14 between the means was not large enough to be considered statistically significant. It may be assumed, therefore, that there is no true difference in the qualities of having many friends, entering into conversations, liking social activities, seeking social contacts, and seeking the lime-light of those girls in Group I and those girls in Group II.

Emotional Stability

The mean score on the emotional stability trait was 13.50 for Group I and the mean score on the emotional stability trait for Group II was 12.97. This resulted in a mean difference of .53. The "t" value of .42 indicated that the difference of .53 between the means was not large enough to be considered statistically significant. It may

be assumed, therefore, that there is no true difference in the evenness of moods, optimism, cheerfulness, composure, and feeling of good health of those girls in Group I and those girls in Group II.

Objectivity

The mean score on the objectivity trait was 13.65 for Group I and the mean score in the objectivity trait for Group II was 12.84. This resulted in a mean difference of .81. The "t" value of .64 indicated that the difference of .81 between the means was not large enough to be considered statistically significant. It may be assumed, therefore, that there is no true difference in the hypersensitiveness, egoism, suspiciousness, having ideas of reference, and getting into trouble of those girls in Group I and those girls in Group II.

Friendliness

The mean score on the friendliness trait was 14.28 for Group I and the mean score on the friendliness trait for Group II was 12.93. This resulted in a mean difference of 1.35. The "t" value of 1.16 indicated that the difference of 1.35 between the means was not large enough to be considered significant. It may be assumed, therefore, that there is no true difference in the toleration of hostile action, acceptance of domination, and respect for others of those girls in Group I and those girls in Group II.

Thoughtfulness

The mean score on the thoughtfulness trait for Group I was 16.13 and the mean score on the thoughtfulness trait for Group II was 17.32. This resulted in a mean difference of 1.19. The "t" value of .96 indicated that the difference of 1.19 between the means was not large enough to be considered statistically significant. It may be assumed, therefore, that there is no true difference in the reflectiveness, observation of behavior in others, interest in thinking, philosophical inclination, observation of self, and mental poise of those girls in Group I and those girls in Group II.

Personal Relations

The mean score on the personal relations trait for Group I was 15.80 and the mean score on the personal relations trait for Group II was 15.11. This resulted in a mean difference of .69. The "t" value of .59 indicated that the difference of .69 between the means was not large enough to be considered statistically significant. It may be assumed, therefore, that there is no true difference in the tolerance of people and the faith in social institutions of those girls in Group I and those girls in Group II.

Masculinity

The mean score on the masculinity trait for Group I was 11.40 and the mean score on the masculinity trait for

Group II was 9.34. This resulted in a mean difference of 2.06. The "t" value of 2.11 with a probability level of .05 indicated that the difference of 2.06 between the means was large enough to be considered statistically significant. The probability level of .05 indicated that the difference is unlikely to have occurred by chance alone; hence, it may be assumed there is some true difference in the masculinity means of these two groups. This would indicate that those girls in Group I are less interested in feminine activities and vocations, are not easily disgusted, are less sympathetic, are more resistant to fear, exhibit less emotional expressiveness, and have less interest in clothes and styles than those girls in Group II.

Findings from the Investigator's Check List

The investigator's check list was designed to obtain information pertaining to the subjects' tennis experiences and their interests and participation in various other sports. The items on the check list were selected on the basis of the investigator's knowledge of what experiences a high school girl might have in tennis and various other sports. Some of the items on the check list were adaptable for statistical treatment and some items were not. Those items which did not lend themselves to statistical treatment were discarded. Chi-Square values were obtained for those items that were adaptable for statistical treatment.

Only those items on the check list that were treated statistically are included in the following analysis. A copy of the check list appears in the Appendix on page 60.

Part I

- A. In what grade were you when you first played tennis?
(Check one item only.)

The data for this item were divided into three grade levels for Chi-Square testing. The grade levels were: (1) before junior high school, (2) during junior high school, and (3) in high school.

A Chi-Square value of 2.45 was obtained and is not large enough to be considered statistically significant. In the opinion of the investigator, it may be assumed that there is no true relationship between the grade level at which a tennis team member first started playing tennis and her selection as a member of a tennis team in district competition.

- B. Who first taught you to play tennis? (Check one item only.)

The data for this item were divided into two groups for Chi-Square testing. The two groups were (1) those who had been taught by semi-professional or professional instructors, and (2) those who had been taught by non-professional instructors.

A Chi-Square value of 5.00 was obtained. The Chi-Square value of 5.00 with a probability level of .02

indicated that the Chi-Square value of 5.00 was large enough to be statistically significant. The probability level of .02 indicated that the difference is unlikely to have occurred by chance alone; therefore, it may be assumed that there is some true difference in tennis players who are taught by semi-professional or professional instructors and those players who are taught by non-professional instructors. A probability level of .02 means that the probability is two chances in 100 that the obtained Chi-Square value could occur on the basis of chance variations in sampling. In the opinion of the investigator, it may be assumed that the fact that a tennis team member was selected to participate in district tennis tournaments cannot be attributed to being taught to play tennis by a semi-professional or professional tennis instructor. This is substantiated by the fact that a larger per cent of the girls in Group II were taught by semi-professional or professional tennis instructors.

- C. At the present time, what tennis equipment do you own personally? (Check those items which you own.)

Only one item in this question could be treated statistically; this item was "a tennis warm-up suit."

The data for this item were divided into two groups. The two groups were: (1) those players who

owned a tennis warm-up suit, and (2) those players who did not own a tennis warm-up suit.

A Chi-Square value of 3.90 was obtained. The Chi-Square value of 3.90 with a probability level of .05 indicated that the Chi-Square value of 3.90 was large enough to be statistically significant. In the opinion of the investigator, it may be assumed that those girls in Group I are more interested in owning a tennis warm-up suit than those girls in Group II.

- D. Approximately how many hours a week do you usually play tennis during the tennis season? (Check one item only.)

The data for this item were divided into two categories. The two categories were (1) 10 hours or less, and (2) 11 hours or more.

A Chi-Square value of 15.38 was obtained. The Chi-Square value of 15.38 with a probability level of .01 indicated that the Chi-Square value of 15.38 was large enough to be statistically significant. The probability level of .01 indicated that the difference is unlikely to have occurred by chance alone; therefore, it must be assumed that there is some true difference in tennis players who play less than ten hours and in those players who play eleven hours or more. In the opinion of the investigator, it may be assumed that

those girls in Group I play tennis more hours per week than do those girls in Group II.

E. In what tennis tournaments, other than Texas University Interscholastic League sponsored tournaments, have you played? (Check "Yes" or "No" for each item below.)

a. Any junior high intramural tennis tournaments?

The data for this item were divided into two groups. The two groups were: (1) those players who answered yes, and (2) those players who answered no.

A Chi-Square value of 1.38 was obtained and is not large enough to be statistically significant. In the opinion of the investigator, it may be assumed that junior high school intramural tennis tournament experience should not be included in the criteria for selecting tennis team members to represent schools in district tournaments.

b. Any junior high interschool tennis tournaments?

The data for this item were divided into two groups. The two groups were: (1) those players who answered yes, and (2) those players who answered no.

A Chi-Square value of 3.15 was obtained and is not large enough to be statistically significant. In the opinion of the investigator, it may be assumed that junior high school interschool tennis

tournament experience should not be included in the criteria for selecting tennis team members to represent schools in district tournaments.

c. Any city playground tennis tournaments?

The data for this item were divided into two groups. The two groups were: (1) those players who had played in city playground tennis tournaments, and (2) those players who had not played in city playground tennis tournaments.

A Chi-Square value of 6.63 was obtained. The Chi-Square value of 6.63 with a probability level of .01 indicated that the Chi-Square value of 6.63 was large enough to be statistically significant. The probability level of .01 indicated that the difference is unlikely to have occurred by chance alone; therefore, it may be assumed that there is some true difference in tennis players who play in city playground tennis tournaments and in those who do not play in city playground tennis tournaments. Those girls in Group I had played more in city playground tennis tournaments than those girls in Group II.

d. In other tournaments?

The data for this item were divided into two groups. The two groups were: (1) those players who played in other tournaments not listed, and

(2) those players who did not play in other tournaments not listed.

A Chi-Square value of 15.37 was obtained. The Chi-Square value of 15.37 with a probability level of .01 indicated that the Chi-Square value of 15.37 was large enough to be statistically significant. The probability level of .01 indicated that the difference is unlikely to have occurred by chance alone; therefore, it must be assumed that there is some true difference in tennis players who play in other tournaments not listed and in those players who did not play in other tournaments not listed. Those girls in Group I had played more in various tournaments, other than intramural and interschool, than those girls in Group II.

Part II Interests and Participation in Various Other Sports

The following list indicates those sports which were checked most frequently by both Group I and Group II. These sports are those in which the subjects have participated either in or outside of school. The sports are listed in order of frequency of responses. They are: softball, volleyball, ping pong, basketball, badminton, bowling, archery, soccer, golf, swimming, speedball, teniquoits, and hockey.

Summary

This chapter has presented the findings and the interpretation of data investigated in this study. The mean scores of Group I and Group II on the Otis Quick-Scoring Mental Ability Test, Gamma Form E M, and the ten traits of the Guilford-Zimmerman Temperament Survey, along with the "t" values and probability levels of significance were presented. Chi-Square values were given for information pertaining to the subjects' tennis experiences and for interests and participation in various other sports. Chapter IV will present a summary, conclusions, and recommendations for further study.

CHAPTER IV

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS FOR FURTHER STUDIES

Summary

The present investigation was undertaken to determine the mental ability, temperament, tennis experiences, and interests and participation in various other sports of 118 high school girls. These girls were members of Senior Division tennis teams in Conference AAAA secondary schools of Districts Thirteen, Fifteen, and Sixteen in the Texas University Interscholastic League during the academic year 1959-1960. In addition to determining these selected characteristics, the purpose was to find out whether there were any significant differences in the selected characteristics of the team members chosen to compete in the Texas University Interscholastic League tennis tournaments of Districts Thirteen, Fifteen, and Sixteen, and of those members who were not chosen to participate in the tournaments. Specifically, the study attempted to accomplish the following purposes:

- (1) To determine the mental ability and temperament of high school girls who were members of Senior Division tennis teams in Conference AAAA secondary schools of

Districts Thirteen, Fifteen, and Sixteen in the Texas University Interscholastic League during the academic year 1959-1960;

(2) To determine the tennis experiences and interests and participation in various other sports of high school girls who were members of Senior Division tennis teams in Conference AAAA secondary schools of Districts Thirteen, Fifteen, and Sixteen in the Texas University Interscholastic League during the academic year 1959-1960; and

(3) To determine if there were any significant differences in the mental ability, temperament, tennis experiences, and interest and participation in various other sports of the team members chosen to participate in the Texas University Interscholastic League tennis tournaments of Districts Thirteen, Fifteen, and Sixteen and those selected characteristics of members of these teams who were not chosen to participate in the District tournaments.

In order to obtain data about the mental ability and the temperament of girls who were members of Senior Division tennis teams, the investigator reviewed information concerning tests designed to measure mental ability and temperament. It was also necessary to review research and literature related to mental ability and temperament testing.

The Otis Quick-Scoring Mental Ability Test, Gamma Form E M, was selected as the instrument for measuring the

subjects' mental ability. The Guilford-Zimmerman Temperament Survey was selected for the assessment of the subjects' temperament. The investigator's check list was designed to obtain information regarding the subjects' tennis experiences, and interests and participation in various sports.

The Otis Quick-Scoring Mental Ability Tests, Gamma Form E M, the Guilford-Zimmerman Temperament Survey, and the investigator's check list were administered to 118 participants. Objective keys were used to score the selected tests, and items on the investigator's check lists were tallied and frequencies for each item recorded on the check list. The scores from the two tests and the check list were then grouped into two categories, one for the girls who were chosen to participate in the District Thirteen, Fifteen, and Sixteen Texas University Interscholastic League tennis tournaments; and the other for girls who were not chosen to participate in these tournaments. These groups were designated as Group I and Group II, respectively. There were twenty-six participants in Group I and ninety-two participants in Group II.

The mean score on the mental ability tests was established for the girls in each of the two groups. The mean scores for the two groups were compared to determine if there were any significant differences between the mean mental ability of those girls in Group I and the mean

mental ability of those girls in Group II.

The mean score for each of the ten traits in the temperament survey was established for the girls in Group I and for the girls in Group II. The mean scores for each trait were compared to determine if there were any significant difference in the temperament of those girls in Group I and the temperament of those girls in Group II.

The frequencies of responses on the check list were tallied and compared for Group I and Group II.

Results from the administration of the three instruments were interpreted and reported in tabular form, conclusions were drawn, and a written report was prepared.

Conclusions

In this investigation the Otis Quick-Scoring Mental Ability Test, Gamma Form E M, the Guilford-Zimmerman Temperament Survey, and a check list were administered to determine the mental ability, the temperament traits, and certain activity interests of girls who were members of tennis teams in selected Texas high schools. The results of the scores from these instruments serve as bases for the following conclusions.

1. High school girls who are selected to participate in interscholastic district tennis tournaments tend to have slightly higher mental ability than other high school girls who play tennis but who are not selected to participate in district competition.

2. Girls in competitive tennis are no less feminine than the average girl, but those girls who reach the highest levels in tournament play tend to exhibit more masculine traits.

3. Girls selected for the district tennis tournaments are also girls most interested in playing tennis; they own their own warm-up suit, play more tennis, and enter more tournaments.

4. Competitive interests of girls selected for district tournaments are not necessarily dependent upon years of experience, previous competition, or professional instruction.

5. Girls who play competitive tennis tend to be interested in team sports as well as other individual sports.

Recommendations for Further Studies

The following are suggested recommendations for further studies:

1. A study of the mental ability and temperament of girls taking part in the Texas University Interscholastic League Basketball program.

2. A comparative study of selected characteristics of girls taking part in the Interscholastic League individual sports program and Texas University Interscholastic League team sports program.

3. A comparative study of selected characteristics of girls taking part in AAAA high school intramural programs and girls taking part in the Texas University Interscholastic League sports programs.

4. A study of the mental ability and temperament of female tennis players ranked in Texas by the United States Lawn Tennis Association.

APPENDIX

SAMPLES OF INVESTIGATOR'S INITIAL LETTER TO TENNIS
COACHES, ACCOMPANYING LETTER FROM THESIS
DIRECTOR, RESPONDENTS' POSTAL CARD

Dear

I am presently undertaking a study of characteristics of high school girls who are members of their schools' tennis teams as a thesis in partial fulfillment of requirement for a master's degree at the Texas Woman's University, Denton, Texas. Doctor Hazel A. Richardson, professor in the College of Health, Physical Education, and Recreation at Texas Woman's University is directing my study; and Doctor Rhea Williams, Director of Athletics for the Texas University Interscholastic League, has approved and encouraged my investigation.

Participants in my study are to include members of girls' tennis teams in secondary schools of Conference AAAA in Districts 13, 15, and 16 of the Texas University Interscholastic League during the academic year of 1959-1960. It involves a study of selected characteristics including intelligence, temperament, background of training and of tournament participation in tennis, and interests and participation in other sports. Data will be obtained through administration of standardized tests and a check list constructed by the investigator.

To conduct this study it will be necessary to secure the cooperation of the coaches of the girls' tennis teams. Such cooperation will involve returning the enclosed postal card indicating if your school has a girls' tennis team, and if your school will take part in the study. It will be necessary later to arrange a date mutually agreeable to the team's coach and the investigator for the administration of the tests and check list to the participants. The time involved for the participants would be approximately 2 hours. If it would be possible for you, as the team's coach, to administer the tests and check list all directions and material would be mailed to you postage paid. This would be a great time saver for the investigator and greatly appreciated. Perhaps it could be done as "a rainy day activity."

Your cooperation in making this study possible will be greatly appreciated. All data collected for the study will be confidential and no names of participants or participating schools will be revealed in the report of the investigation. Outcomes of the study will be made available to the coaches of the various teams taking part in the study. Please fill out and return the enclosed post card as soon as possible. Thank you for your time and consideration.

Sincerely yours,

Alice Bell, Teacher of Girls' Physical
Education, Girls' Tennis Coach
Wm. B. Travis High School, Austin, Texas

January 20, 1960

Dear

Miss Alice Bell is undertaking a study to determine the characteristics of members of girl's tennis teams in secondary schools of Conference AAAA in Districts 13, 15, and 16 of the Texas University Interscholastic League. Her study has been approved both by the staff of the College of Health, Physical Education and Recreation, Texas Woman's University, Denton, Texas, and Doctor Rhea Williams, Director of Athletics for the Texas University Interscholastic League.

In her letter accompanying this, she is soliciting the participation of your girls in her study. Miss Bell is thoroughly qualified through training and experience to complete the proposed study in a creditable fashion. I, together with three faculty members of our College of Health, Physical Education and Recreation, will direct her in her study.

May I add my appreciation to that expressed by Miss Bell in her letter soliciting your cooperation.

Most cordially,

Hazel A. Richardson
Professor, College of Health,
Physical Education and Recreation

HAR:ko

_____ Date

___Yes ___No Our school has a girls' tennis team.

___Yes ___No We will take part in the proposed study
of characteristics of members of girls'
tennis teams.

___ Number of team members presently on girls'
tennis team in our school.

___Yes ___No The team's coach will administer the test.

Name of coach _____ School _____

Address of coach _____ City _____

SAMPLES OF LETTER SENT TO PARTICIPATING COACHES
REQUESTING TOURNAMENT INFORMATION AND
RESPONDENTS' POSTAL CARD

May 19, 1960

Dear Coach:

In order to complete my study it will be necessary to know the girls that represented your school in singles and doubles in your district tennis tournament. I have enclosed a self addressed postal card for you to fill in the information and return at your earliest convenience.

May I take this opportunity to extend a sincere thank you for taking part in this study. Many have asked to be informed of the results. I will begin writing my thesis this June and hope to give you the results in the early part of the next school year.

Again, thank you,

Alice Bell

_____ Represented our school in
_____ singles District Tennis
Tournament.

_____ and _____
Represented our school in
doubles District Tennis
Tournament.

Name of Coach _____
School _____
City _____

SAMPLE OF INVESTIGATOR'S CHECK LIST

TENNIS TRAINING AND PARTICIPATION CHECK LIST

This check list is designed to obtain information concerning your background of training and participation in tennis. Please read all directions carefully and answer each question honestly and accurately. There should be at least one response, or checked item, for each question; for some of the questions more than one response, or checked item, is requested. Follow directions as they are indicated throughout the check list.

Directions: Indicate personal and school data in the following blanks:

School _____ City _____

Name _____ Grade _____

Date of birth _____ Age _____ years _____ month

PART I. TENNIS EXPERIENCES AND FACILITIES

Directions: Answer the following questions by placing a check () in the blank to the left of the particular item indicating the correct answer. Check "yes" or "no" where this type of response occurs. Whenever another type of response is requested, follow directions as they are indicated.

A. IN WHAT GRADE WERE YOU WHEN YOU FIRST PLAYED TENNIS? (Check one item only.)

1. ____ In lower elementary grades (grades 1, 2, 3)

2. ____ In upper elementary grades (grades 4, 5, 6)

3. ____ In grade 7

4. ____ In grade 8

5. ____ In grade 9

6. ____ In grade 10

7. ___ In grade 11

8. ___ In grade 12

B. WHO FIRST TAUGHT YOU TO PLAY TENNIS? (Check one item only.)

1. ___ A member of my family

2. ___ A friend

3. ___ A school teacher or coach

4. ___ A playground leader, teacher, or coach

5. ___ A camp counselor, teacher, or coach

6. ___ A tennis instructor who charged you for private instructions

7. ___ Someone other than one of those listed above.

If you check this item, indicate the type of instructor, and/or his relationship to you in the following space:

C. WHERE DID YOU FIRST PLAY TENNIS? (Check one item only.)

1. ___ On privately owned courts
If you check this item, answer the following:

a. ___ yes b. ___ no Was a fee charged for playing on these courts?

2. ___ On playground tennis courts owned by the city and where play was permitted without paying a fee

3. ___ On playground tennis courts owned by the city and where a fee was charged for playing on the courts

4. ☐ On tennis courts owned by a camp
5. ☐ On school-owned tennis courts
6. ☐ On tennis courts not among those listed above.

If you check this item, indicate below who owned the courts:

D. WHERE HAVE YOU PLAYED TENNIS FREQUENTLY DURING THE PAST THREE YEARS? (Check all items which indicate courts you have used frequently.)

1. ☐ On privately owned courts
If you check this item, answer the following:

a. ☐ yes b. ☐ no Was a fee charged for playing on these courts?

2. ☐ On playground tennis courts owned by the city and where play was permitted without paying a fee
3. ☐ On playground tennis courts owned by the city and where a fee was charged for playing on the courts
4. ☐ On tennis courts owned by a camp
5. ☐ On school-owned courts
6. ☐ On tennis courts not among those listed above
If you check this item, indicate below who owned the courts:
-

- E. ☐ yes ☐ no AT THE PRESENT TIME, DO YOU USUALLY WALK TO THE COURTS WHERE YOU MOST FREQUENTLY PLAY TENNIS?

If your answer is "yes," answer questions 1 and 2 below:

1. yes no Do you walk
from your home to these
courts?

If your answer is "yes,"
answer the following:

How long does it take
to walk from your home
to these courts? (Check
one item only.)

- a. 10 minutes or less
b. 11 to 20 minutes
c. 21 to 30 minutes
d. Longer than 30
minutes

2. yes no Do you walk
from school to these
courts?

If your answer is "yes"
answer the following:

How long does it take
to walk from your
school to these courts?
(Check one item only.)

- a. 10 minutes or less
b. 11 to 20 minutes
c. 21 to 30 minutes
d. Longer than 30
minutes

- F. AT THE PRESENT TIME, WHAT TENNIS EQUIPMENT DO
YOU PERSONALLY OWN? (Check those items which
you own.)

1. Tennis shoes
2. Tennis racket
3. Tennis press
4. Tennis balls
5. Tennis warm-up suit

- G. IF YOU PLAY ON YOUR SCHOOL TENNIS TEAM IN ANY
INTERSCHOOL COMPETITION, WHAT TENNIS EQUIPMENT

WOULD YOU DEPEND UPON YOUR SCHOOL TO PROVIDE FOR YOU? (Check as many items as apply to you.)

1. ☐ Tennis shoes
2. ☐ Tennis racket
3. ☐ Tennis press
4. ☐ Tennis balls
5. ☐ Tennis warm-up suit

H. APPROXIMATELY HOW MANY HOURS A WEEK DO YOU USUALLY PLAY TENNIS DURING THE TENNIS SEASON? (Check one item only.)

1. ☐ 1 to 5 hours a week
2. ☐ 6 to 10 hours a week
3. ☐ 11 to 15 hours a week
4. ☐ 16 to 20 hours a week
5. ☐ 21 to 25 hours a week
6. ☐ More than 25 hours a week

I. TYPE OF PLAY (Check "yes" or "no" for each question below.)

1. ☐ yes ☐ no Do you enjoy playing singles more than doubles tennis?
2. ☐ yes ☐ no Do you enjoy playing doubles more than singles tennis?
3. ☐ yes ☐ no Do you enjoy playing doubles and singles equally well?

If you have participated in tournament play, answer the following by checking "yes" or "no" for each question:

4. ☐ yes ☐ no In tournament play, did you play singles more than doubles?

5. ____ yes ____ no In tournament play, did you play doubles more than singles?

J. TOURNAMENT EXPERIENCES

Directions: Supply information for items 1 through 6 by filling in the number of school years in the blanks provided. Wherever you have not experienced the type of tournament play referred to in a question, write "none" in the answer blank.

1. ____ years. How many school years have you represented your present school in a Texas University Interscholastic League District tennis tournament?
2. ____ years. How many school years have you represented another school or schools in which you were enrolled in a Texas University Interscholastic League District tennis tournament?
3. ____ years. How many school years have you represented your present school in a Texas University Interscholastic League Regional tennis tournament?
4. ____ years. How many school years have you represented another school or schools in which you were enrolled in a Texas University Interscholastic League Regional tennis tournament?
5. ____ years. How many school years have you represented your present school in a Texas University Interscholastic League State tennis tournament?
6. ____ years. How many school years have you represented another school or schools in which you were enrolled in a Texas University

Interscholastic League State
tennis tournament?

7. In what tennis tournaments, other than Texas University Interscholastic League sponsored tournaments, have you played? (Check "yes" or "no" for each item below.)

Have you played in:

- a. yes no Any junior high intramural tennis tournaments?
- b. yes no Any junior high school interschool tennis tournaments?
- c. yes no Any senior high school intramural tennis tournaments?
- d. yes no Any senior high school interschool tournaments?
- e. yes no Any city playground tennis tournaments?
- f. yes no Any camp tennis tournaments?
- g. yes no In other tournaments? (If your answer is "yes," name below the types or sponsors of other tennis tournaments in which you have played.)

(1.) _____

(2.) _____

(3.) _____

(4.) _____

PART II. INTERESTS AND PARTICIPATION IN SPORTS

Directions:

The following is designed to obtain information concerning your interests and participation in various sports. A list of sports appears in the first column; this is followed by questions in the succeeding columns. Check, for each

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