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PERSONALITY AND SPORTS PREFERENCE IN WOMEN MAJORING IN PHYSICAL EDUCATION IN UTAH AND IDAHO

by

Carolyn Gay Barcus

A thesis submitted in partial fulfillment
of the requirements for the degree

of

MASTER OF SCIENCE

in

Physical Education

Approved:

UTAH STATE UNIVERSITY
Logan, Utah

1970

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ABSTRACT

Personality and Sports Preference in

Women Majoring in Physical Education

in Utah and Idaho

by

Carolyn G. Barcus, Master of Science

Utah State University, 1970

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Department: Physical Education

Personality traits of women majoring in physical education who preferred team sports, individual sports, or dance were compared, using the Minnesota Multiphasic Personality Inventory (MMPI).

No significant differences were found between the three groups on seven of the eight MMPI scales used. The dance group scored significantly more feminine on scale 5 of the MMPI than did either the team sports or individual sports group. Gymnasts and swimmers were significantly more feminine than was the track and field sub-group on this scale. The social and folk dance sub-groups and the non-majors sub-group were significantly more feminine than were the track and field sub-group and the snow skiing sub-group.

The scores on the other MMPI scales seemed to indicate that women majoring in physical education tend to have personality characteristics that differ from the norms of the MMPI, and that women preferring particular sports have differing personality characteristics.

On an additional variable of height and weight, it was found that women in dance weigh significantly less than do women in team and individual sports.

(55 pages)

INTRODUCTION AND STATEMENT OF PROBLEM

Introduction

There appears to be a positive relationship between mental ability, physical fitness, personality, and success in teaching physical education (Graybeal, 1941; Scherling and Ratchelden, 1956; Servis and Frost, 1967). This relationship should be, and is, of major importance to prospective teachers of physical education, and to persons concerned with teacher preparation programs. But, even though the importance of the role of personality in teaching is seldom questioned, it is only recently that personality has become an area of research in women's physical education. It has been found that the personalities of women who are involved in organized sports activities tend to have characteristics that differ from women in other areas of work and from the norms of the personality tests given (Thorpe, 1958; Geilman, 1965; Ibrahim, 1967). Women physical education major students were found to be low in social adjustments and to be indecisive. They had high masculine tendencies and unstable relationships with the opposite sex. It has been noted that the personality of junior high, senior high, and college boys was influenced by participation in a team sport as contrasted with participation in an individual sport (Cowell and Ismail, 1962). This may be true in girls as well. Ibrahim (1967) and Peterson, Weber, and Trousdale (1967) found that there were personality differences within groups of women athletes related to the sport in which the

women were involved.

Women directing preparation programs for physical education teachers have traditionally been concerned with a "feminine image" in girls majoring in physical education, but little has been done about this image, except to insist that girls who are physical education majors should wear skirts on campus. Bennett and Cohen (1959) describe masculinity as a feeling recognized more by its absence in women than by its presence in men. Masculinity is a feeling, a way of thinking, and when it is a personality characteristic of women, the feeling is not changed by changing clothes. Conformity to the stereotype of femininity means social acceptance in our society, whereas deviation from the norm is wrought with a variety of penalties, from feelings of frustration and inferiority to social ostracism and outright condemnation (Klien, 1950).

In addition, the personality of a teacher not only affects how material is presented; it affects the establishment of student rapport and it affects the students themselves, as well. A physical education teacher will influence young people and will serve as a model for many of them (Kelly, 1941; Jackson and Guba, 1957). The personality of women who major in physical education is going to be a determining factor in their success in teaching, and in their successful adjustments to life. It is, therefore, important that personality characteristics of physical education students be identified and steps taken to guide students with adjustment problems into a more sound and successful pattern of living.

Statement of Problem

The purpose of this investigation was to study the relationship between selected personality characteristics and sports preference in women majoring in physical education at universities in the Utah-Idaho area.

REVIEW OF RELATED LITERATURE

Personality of Teachers

There is no question but that the teacher's personality is a significant factor as materials are presented to students, as behavior is evaluated, as students are reinforced by praise or blame, all of which make up the variety of work done by a teacher (Marx and Tombaugh, 1967).

The personality tendencies of teachers differ significantly from a general population of college students. They tend to be weaker in intellectual needs and have a stronger dependency orientation (Gillis, 1964). Rand (1968) reports that career-oriented women scored significantly higher on 9 out of 10 masculine interest, and personality, potential, achievement, and competency scales than did homemaking-oriented women. The homemaking-oriented women had higher feminine personality and social-interest characteristics. Palmer (1933) found that successful women teachers of physical education were more emotionally stable than were unsuccessful physical education teachers. The successful teachers were higher in extroversion and dominance. Servis and Frost (1967) listed emotional stability third in importance, after resourcefulness and intelligence, as characteristics necessary for success in physical education professional preparation programs. They stated that communications skills and public relations were important professional competencies.

Kelly (1941) placed personality as the most important factor in

the selection of physical education major students. Other authors agree that the personality of prospective teachers and teachers of physical education is extremely important to the success of that teacher (Fredrick, 1941; Graybeal, 1941; Espenschade, 1948; Scherling and Ratchelden, 1956). The close association of the student with the physical education teacher, and the influence of her example, make the problem of selection of majors and methods of measuring character traits our most important program (Kelly, 1941). Teachers exert a double influence on youth. They serve as models for children, second in importance only to parents, and teachers are in a position of influence in their classrooms to reinforce the personality characteristics that each child possesses (Jackson and Guba, 1957). Jaeger and Slocum (1956) found that the problems that students bring to their physical education teacher most often involve health and physical development, personal, social and emotional development, and problems of their social and recreational life. They recommended that prospective teachers be made aware of the many and varied responsibilities that they will assume as a teacher of physical education. Todd (1960) asks, "Is the physical education teacher a good model?" and lists femininity of appearance, voice and manner first on her checklist.

Thorpe (1958), using the Edwards Personal Preference Schedule and the judgment of administrators on the selection of successful teachers, found that women in physical education were significantly higher than the population norms in deference, following instructions and accepting the leadership of others, and that this quality

increased with age. She found the same to be true of the order characteristic, being organized and structured. These successful women physical education teachers were significantly lower in autonomy, to be independent of others in making decisions; significantly lower in nurturance, showing help and affection for others; significantly lower in change, trying new and different things, to travel and participate in new fads and fashions; and were low in heterosexuality, desire and ability to get along with the opposite sex.

Personality of Girls in Physical Activities

Ogilvie (1967), using the 16 Factor Personality test on the San Jose girls' swim team, concluded that the femininity of the girls was not harmed by athletic competition in swimming. Ramsey (1962) compared high school girls from Illinois intramural programs of golf, tennis and archery with girls from Iowa and Texas high school varsity basketball teams. She found that the girls in the intramural program were significantly higher in traits of dominance (socially desirable leadership traits), and exhibition (to say witty and clever things, to tell amusing jokes and stories, to have others notice and comment upon one's appearance). The varsity group was significantly higher in deference (to demonstrate loyalty toward friends and interest in participating in friendly groups, and giving help to friends), in nurturance (treating others with sympathy and kindness), and in affiliation (to follow suggestions and accept the leadership of others).

Geilman (1965), comparing education majors and physical education

majors using the MMPI, found significant differences on the F scale, measuring internal inconsistencies; scale 4, a measure of emotional response, impulsiveness, aggression and conflicts; scale 5, masculinity-femininity interest scale; and scale 9, degree of activeness and enthusiasm. The physical education majors were significantly higher than the education majors on all four scales. The other six scales showed no significant differences.

When Timmermans (1968) tested physical education majors and non-majors, she found that the majors differed significantly in general activity, pace of activity, energy, production, enthusiasm and liveliness. Freshman majors differed significantly from sophomore majors in that they had more friends and acquaintances, entered into more conversations, social activities, and social contacts.

Hein (1957) tested non-physical education undergraduate women who preferred individual sports (tennis, golf, bowling), team sports (basketball, softball, volleyball, hockey), dance (folk, modern, social), women who were not interested in any activity, and women who were physical education majors. Her results indicated that team sports girls were significantly higher in self-sufficiency (prefer to be alone, rarely ask for advice from others nor seek sympathy or encouragement) than any other group. The no-activity and the dance groups were significantly less sociable than were the majors or the team sports group.

Duggan (1937) reports that women physical education majors preferred more exciting and vigorous activities, were less neurotic, more extroverted and more dominant than were non-majors. Ibrahim

(1967), testing women in athletics and physical education majors, states that the women in physical education were toward the masculine end, on the masculinity-femininity scale, also on the emotional toughness vs. emotional sensitivity or refinement scale; and that dancers were one c-score below average and were the most feminine of all. The dancers were above average in feelings of inferiority.

Peterson, Weber, and Trousdale (1967), also using the 16 Factor, compared women in athletic team sports and women in individual sports. The results indicated that women in individual sports are high in dominance, self-sufficiency, and impulsiveness. These women like to make their own decisions and may rebel against groups with a high premium on procedural rules. They were more emotional, artistic, radical in their thinking and less inhibited. The team sports women were also self-sufficient but not as introverted. They were more steady, practical, dependable and emotionally disciplined. They were higher on the sophistication vs. lack of pretentiousness scale, and low on the sensitivity vs. tough-mindedness scale.

Malumphy (1968) compared women who competed in intercollegiate competition in individual sports with women who competed in team sports. Using the 16 Factor Personality test, her results were as follows: the individual sports group was significantly (1) less anxious than the team sports group; (2) more venturesome and more extroverted than the team and team-individual groups; (3) more tough-minded and more "tough poised" than the non-participants; (4) more leadership oriented than the team, team-individual and non-participants group; and (5) more tough-minded than the non-participants but

no more so than the other sports participants groups.

The team sports groups were significantly (1) less venturesome and less extroverted than all other groups; (2) less leadership oriented and more anxious than individual and non-participant groups; (3) more reserved than team-individual and non-participant groups; and (4) more tough-minded than the non-participants but not more so than other sport groups.

Team and team-individual groups were similar; they tended to be less sure that participation enhanced the feminine image. They were less likely to be sorority members and residents, and the occupational and educational levels of their families tended to be lower. More of these participants tended to reside in small towns or rural communities. Members of this group indicated the oldest ages of first dating and a smaller portion of these subjects "went steady" or dated frequently.

PROCEDURE

Subjects

Subjects were 111 undergraduate women students currently enrolled in the Health, Physical Education and Recreation Departments in five institutions of higher education in Utah and Idaho: Brigham Young University, located in Provo, Utah; University of Utah, in Salt Lake City; Utah State University, in Logan; Weber State College, in Ogden; and Idaho State University, in Pocatello, Idaho.

Subjects were students from an advanced modern dance class at Brigham Young University; archery and softball methods of teaching classes at the University of Utah; softball and field hockey class at Utah State University; a teaching methods class at Weber State College; and a gymnastics methods class at Idaho State University. The class ranking of those tested was: 20 seniors, 31 juniors, 30 sophomores, and 22 freshmen. Eight girls failed to indicate their year in school. All subjects were physical education or dance majors, with the exception of 13 girls from the advanced modern dance class at Brigham Young University. There were 9 different majors represented in this group of 13, with 6 of them having physical education minors, but all 13 girls indicated modern dance as their preferred sport.

Test

The Minnesota Multiphasic Personality Inventory (MMPI) was

used. The MMPI was chosen because of its masculine-feminine interest scales, and because the MMPI is frequently used to differentiate personalities of sub-groups.

The MMPI is designed to provide, in a single test, scores on all the more important clinical phases of personality. It consists of 566 different statements covering a wide range of subject matter, from physical condition to morals and attitudes.

The individuals taking the test were instructed to answer all of the questions as rapidly as possible, responding by marking either true or false on the answer sheet. The responses were counted and yielded a score on three validity scales and five personality scales. Each of the scales was assigned a number rather than using the psychiatric term which was originally assigned. The three validity scales and five personality scales which were statistically treated on this investigation are described.

Description of scales

This description of scales is a compilation of three references: an MMPI Handbook (Dahlstrom and Welsh, 1960), MMPI Codebook (Drake and Oetting, 1959), and An Introduction to MMPI Interpretation (Carson, 1961).

Validity scales. The L score is a validating score that gives a measure of the degree to which a subject may be attempting to falsify his answers by always choosing the most socially acceptable answers. The items express sentiments and practices which, while highly valued in the culture, are actually characteristic of only the most conscientious persons, if indeed they are characteristic at

all. A raw score of more than four is suggestive of excessive rigidity, if not conscious deception. Scores above six in the general population occur with persons who, for one reason or another, have pathologically intense needs to appear in good light or to present an unusually good front. Low scores on this scale (0-1) have been described as aloof, wary, mature.

The F scale checks validity of the entire record and is an indication of the rationality of the responses. It is also a measure of falsification and internal consistency. F scores ranging between 65-80 are indicative of unusual or markedly unconventional thinking and frequently appear in sullen, rebellious personalities of the schizoid, antisocial or "Bohemian" type. Individuals having moderately elevated F scores are likely to be described as moody, changeable, dissatisfied, opinionated, talkative, restless, unstable. Low scorers are often described as sincere, calm, dependable, honest, simple, conventional, moderate, and as having narrow interests.

The K scale was designed to measure guardedness or defensiveness in test taking attitude. It is used as a "correction factor" for some of the clinical scales. Prognosis tends to be poor with extreme scores in either direction, but moderate elevations on K are found in people described as enterprising, ingenious, resourceful, sociable, reasonable, enthusiastic and as having wide interests. Some elevation on K is desirable, T-scores between 58-66, as it reflects some prudence, circumspectness and capability of handling one's own problems. A low K score is usually accompanied by caustic manners, suspicion of the motivation of others and exaggeration of the world.

Personality scales. Scale 4 (pd). Scale 4 measures the degree of emotional response, ability to profit from experience, and amount of regard for social mores. It includes questions on complaints against family, feeling of having been victimized, boredom and feelings of alienation from the group, of not being in on things. People who score high on this scale are generally characterized by angry disidentification with recognized conventions. These people sometimes make a good impression at first but, on longer acquaintance, their moodiness and resentment become apparent. The scale is often associated with aggressive behavior and, for a woman, is usually indicative of conflict of some kind. Elevation on scales 4 and 9 is frequent in the behavior disorders. The individual exhibits an enduring tendency to get into trouble with his environment, usually in a way that is more damaging to his own or his family's reputation than to others. Some, however, are antisocially aggressive. A high 4 score combined with a high 6 score identifies angry sullen people who excessively utilize a transfer of blame mechanism, and are rigidly argumentative and have difficulty in social relations, frequently being seen as obnoxious.

Scale 5 (mf). Having to do with interests, vocational choices, aesthetic preference and a passivity-activity dimension, this scale was originally intended to measure masculinity-femininity. However, it is far from being a relatively pure measure of this dimension. For example, it seems definitely to be correlated with such factors as education and intelligence. An elevation on scale 5 is never in itself sufficient reason to diagnose homosexuality, overt or latent.

It should also be noted that of all the clinical scales, scale 5 is probably the most easily "faked" in the sense that the individual may be able to create the impression he wants to create without this showing up in the validity scales. In general, scale 5 is a measure of sophistication and aesthetic interest. Clear elevations are suggestive of non-identification with the culturally prescribed, normative masculine or feminine role. Female high scores tend to be aggressive, dominating and competitive; they are found in large numbers in activities and occupations that are traditionally male. These women are typically confident, spontaneous and somewhat uninhibited, though not necessarily uninhibited sexually, since many of them are revolting against the female role. Their interests tend toward the mechanical and scientific. Low 5 females are passive, submissive, yielding and demure, sometimes to the point of being caricatures of the cultural stereotype of femininity. Women scoring extremely low are usually highly constricted, self-pitying and fault-finding. A high 5 together with a high 4 is frequently found among women who are rebelling against the feminine role. Generally speaking, the high 5 women's behavior becomes more clearly deviant with increasing elevation on 4.

Scale 6 (Pa). The items in this scale have to do with sensitivity, being easily hurt, excessive moral virtue, claimed rationality, denial of suspicion, and complaints about the behavior of others. High 6 scorers tend to be suspicious or brooding, tend to harbor grudges and usually feel that in some way they are not getting what is coming to them. Low 6 scorers tend to be stubborn and

evasive, often feeling that dire consequences will follow upon their revealing themselves in any way. In the broad middle range (T = 35-65), it is said that the meaning of the scale 6 score remains obscure. The scale has been found to differentiate the college women better than men. Low scores for women seem to indicate a lack of personal sensitivity to others' reactions.

Scale 9 (Ma). Scale 9 measures the degree of activeness and enthusiasm. Those who score high are considered to be warm, enthusiastic, expansive, generally outgoing and uninhibited. They tend to become easily offended, however, and may be seen as tense and hyperactive. T-scores between 60-70 suggest a pleasant, outgoing person. High scores indicate use of motor outlets, or of acting feelings out. A high 9 in a female is a further indication that she is rebelling against the feminine role and engaging in an over determined denial of passivity. Low scores often exhibit listlessness, apathy, and lack of drive; almost always they are people lacking in self-confidence and a normal degree of optimism regarding the future.

Scale 0 (Si). This scale was derived and cross-validated as a part of a series of studies in order to measure characteristics thought to be important in college adjustment. Since it was validated on a college group, the patterns on this scale relate to various aspects of social adjustments in a college population. High scores on scale 0 (T = 55 or above) suggest social shyness, insecurity, and lack of skills with the opposite sex. Female students tend to lack self-confidence, which may in part be due to problems in heterosexual social relations, or problems in heterosexual

relations may have been caused by lack of self-confidence. T-score of 45 or below indicates a good general adjustment, especially socially. A woman scoring low is more likely to be marriage oriented and lack academic motivation.

Testing Procedure

The MMPI administered included the first 300 items from the test booklet and 56 items on a mimeographed sheet. The additional items were items completing scales K, 4, and 9 from the remaining 266 items of the test. The purpose of this condensation was to keep the time for taking the test under one hour for convenience of testing during class time at each school.

Tests were administered by the investigator in selected physical education classes on each campus. Test time was from 40 to 60 minutes, and all subjects finished within the scheduled time.

At the time of taking the test, each individual completed a Sports Preference form, listing the sport in which she most liked to participate or her first preference, second sport preference listed second, and her third sport preference listed third. She also listed the approximate amount of time in which she had participated in each sport listed, her year in school, and her height and weight. All Sports Preference forms and answer sheets were numbered so the subjects remained anonymous. This was done in an attempt to encourage honesty in answering the sometimes threatening items of the MMPI.

All answer sheets were corrected by hand. If the score on the L scale exceeded a score of 6, the validity of the test was suspected

and that answer sheet was not used in the statistical treatment. There were 11 such answer sheets discarded.

Division of Subjects

The subjects were divided into three groups on the basis of their indicated sports preference. If the subject indicated a team sport on her first choice and another team sport as her second or third choice, she was placed in the team sport group (group A). Subjects indicating an individual sport as first choice and an individual sport as her second or third choice were placed in the individual sports group (group B). Any subject indicating dance as her most preferred sport was placed in group C, unless her second and third preferences were both in the team sports group. Since dance is an inclusive area, it was not deemed necessary that the second or third choice also be dance. But if a subject's second and third choices were similar, strongly indicating a team preference, that subject was not included in the study.

Scores of subjects whose sports preference did not place them in one of the three groups--team, individual or dance--were not used. There were 29 in the team sports group, 51 in the individual sports group, and 31 in the dance group.

The subjects were also placed in sub-groups according to their first sports preference. The 11 sub-groups and number of girls in each sub-group included: (1) softball--14, (2) basketball--10, (3) volleyball--5, (4) swimming--8, (5) gymnastics--12, (6) composite individual sports (including golf--3, tennis--6, water skiing--3,

ice hockey--1, horseback riding--1, badminton--1)--15, (7) snow skiing--11, (8) track and field--5, (9) modern dance--11, (10) folk and social dance--7, (11) non-physical education majors with a dance preference--13.

Analysis of variance was the statistical tool used on the three main groups and on the 11 sub-groups. The least significant difference test was used to specify where the significant differences were found.

ANALYSIS OF DATA

Results and Discussion

The data were treated in the Utah State University computer center by use of analysis of variance technique. The least significant difference test was used to determine which groups were significantly different. The .05 level of probability was deemed necessary to establish significance.

The interpretation of the MMPI is based on the placement of scores on a profile sheet, the T-score for each scale being based on the mean of the group. Scores obtaining a 55 T-score or higher are considered high enough, and scores with a T-score of 45 or below are considered low enough for meaningful interpretation (Drake and Oetting, 1959).

Tables 3 through 10 show the mean of each of the 11 sub-groups and the 3 combined groups (A, B, and C), and the resultant T-score on the 10 variables tested. The T-scores were obtained by using the nearest whole number as the mean on each scale. A T-score of 50 on the MMPI is the mean for a "normal" population, with 60 being one standard deviation above the mean and 40 being one standard deviation below the mean. No attempt will be made to interpret a score unless it nears or exceeds the limits of one standard deviation from the mean.

Below is the MMPI profile for groups A, B, and C, showing the location of the T-score of each on the MMPI scales used.

Table 1. Analysis of variance of validity and personality scales for eleven sub-groups

		MMPI scales			Mean squares				
Source of variance	df	L	F	K	4	5	6	9	0
Groups	10	2.15	5.75	17.21	14.66	39.20 (.05)	14.11	15.35	98.51
Error	100	2.58	1.21	21.229	18.91	18.89	11.00	17.55	57.73
Total	110								

Table 2. Analysis of variance of validity and personality scales for three major groups

		MMPI scales			Mean squares				
Source of variance	df	L	F	K	4	5	6	9	0
Groups	2	4.18	.416	24.43	30.27	78.41 (.05)	21.18	29.84	148.75
Error	108	2.51	11.69	20.79	18.30	19.67	11.10	17.12	59.82
Total	110								

Table 3. L scale

Group	Mean	T-score	$\bar{X}i-\bar{X}5$	$\bar{X}i-\bar{X}8$	$\bar{X}i-\bar{X}6$	$\bar{X}i-\bar{X}9$	$\bar{X}i-\bar{X}2$	$\bar{X}i-\bar{X}7$	$\bar{X}i-\bar{X}10$	$\bar{X}i-\bar{X}11$	$\bar{X}i-\bar{X}4$	$\bar{X}i-\bar{X}1$
3	3.20	46	1.53	1.00	1.00	.84	.70	.56	.49	.35	.32	.06
1	3.14	46	1.47	.94	.94	.78	.64	.50	.43	.29	.26	
4	2.88	46	1.21	.68	.68	.52	.38	.24	.17	.03		
11	2.85	46	1.18	.65	.65	.49	.35	.21	.14			
10	2.71	46	1.04	.51	.51	.35	.21	.07				
7	2.64	46	.97	.44	.44	.28	.14					
2	2.50	46	.83	.30	.30	.14						
9	2.36	43	.69	.16	.16							
6	2.20	43	.53	.00								
8	2.20	43	.53									
5	1.67	43										

Group	Mean	T-score	$\bar{X}i-\bar{X}2$	$\bar{X}i-\bar{X}3$
A	2.93	46	.66	.28
C	2.65	46	.38	
B	2.27	43		

Table 4. F scale

Group	Mean	T-score	$\bar{X}i-\bar{X}5$	$\bar{X}i-\bar{X}3$	$\bar{X}i-\bar{X}8$	$\bar{X}i-\bar{X}4$	$\bar{X}i-\bar{X}11$	$\bar{X}i-\bar{X}2$	$\bar{X}i-\bar{X}10$	$\bar{X}i-\bar{X}1$	$\bar{X}i-\bar{X}7$	$\bar{X}i-\bar{X}9$
6	6.13	58	2.21	1.93	1.73	1.38	1.36	.83	.70	.70	.31	.13
9	6.00	58	2.08	1.80	1.60	1.25	1.23	.70	.67	.67	.12	
7	5.82	58	1.90	1.62	1.42	1.07	1.05	.52	.39	.39		
1	5.43	55	1.51	1.23	1.03	.68	.66	.13	.00			
10	5.43	55	1.51	1.23	1.03	.68	.66	.13				
2	5.30	55	1.38	1.10	.90	.55	.53					
11	4.77	55	.85	.57	.37	.02						
4	3.75	55	.83	.55	.35							
8	4.40	55	.48	.20								
3	4.20	53	.28									
5	3.92	53										

Group	Mean	T-score	$\bar{X}i-\bar{X}2$	$\bar{X}i-\bar{X}1$
C	5.36	55	.20	.19
A	3.17	55	.01	
B	5.16	55		

Table 5. K scale

Group	Mean	T-score	$\bar{X}i-\bar{X}3$	$\bar{X}i-\bar{X}1$	$\bar{X}i-\bar{X}6$	$\bar{X}i-\bar{X}7$	$\bar{X}i-\bar{X}8$	$\bar{X}i-\bar{X}10$	$\bar{X}i-\bar{X}2$	$\bar{X}i-\bar{X}5$	$\bar{X}i-\bar{X}9$	$\bar{X}i-\bar{X}11$
4	15.88	57	5.28	2.88	2.49	2.49	2.48	2.17	1.38	1.21	.97	.34
11	15.54	57	4.94	2.54	2.47	2.15	2.14	1.83	1.04	.87	.63	
9	14.91	55	4.31	1.91	1.84	1.52	1.51	1.20	.41	.24		
5	14.67	55	4.07	1.67	1.60	1.28	1.27	.96	.17			
2	14.50	55	3.90	1.50	1.43	1.11	1.10	.79				
10	13.71	53	3.11	.71	.64	.32	.31					
8	13.40	50	2.80	.40	.33	.01						
7	13.39	50	2.79	.39	.32							
6	13.07	50	2.47	.07								
1	13.00	50	2.40									
3	10.60	48										

Group	Mean	T-score	$\bar{X}i-\bar{X}1$	$\bar{X}i-\bar{X}2$
C	14.90	55	1.80	.98
B	13.92	53	.82	
A	13.10	50		

Table 6. Scale 4

Group	Mean	T-score	$\bar{X}i-\bar{X}3$	$\bar{X}i-\bar{X}2$	$\bar{X}i-\bar{X}9$	$\bar{X}i-\bar{X}5$	$\bar{X}i-\bar{X}1$	$\bar{X}i-\bar{X}8$	$\bar{X}i-\bar{X}6$	$\bar{X}i-\bar{X}4$	$\bar{X}i-\bar{X}7$	$\bar{X}i-\bar{X}10$
11	23.46	60	5.26	2.56	1.64	1.63	1.39	1.26	.93	.46	.28	.17
10	23.29	60	5.09	2.39	1.47	1.46	1.22	1.09	.76	.29	.11	
7	23.18	60	4.98	2.28	1.36	1.35	1.11	.98	.65	.18		
4	23.00	60	4.80	2.10	1.18	1.17	.93	.80	.47			
6	22.53	60	4.53	1.63	.71	.70	.46	.33				
8	22.20	57	4.00	1.30	.38	.37	.13					
1	22.07	57	3.87	1.17	.25	.24						
5	21.83	57	3.63	.93	.01							
9	21.82	57	3.62	.92								
2	20.90	55	2.70									
3	18.20	48										

Group	Mean	T-score	$\bar{X}i-\bar{X}1$	$\bar{X}i-\bar{X}2$
C	22.84	60	1.84	.29
B	22.55	60	1.55	
A	21.00	55		

Table 7. Scale 5

Group	Mean	T-score	$\bar{X}i-\bar{X}8$	$\bar{X}i-\bar{X}7$	$\bar{X}i-\bar{X}3$	$\bar{X}i-\bar{X}1$	$\bar{X}i-\bar{X}6$	$\bar{X}i-\bar{X}2$	$\bar{X}i-\bar{X}9$	$\bar{X}i-\bar{X}5$	$\bar{X}i-\bar{X}4$	$\bar{X}i-\bar{X}11$
10	38.00	47	8.00*	4.91*	4.40	3.93	3.80	3.60	3.36	2.83	1.50	.08
11	37.92	47	7.92*	4.83*	4.32	3.85	3.71	3.52	3.28	2.75	1.42	
4	36.50	49	6.50*	3.41	2.90	2.43	2.30	2.10	1.86	1.33		
5	35.17	53	5.17*	2.08	1.57	1.10	.97	.77	.53			
9	34.64	53	4.46	1.55	1.04	.57	.44	.24				
2	34.40	55	4.40	1.31	.80	.33	.20					
6	34.20	55	4.20	1.11	.60	.13						
1	34.07	55	4.07	.98	.47							
3	33.60	55	3.60	.51								
7	33.09	57	3.09									
8	30.00	63										

Group	Mean	T-score	$\bar{X}i-\bar{X}1$	$\bar{X}i-\bar{X}2$
C	36.77	49	2.66*	2.63*
B	34.14	55	.04	
A	34.10	55		

*Significant at .05 level.

Table 8. Sacle 6

Group	Mean	T-score	$\bar{X}i-\bar{X}8$	$\bar{X}i-\bar{X}3$	$\bar{X}i-\bar{X}5$	$\bar{X}i-\bar{X}4$	$\bar{X}i-\bar{X}2$	$\bar{X}i-\bar{X}7$	$\bar{X}i-\bar{X}9$	$\bar{X}i-\bar{X}11$	$\bar{X}i-\bar{X}6$
10	12.71	65	4.91	4.31	2.96	2.71	2.61	2.44	2.00	1.09	1.04
6	11.67	62	3.87	3.27	1.92	1.67	1.57	1.40	.96	.05	
11	11.62	62	3.81	3.22	1.87	1.62	1.52	1.35	.91		
9	10.82	59	3.02	2.42	1.07	.82	.72	.55	.11		
1	10.71	59	2.91	2.31	.96	.71	.61	.44			
7	10.27	56	2.47	1.87	.52	.27	.17				
2	10.10	56	2.30	1.70	.35	.10					
4	10.00	56	2.20	1.60	.25						
5	9.75	56	1.95	1.35							
3	8.40	50	.60								
8	7.80	50									

Group	Mean	T-score	$\bar{X}i-\bar{X}1$	$\bar{X}i-\bar{X}2$
C	11.58	62	1.48	1.31
B	10.27	56	1.41	
C	10.10	56		

Table 9. Scale 9

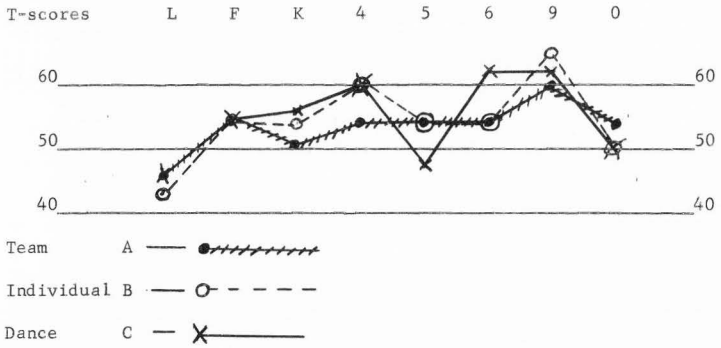
Group	Mean	T-score	$\bar{X}i-\bar{X}10$	$\bar{X}i-\bar{X}2$	$\bar{X}i-\bar{X}11$	$\bar{X}i-\bar{X}1$	$\bar{X}i-\bar{X}3$	$\bar{X}i-\bar{X}4$	$\bar{X}i-\bar{X}5$	$\bar{X}i-\bar{X}6$	$\bar{X}i-\bar{X}7$	$\bar{X}i-\bar{X}9$
8	24.80	70	4.37	4.20	3.49	3.16	2.20	2.05	1.88	1.80	1.62	.89
9	23.91	68	3.48	3.31	2.60	2.27	1.31	1.16	.99	.91	.73	
7	23.18	65	2.75	2.58	1.87	1.54	.58	.43	.26	.18		
6	23.00	65	2.57	2.40	1.69	1.36	.40	.25	.08			
5	22.92	65	2.49	2.32	1.61	1.28	.32	.17				
4	22.75	65	2.32	2.15	1.44	1.11	.15					
3	22.60	65	2.17	2.00	1.29	.96						
1	21.64	63	1.21	1.04	.33							
11	21.31	60	.88	.71								
2	20.60	60	.17									
10	20.43	58										

Group	Mean	T-score	$\bar{X}i-\bar{X}1$	$\bar{X}i-\bar{X}3$
B	23.16	65	1.71	1.13
C	22.03	63	.58	
A	21.45	60		

Table 10. Scale 0

Group	Mean	T-score	$\bar{X}i-\bar{X}4$	$\bar{X}i-\bar{X}9$	$\bar{X}i-\bar{X}8$	$\bar{X}i-\bar{X}7$	$\bar{X}i-\bar{X}5$	$\bar{X}i-\bar{X}2$	$\bar{X}i-\bar{X}10$	$\bar{X}i-\bar{X}11$	$\bar{X}i-\bar{X}6$	$\bar{X}i-\bar{X}1$
3	29.80	55	10.05	8.25	8.20	5.53	3.72	3.00	2.94	2.72	1.87	.40
1	29.50	55	9.75	7.95	7.90	5.23	3.42	2.70	2.64	2.42	1.57	
6	27.93	53	8.18	6.38	6.33	3.66	1.85	1.13	1.07	.85		
11	27.08	52	7.33	5.53	5.48	2.81	1.00	.28	1.22			
10	26.86	52	7.11	5.31	5.26	2.59	.78	.06				
2	26.80	52	7.05	5.25	4.20	2.53	.72					
5	26.08	51	6.33	4.53	4.48	1.81						
7	24.27	49	4.52	2.72	2.67							
8	21.60	47	1.85	2.67								
9	21.55	47	1.80									
4	19.75	45										

Group	Mean	T-score	$\bar{X}i-\bar{X}2$	$\bar{X}i-\bar{X}3$
A	28.62	54	3.82	3.56
C	25.06	50	.26	
B	24.80	50		



Two weaknesses of the study should be kept in mind as the results are read: the sample is not a random selection, and the number of subjects is small in each of the sub-groups. The number of each sub-group, the letters of the major groups, and the number of subjects in each group are found below:

Sub-groups	Number
1. Softball	14
2. Basketball	10
3. Volleyball	5
4. Swimming	8
5. Gymnastics	12
6. Individual sports[1]	15
7. Snow skiing	11
8. Track and field	5

[1] See pages 17 and 18 for a breakdown of sports.

Sub-groups (continued)	Number
9. Modern dance	11
10. Social and folk dance	7
11. Non-majors--(dance)	13

Major groups	Number
A. Team sports (sub-groups 1, 2, 3)	29
B. Individual sports (sub-groups 4, 5, 6, 7, 8)	22
C. Dance (sub-groups 9, 10, 11)	31

There were no significant differences found between any of the groups on the lie scale (Table 3). This is partially due to the fact that any test with an L score above 6 was not used because of suspected falsification. Only 11 such tests were discarded so it would seem that there was little tendency on the part of any group to falsify answers, or to repress or deny problems. This finding is consistent with the findings of Geilman (1965).

As seen in Table 4, all F scores were within one standard deviation above the mean and no significant differences were found.

An F score of 58 is approaching a moderately high F score, which may indicate that persons in the individual sports, snow skiing and modern dance groups may tend towards such characteristics as being moody, changeable, dissatisfied, opinionated, talkative, restless and unstable (Carson, 1961).

As Table 5 shows, all T-scores ranged within one standard deviation above the mean, and no significant differences were found

between groups on scale K.

There were no significant differences found on scale 4 (Table 6), but the majority of the T-scores ranged on the high end of one standard deviation above the mean. The location of the T-scores 57 and 60 would seem to indicate that the softball (1), gymnastics (5), track and field (8), modern dance (9), and particularly the swimming (4), individual sports (6), snow skiing (7), social and folk dance (10), and non-major (11) sub-groups tended toward impulsiveness, acting before thinking, and displaying a quick temper. The T-score of 60 in particular may indicate a difficulty in readily identifying with people, and may show immaturity. There may be a tendency toward rebellion against authority, restraint, control, responsibility and restriction. Anti-social behavior may be displayed. Though there are no significant differences between groups, groups B and C are both one standard deviation above the norm on this scale, indicating a possible tendency toward the characteristics just mentioned. This finding is supported by the finding of Peterson, Weber, and Trousdale, who found that women in individual sports are high in dominance, self-sufficiency, impulsiveness, and that they liked to make their own decisions. They were more radical in their thinking and tended to rebel against groups with a high premium on procedural rules (Peterson, Weber, and Trousale, 1967).

Geilman (1965) found that physical education majors were significantly higher on scale 4 than were education majors.

Significant differences were found between groups on scale 5 (Table 7). Sub-group 8 (track and field) was found to have significantly higher T-scores at the .05 level on the masculine-feminine

scale than was sub-group 4 (swimmers), group 5 (gymnasts), sub-group 10 (social and folk dance), and sub-group 11 (non-majors). The track and field sub-group was also 1/100 of a point from having a significantly higher T-score than group 9 (modern dance) at the .05 level. Sub-group 7 (snow skiing) had a significantly higher T-score than groups 10 and 11 at the .05 level. Group C (dance group) was significantly lower on scale 5 than were either of the team or the individual sports groups, at the .05 level of confidence.

Scale 5 is an interest scale and measures the degree of habit of thinking associated to one's own sex. The higher T-scores, 55-63, seem to indicate a basic interest pattern in the direction of masculinity.

Women scoring high on this scale tend to be aggressive, dominating, competitive, confident, spontaneous and somewhat uninhibited. It is indicative of an outgoing mode of adjustment. But they are not necessarily uninhibited sexually, since many of them are revolting against the female role. When a high 5 is paired with a high score on scale 4, or scale 9, vague goals are indicated, which may be part of a general problem these girls have in adjusting themselves to the standards expected of women in our culture. The more typical feminine goals either do not appeal to them or have been rejected by them. Though not extreme in their elevation, sub-groups 1, 2, 6 and 7 do show elevation on all three MMPI scales--4, 5 and 9.

These findings are in agreement with those of Geilman (1965), Thorpe (1958), and Malumphy (1968). Malumphy (1968) found that the team and team-individual groups had the oldest ages of first dating

and the smallest portion of girls who "went steady" or dated frequently. It should be noted, however, that Rand (1968) found, in testing career-oriented and homemaking-oriented college women, the career-oriented women were higher on 9 out of 10 masculine interest and personality, potential, achievement, and competency scales.

Sub-groups 4, 5, 9, 10 and 11 had lower T-scores on scale 5. Low T-scores on scale 5 are common among college women and interpretation is complex (Drake and Oetting, 1959). These scores were well within one standard deviation below the mean, indicating that swimming, gymnastics, and all the dancing groups were more sensitive, responsive and modest. A high 4, low 5, and high 6 profile is common among college women. Sub-groups 4, 5, 6, 9, 10, and 11 all show this V provile (see page 29). Supporting this, Ibrahim (1967) also found that dancers were the most feminine of the women in physical education and athletics. Ogilvie (1967) concluded that the femininity of girls was not affected by competition in swimming. In Geilman's (1965) comparison of physical education majors and education majors, the education majors had significantly lower T-scores than did the physical education majors. The T-score of the education majors was 45, which is comparable to the score of the dance groups in this study.

There is no question that our society has a standard of femininity that it expects of its women (Klien, 1950). Mulumphy (1968) found that girls participating in team and team-individual sports were less sure that their participation in sports enhanced their feminine image than were girls who participated in individual sports

only, or girls who were not competing in sports activities. Girls in physical education are expected to be competitive, and even rough in certain sports, yet they are continually told that they must also be feminine (Todd, 1960). This could lead to a confused self-image, and to the rebellion and anti-social behavior indicated in the discussion of scale 4. Their confusion combined with their difficulties with the opposite sex, an outgoing mode of behavior, and a tendency toward acting out behavior, may lead to a homosexual experience. Drake and Oetting (1959) point out that a high T-score on scale 5 is a risky basis for hypothesizing homosexuality. But Dahlstrom and Welsh (1960) state that when a high T-score on 5 is combined with moderately high T-scores on scales 4 and 6, specific difficulties in sexual adjustment appear frequently. Mulumphy (1968) found that the personality ratings of girls in athletics made by their faculty adviser differed significantly from the tested personality profile of the athlete. The coaches over-estimated the intelligence of the individual sports participants, and they viewed their teams as being more outgoing, happy-go-lucky, venturesome, and controlled than the test showed them to be. This author is suggesting that the extent of the problem of masculinity and sexual behavior in women majoring in physical education is under-estimated, that the problem is a critical one, and that efforts could be made to help girls cope with this problem while they are in their undergraduate major program.

As seen in Table 8, there were no significant differences found on scale 6. Three of the sub-groups (6, 10, and 11) and group C ranged above one standard deviation, indicating that these girls may

be more emotional, softhearted, and sensitive. They may also be seen by others as being frank and highstrung. Scale 6 measures tendencies toward resistiveness and suspiciousness. Nine of the 11 sub-groups and all 3 major groups have slightly elevated scores, which may indicate a tendency toward suspiciousness, on an interpersonal basis, sensitivity and concern about the reactions of others. The T-score of 56 obtained by groups A and B was the same as the T-score of both the education and physical education groups in Geilman's (1965) study.

Scale 6 was the high point of the profile for sub-groups 10 and 11 (social and folk dance and non-majors). Girls who have the high point of their profile on scale 6 have described themselves as being affected, submissive, arrogant, fickle, boastful, ruthless and unrealistic. They have further described themselves as shy, timid, and naive, but nevertheless sociable, and as being contented, conventional, unemotional and persevering (Dahlstom and Welsh, 1960).

Scale 9, in Table 9, is a measure of the individuals' activeness and enthusiasm.

Though there is no significant difference between the means of any of the groups, all but sub-group 10 scored at least one standard deviation above the mean. This is to be expected of girls choosing physical education as a career. This high score suggests that they are warm, enthusiastic, expansive, generally outgoing and uninhibited. They tend to become easily offended, however, and may be seen as tense and hyperactive (Carson, 1961). It appears that a woman's energetic activity usually assumed to be revealed by this scale is expressed in more socially approved ways than the man's

aggressiveness or belligerence (Drake and Oetting, 1959). T-scores in the range of 60-70 suggest a pleasant, outgoing person; but a high 9 in a female is further indication that she is rebelling against the feminine role and is engaging in an overdetermined denial of passivity (Carson, 1961).

Scale 9 was the high point of the profile for group B, individual sports girls. This scale is the most frequent high point obtained by college women (Dahlstrom and Welsh, 1960). Women who have a high peaked score tend to be selfish, egocentric, and have a tendency toward being show-offs. Though the difference is not significant, it seems reasonable to speculate that the girls who tend toward egocentricity would prefer to perform alone, and, being less inhibited, could perform without the support of a team around her.

This speculation is substantiated by the findings of Ramsey (1962), who found that Illinois girls performing in golf, tennis and archery were significantly higher in dominance and exhibition. Mulumphy (1968) found individual sports girls to be significantly more venturesome than team sports girls, and also found them to have more leadership tendencies than any of the other groups.

Geilman (1965) found a significant difference between the physical education group, with a T-score of 63, and education majors, with a T-score of 58. These findings are consistent with the scores of all sub-groups of this study, with the exception of the non-major group, the basketball group and group 10, social and folk dance group, who were comparable to the education majors in Geilman's study.

When a high score on scale 4 is combined with a high scale 9, which is true of all the groups with the exception of the basketball and volleyball groups, extroverted or socially outgoing behavior is suggested. It may also indicate home conflict, rebelliousness and aggressiveness. A high score on scales 4 and 9 is nearly always associated with some form of acting out behavior. The individual may continually get into trouble with his environment, usually in a way that is damaging to his own or his family's reputation rather than to others (Carson, 1961).

Scale 0, a measure of introversion-extroversion, deals mainly with social participation. High T-scorers tend to be withdrawn, aloof, and anxious in contact with people. Low scorers tend to be warm, sociable people. All groups scored well within one standard deviation of the mean and no significant differences were found between any of the groups.

Table 11 shows the height of each group, reported in inches and hundredths of inches.

No significant difference was found in height of girls majoring in physical education. Gymnasts, however, appeared to be the shortest, standing 5 feet 3 1/2 inches, with track and field being the tallest at 5 feet 7 1/2 inches.

Table 12 shows the mean weight of each group in pounds and hundredths of pounds.

Significant differences were found at the .05 level between sub-group 5 (gymnasts) and sub-groups 2, 4, and 8 (basketball, swimming and track and field), respectively, with the gymnasts being

Table 11. Height

Group	Mean	$\bar{X}i-\bar{X}5$	$\bar{X}i-\bar{X}7$	$\bar{X}i-\bar{X}10$	$\bar{X}i-\bar{X}9$	$\bar{X}i-\bar{X}6$	$\bar{X}i-\bar{X}11$	$\bar{X}i-\bar{X}3$	$\bar{X}i-\bar{X}4$	$\bar{X}i-\bar{X}1$	$\bar{X}i-\bar{X}2$
8	67.40	3.94	3.26	3.19	3.00	2.56	2.44	2.40	2.34	2.21	.80
2	66.60	3.14	2.46	2.39	2.20	1.77	1.64	1.60	1.54	1.41	
1	65.19	1.73	1.05	.98	.79	.36	.23	.19	.13		
4	65.06	1.60	.92	.85	.66	.23	.10	.06			
3	65.00	1.54	.86	.79	.60	.17	.04				
11	64.96	1.50	.82	.75	.56	.13					
6	64.83	1.37	.69	.62	.43						
9	64.40	.94	.25	.19							
10	64.21	.75	.07								
7	64.14	.68									
5	63.46										

Group	Mean	$\bar{X}i-\bar{X}3$	$\bar{X}i-\bar{X}2$
A	65.64	1.04	.99
B	64.65	.05	
C	64.60		

Table 12. Weight

Group	Mean	$\bar{X}i-\bar{X}9$	$\bar{X}i-\bar{X}5$	$\bar{X}i-\bar{X}11$	$\bar{X}i-\bar{X}10$	$\bar{X}i-\bar{X}7$	$\bar{X}i-\bar{X}6$	$\bar{X}i-\bar{X}1$	$\bar{X}i-\bar{X}3$	$\bar{X}i-\bar{X}4$	$\bar{X}i-\bar{X}2$
8	133.0	24.4**	17.8*	12.3	10.7	9.8	6.5	5.9	4.4	.07	.04
2	132.6	24.0**	16.4*	11.9	10.3	9.4	6.1	5.5	4.0	.03	
4	132.3	23.7**	16.1*	11.6	10.0	9.1	5.8	5.2	3.7		
3	128.6	20.0*	13.4	7.9	6.3	5.4	2.1	1.5			
1	127.1	18.5*	11.9	6.4	4.8	3.9	.6				
6	126.5	17.9*	11.03	5.8	3.2	3.3					
7	123.2	14.5	8.0	2.5	.9						
10	122.3	13.7	7.1	1.6							
11	120.7	12.1	5.5								
5	115.2	6.6									
9	108.6										

Group	Mean	Xi-X3	Xi-X2
A	124.7	12.6*	4.6
B	124.7	8.0*	
C	116.7		

*Significant at .05 level.
**Significant at .01 level.

significantly lighter in weight.

Group 9 (modern dancers) was significantly lighter at the .05 level than were sub-groups 1 (softball), 3 (volleyball), and 6 (individual sports). Sub-group 9 was significantly different than sub-groups 2, 4, and 8 (basketball, swimming and track and field) at the .01 level of confidence. Group C (dance group) was found to be significantly lighter than group B (individual) at the .05 level, and lighter than the team sports group (A) at the .01 level of confidence.

Girls in the track and field group had the highest mean weight as well as being the tallest. The removal of group 8 from the individual sports group (2) results in nearly a pound difference in mean weight of group 2. An analysis of variance was run on this variable without group 8 included. The results are shown in Table 13.

Group B and group C were not significantly different at the .05 level when group 8 was excluded from the individual sports groups, indicating that most individual sports girls were not significantly larger than dance girls.

These findings would indicate that weight affects a girl's

Table 13. Weight (without group 8)

Group	Mean	T-score	$\bar{X}i-\bar{X}3$	$\bar{X}i-\bar{X}2$
A	129.3		12.6*	5.6
B	123.7		7.0	
C	116.7			

*Significant at .05 level.

choice of sport, with smallest girls choosing gymnastics and dance. The relationship between body build and personality of women in physical education may be a significant factor in their choice of profession as well as their preference in sports activity, but that relationship is beyond the scope of this study.

Table 14 shows the number of subjects in each class that chose a particular sport and the percent of that class preferring a particular type of sport.

Due to the lack of a random selection of subjects, few generalizations can be made about the trend in sports preference in women physical education majors. Of the group tested, 28 percent preferred team sports, with a slight trend of diminishing preference for the team sports area, and a slight trend of increasing interest in the dance area.

The analysis of variance of the groups as classes showed no significant differences between classes on any of the variables tested.

Summary and Conclusions

The literature suggests that the personality of a physical education teacher is an important aspect of a successful teacher (Fredrick, 1941; Graybeal, 1941; Kelly, 1941; Espenschade, 1948; Scherling, 1956). Physical education teachers serve as counselors and models to students as well as instructors (Jaeger and Slocum, 1956; Jackson and Guba, 1957; Todd, 1960).

Women in physical education tend to have personalities that

Table 14. Class sports preference

Group	Freshman		Sophomore		Junior		Senior	
1. Softball	2		5		2		3	
2. Basketball	3	27.5%	5	36.6%	2	20%	0	20%
3. Volleyball	1		1		2		1	
4. Swimming	2		1		3		2	
5. Gymnastics	3		2		6		1	
6. Individual	3	54.5%	4	33.3%	3	54.8%	2	40%
7. Snow skiing	2		2		3		3	
8. Track and field	2		1		2		0	
9. Modern dance	1		4		4		1	
10. Social and folk dance	0	18%	0	30%	3	25.8%	4	40%
11. Non-majors dance	3		5		1		3	
	22		30		31		20	

differ from women in other fields (Duggan, 1937; Ramsey, 1962; Geilman, 1965; Ogilvie, 1967; Rand, 1968; Timmermans, 1968). It is suggested that women may differ in personality related to their choice of sport (Ibrahim, 1967; Peterson, Weber, and Trousdale, 1967; Mulumphy, 1968).

The MMPI was administered to 130 undergraduate women at Brigham Young University, Idaho State University, University of Utah, Utah State University, and Weber State College. The 111 subjects for the study were selected on the basis of their sports choice on a sports preference sheet: women choosing a team sport as first choice and another team sport as second or third choice; women choosing an individual sport as first choice and another individual sport as second or third choice; and women choosing dance as a first choice and dance, or either a team or individual sport, but not both, as a second or third choice. The three major groups were further sub-divided into eleven sub-groups on the basis of their first choice of sport. The tests of any subjects not fitting into the criteria listed above were not used in the data. Subjects used were 29 in team sports group, 52 in the individual sports group, and 31 in the dance group. The sub-groups included 14 in softball group, 10 in the basketball group, 5 in the volleyball group, 8 in the swimming group, 12 in the gymnastics group, 15 in the individual sports group, 11 in the snow skiing, 5 in track and field, 11 in modern dance, 7 in social and folk dance, and 13 non-physical education majors interested in dance. The analysis of variance technique was used to determine significance and the least significant difference

test used to determine where the significant differences were found. The .05 level of confidence was used to establish the significance.

Results of this investigation revealed significant differences on scale 5 of the MMPI, a measure of masculine-feminine interest, and a difference in weight. No significant differences were found on scales L, F, K, 4, 6, 9, and 0 of the MMPI, nor in height of the subjects, nor between classes.

According to the MMPI, on scale 5, the dance group was significantly more feminine than were either the team sports group or the individual sports group. Gymnasts and swimmers were significantly more feminine than was the track and field sub-group; and the social and folk dance and non-majors sub-groups were significantly more feminine than were the track and field and the snow skiing sub-groups.

On the weight variable, women in dance weighed significantly less than did women in team sports or in individual sports. Women in the individual sport sub-group, softball sub-group, and the volleyball sub-group weighed significantly more than modern dancers; and swimmers, basketball players and women in track and field weighed significantly more than did women in modern dance and in gymnastics.

Though there were no significant differences between groups, except on scale 5, moderately high T-scores on scales 4, 5, 6, and 9 seem to indicate that women majoring in physical education tend to have personalities that differ from the norms of the MMPI, and that women preferring particular sports have differing personality characteristics. Women in dance and individual sports may be seen as

impulsive, rebellious and tending toward egocentricity and being uninhibited.

Women in team and individual sports tend to have more masculine interests than do women in dance, with women in dance tending to be more emotional, softhearted, sensitive, suspicious and concerned about the reactions of others.

All groups tended to be high on scale 9, indicating that they are warm, enthusiastic, outgoing and possibly hyperactive.

It can be concluded, on the basis of this study, that of the subjects tested, women in dance were significantly more feminine, as measured by the MMPI, than were women preferring team sports or individual sports. Women in track and field were significantly more masculine, on the basis of the MMPI, than were women in gymnastics, swimming and dance. Women in snow skiing were significantly more masculine on this scale than were women in social and folk dance and non-majors interested in dance.

Women in dance weigh significantly less than do women in team and individual sports, with women in modern dance and in gymnastics being the lightest. Women in the team sports, swimming, and track and field were the heaviest. It can be concluded from this, then, that body size may affect a woman's sports preference.

The findings of this study were not conclusive, but they do indicate that there are personality traits that are common among women majoring in physical education. It is recommended that there be further investigation of the personality factors of women in physical education. Another personality test could be used, perhaps

the California Personality Inventory, to see if similar results are obtained. There are also other dimensions of the personalities of women majoring in physical education which are in need of investigation.

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