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THE INFLUENCE OF A STRUCTURED PHYSICAL EDUCATION PROGRAM ON ADOLESCENT PERSONALITY. FINAL REPORT.

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ANALYSIS.

A STRUCTURED PHYSICAL EDUCATION PROGRAM CONSISTING MOSTLY OF BODY BUILDING EXERCISES AND WEIGHT LIFTING WAS USED TO GIVE PHYSICALLY UNDERDEVELOPED BOYS A SENSE OF PERSONAL ACCOMPLISHMENT. JUNIOR HIGH SCHOOL BOYS FROM GRADES SEVEN, EIGHT, AND NINE, CLASSIFIED ON THE BASIS OF LACK OF ATHLETIC ABILITY, WERE GIVEN THE CALIFORNIA PSYCHOLOGICAL INVENTORY (CPI) AT THE BEGINNING OF THE SCHOOL YEAR AND AGAIN JUST BEFORE THE SCHOOL YEAR ENDED. A CORRELATION MATRIX OF THE 18 CPI VARIABLES WAS SUBMITTED TO A PRINCIPLE-COMPONENT FACTOR ANALYSIS PROGRAM. A DISCRIMINANT ANALYSIS WAS MADE. THE UNDERDEVELOPED BOYS HAD SIGNIFICANT GAINS IN 10 OF THE 18 CPI SCALES. PHYSICALLY UNDERDEVELOPED BOYS WERE FOUND TO BE LESS SOCIALLY ADJUSTED, AND TO HAVE A LOWER SELF-ESTEEM AND SENSE OF PERSONAL WORTH THAN ATHLETIC BOYS. THE UNDERDEVELOPED BOYS SHOWED SIGNIFICANT GAINS, INDICATING AN INCREASE IN SOCIAL ADJUSTMENT. FURTHER STUDY INVESTIGATING THE GENERAL APPLICABILITY OF ALLOWING STUDENTS TO RELATE GROWTH TO PERSONAL ACHIEVEMENT FREE FROM EXTERNAL STANDARDS IS RECOMMENDED. (AUTHORS/PS)

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FINAL REPORT

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## INTRODUCTION

Kierkegaard, in his work The Point of View for My Work as an Author, stresses that individuality is an accomplishment rather than an endowment; it is an active rather than a passive endeavor. Every person born has his own physical structure and natural endowments that cause him to be unlike all other people. Often there is no effort made either by the person or others around him to bring out the individuality of the person. For Kierkegaard, the greatest thing was to be one's self. He felt that everyone had the potential to become himself.

Casual observations, however, indicate that many people are not in the process of becoming themselves, that there is no active engagement in this endeavor. The main goal in the experimental program with physical underdeveloped junior high school boys was to bring them to a place of beginning to exercise self-control and develop a frame of self-reference that would represent a synthesis of their past experience, their aspirations, their potentials, and their limitations, as realistically understood by the experiencing person. It was hypothesized that these underdeveloped boys because of physical ineptitude would not develop a realistic frame of reference, since they become overly concerned with certain of their limitations and do not realize the potential of their own existence.

Efforts were made to bring these boys to realize that in attempting to achieve the potentials of others would in some ways prevent them from developing their own potentials. To Kierkegaard, this did not mean that a person should not try to identify with great people and to use them for examples if one's own potential happened to be in a certain direction paralleling a great personage. It does mean that the experiencing person should test reality, should begin to examine himself, should look at the direction of his own potentials, and realize that coping in any given direction should only be attempted in light of his own limitations, limitations viewed constructively rather than obstructively or destructively in his developments.

Strickland (1966) says "to become oneself refers to the recognition of your own potentials and acceptance of the challenges of realizing them." From a phenomenological frame of reference, it seems reasonable that it is in every man's power to become what he is, an individual. Victor Frankl said "once the individuality

of the person is initiated and established that it persists even under extreme conditions of discouragement." In this way individuality comes as an emergence of the personality. If we provide contexts that rechannel the concepts of an individual about himself, so he sees life as a continual process such that he must understand himself, we may be able to change the emphasis for behavior from pressures for societal conformity to a more mature inner directed responsibility. Then, no matter what undertakings the individual sets about in, he develops feelings of adequacy in coping with all circumstances that are encountered in life.

Since people belong to an environment and can never be separate from it and although groups may influence the development of individuality, the real individuality has to evolve from within the person himself. He has to find himself in his environment and begin to identify himself as he is. Realizing that individuals do not develop in a vacuum, the investigators set about to work with junior high school boys in an environment that was natural to them. This seems consistent with what Rogers is saying in his client-centered approach to personality. In his lectures published in 1963, he says that "the individual seeks empathy rather than rebellion with the values of his culture," and yet we find so often that people are forced into rebellion by the culture because they are unable to experience as Snygg and Coombs (1959) have said, "the positive aspects involved in personality development to maintain or protect or enhance the self."

Finding they are unable to do any or all of these and experiencing threat from society in these aspects, instead of developing empathy with the values or norms of the culture, people are forced into a place of rebellion with, or retreat from, the values of the culture. If this is true, constructive individuality would be a more desirable accomplishment than competitive group participation that yields mostly defeat. We need to find ways in which the reduction of tension caused by an environment of competitive failing could most readily be accomplished.



## OBJECTIVES

Children live today under conditions conducive to fears and tensions, and a number of young people today suffer marked anxieties. They move from a world managed by adults during their preschool days into elementary school and a peer-centered culture which becomes increasingly important with each school grade level. The child quickly learns that what his body accomplishes determines in part how he is judged by his peers. Tallness or shortness, fatness or thinness may be sources of despair or pride since the child's self-image is related to some extent to his body. Among boys it is the late maturer who is most apt to become a misfit. Real or fancied weakness or lack of proficiency can lead to self-conscious awkwardness, timidity, and tension.

Just as play provides the child with opportunity to experiment with a wide variety of social and practical situations and aids in developing social skills and personal experience so the physical education period can ideally provide an environment for all around development. It can also possibly correct weaknesses, teach special skills and take advantage of the opportunities in such programs to help children and adolescents to develop desirable interests, attitudes and codes of behavior. This is an ideal time to allow a child to accept limitations in himself and in others. As children develop, subgroups should be formed so that the slow maturer, just as in academic areas the slow learner is not discouraged by failures and will be more able to accept challenges related to his body by development.

Working from this premise and using tests to measure strength, endurance, speed, agility, flexibility, balance and coordination the slow maturer or, as they are referred to in this study, underdeveloped boys in a junior high school were identified. Based on the lure of competing against oneself, as evidenced from the number of golfers and bowlers who strive continually to break the previous record they have made, a program was undertaken to aid these boys.

The first task was to develop an environment emotionally open enough for the boys to reevaluate themselves, their own direction in life, and themselves as they were. It was hypothesized they would grow to accept the possibility of personal change in attitudes towards themselves and others. Efforts were made to bring them to no longer actively compete with one

another, but rather to learn to compete with themselves and through this to recognize self-growth. The self-growth emphasized to these boys was increased physical dexterity, ability to lift more weight, do more situps, increase the number of pushups performed, etc. These tasks which are overtly measurable could be easily manifested to these junior high boys. It was attempted, therefore, to help each boy find out about himself and begin to realize he was a growing individual with self-worth. Situations were created to assist the boys to develop an internal rather than external frame of reference. Boys were encouraged to look at themselves for the direction of goals.

In his Concluding Unscientific Postscript, Kierkegaard says that "only when the individual turns to his inner self does he have his attention aroused." He may find himself arriving with exactly the same conclusions that others have made over the past ages, but really these conclusions develop out of an introspection rather than an injection from somewhere or someone else. Even though he may seek evidence from without the decisions that a person makes which bring the development of inner confidence comes not from without but come from within. It was hypothesized that it is possible to bring people to a created environment in which they can have a respect for their individuality rather than a lack of self-acceptance and a sense of personal worth. Strickland's (1966) assumptions concerning the development and behavior of an individual seem useful here. Realizing that every person will react in a unique manner to the specific environmental setting in which he finds himself, the following changes tend to be appropriate to most people.

Choices that are based on pleasure and pain become choices which encourage the realizations of potentials. Instead of making decisions on merely temporary satisfactions, a person begins to make decisions that ultimately lead to more permanent gratifications, and his decisions become associated with intrinsic rather than extrinsic gratifications. Rather than having an existence becomes a more directional synthesis of the future into the present, and the individual concerned with the direction of his own life in direct proportion with his direct concern for his own individuality, an existence that is definitely chained to the present becomes an existence which transcends the present and has definite considerations for the future. Rather than living a day to day existence, people become able to make choices that contribute to the development of self-potential.



This environment moves from them values based on an external consensus to values based on an inner frame of reference. Instead of arbitrarily adopting the values of others the individual comes to respect his own value system. The basic motivation changes from one which is directed from without to one directed from within. Rather than ask others to make decisions for him, the individual begins to make his own decisions and to have confidence in his ability to make his own decisions, recognizing that he alone is responsible for the direction of his life; he, not society, must accept the consequences of his behavior.

Most junior high age people experience uncertainty. They fear change. Perhaps one of the things to grow out of this desired reorientation of life will be a willingness to accept the uncertainty involved with change. As the individual accepts uncertainty and tolerates ambiguity, he is able to recognize his future potential. A move from an unrealistic coping to an acceptance of his limitations will occur. Instead of seeking to be like everyone else to seeking to achieve in areas where his own potential is most effectively utilized. This implies coming to the place of realizing his own individual potentialities. He moves from a selfish outlook to a more altruistic concern. Instead of being tied up with himself and concerned only about himself, he comes to recognize his responsibility for others as well as for himself. Without interaction with other people, there is really no possibility for the realization of potentiality; there is no possibility for the real experience of individuality.

## RELATED RESEARCH

Pine and Boy (1966) view behavior as a function of forces exerted upon the individual. Rewards and punishment, support, encouragement, and other reinforcements are the techniques used by those who consciously or unconsciously see motivation as primarily a fact of establishing stimuli external to the client that will elicit his response. Much educational practice is based upon the external stimulus - internal response notion of motivation. The student is viewed as an organism to be made into something. Since, according to this notion, students cannot be trusted to decide what is good for themselves, someone else (the curriculum maker) must decide. Then other people (teachers and administrators) must determine what forces will be exerted to keep students moving through this "good experience." Pine and Boy (1964), Snygg and Coombs (1959), Kelly (1951), Maslow (1954), Rogers (1951), and Leckey (1945) have all pointed out that people are always motivated. In fact they are never unmotivated. The direction of this motivation is health and growth. Man has a built-in thrust or will to health, a need to become fully functioning or self-actualizing. He has a basic internal given need to grow that does not have to be imposed by an external agent, yet always exists. There is a spontaneous urge to discover, to explore, to know, to question, to find out about things. Young children have their language characterized by "Let me." Often an essential part of his selfhood becomes relegated to a secondary position in deference to the rational cognitive elements of life. Spontaneity becomes controlled and often so controlled that it is stultified. People become afraid to be themselves. They cannot trust themselves. They gradually build their life on the expectations of others. They lose their individuality and essences as persons because of having been told so often "what to do," "when to do it," "where to do it," "how to do it" and "why to do it." As the child enters adolescence, he relies less and less on his internal capacity for growth. His relationships with peers, the perceptions and evaluations of parents and other adults, his role in the culture of the community and society, and his classroom experiences rather than fostering growth many times limit the opportunities for growth and feed the self concept with images of inadequacy, failure and incompetence. Perceptual malnutrition, the illness of not growing results. The drive or the will to health, the thrust to growth is blocked and the growth potential is covered so that it can no longer progress. Flaherty and Reutzel (1965)

concluded that students who succeed academically do not do so in an intellectual vacuum, rather they do so while intending and interacting with other non-intellectual circumstances. Personal and social psychologists have been concerned with discovering which personality traits affect their academic achievement. There is a growing realization that non-intellective factors must be assessed in order to diminish the margin of error in the prediction of intellectual achievement. Early investigators found only negligible relationships between personality tests and grade averages with slight tendencies on the part of high achievers running toward introversion, dominance, and self-sufficiency.

Harris (1937) found that motivation was the most important non-intellective predictor of success. However, the early attempts to consider non-intellective factors in predicting scholastic success were either non-conclusive or of no practical usefulness. Gough (1956) suggested that the lack of significant results in these studies might be explained by the fact that the earlier investigators used scales which had been devised for other predictive problems often of a clinical or psychiatric nature and, therefore, had no intended relationship to variables which were relevant to academic achievement. He devised a more accurate measure selecting items from the MMPI in a manner so as to minimize the overt connections with intelligence. His scale revealed that superior achievers were more conventional in conforming, more apprehensive and more self-confident. In 1957 these findings were incorporated into Gough's California Psychological Inventory, a 480 item true-false test devised to measure eighteen personality traits (Appendix D) but it is a test for "normalcy" and is intended for non-clinical use. The ultimate goal in the words of the test manual itself is to "develop descriptive contents which possess broad personal and social relevance with characteristics of a wide and coercive adaptability to human behavior and related favorable and positive aspects." The CPI is especially useful in high school and college counseling and has had wide use in personnel work.

Reutzel and Flaherty show that all CPI scales in class three (Measures of Achievement, Potential and Efficiency) significantly differentiate between the high and low achievers. Further analysis of the results shows that the scales of class one are more indicative of academic success than those of class two. In class one, four of the six possible traits are significantly higher for high achievers. These traits are dominance, capacity

for status, sociability, and self-acceptance whereas only two of the possible scales of class two are significantly higher for high achievers - responsibility and tolerance. In other words, it would seem that certain attributes of and toward the self are more directly related to high achievement than to those variables of a more social nature such as good impression and communality. As a result of their study, the fact that dominance, capacity for status, sociability, self-acceptance, responsibility, tolerance, achievement by conformance, achievement by independence, intellectual efficiency and femininity, results seem to show that there would be certain scales which could be used as possible non-academic predictors of achievement.

Semler (1960) indicates that in general, in the findings of the past there exists a significant difference in the degree of academic achievement between groups of well-adjusted and poorly adjusted elementary school children. More specifically, the achieving students have a more adequate level of both personal and social adjustment than did the under-achieving students.

Ringness (1965) found that significant difference as measured by the California Test of Personality (1953), Revised Form AA, Secondary Level, existed between groups for the sense of personal worth, nervous symptoms, family relations and school relations scales. Total, personal, and social adjustment means did not differ significantly, but there was a broad range of adjustment within each group. In regard to the sense of personal worth, family relations, and school relations, the successful subjects differ from the unsuccessful subjects between the 10% and 5% levels of significance in a manner suggesting better adjustment. However, in freedom from nervous symptoms unsuccessful subjects score significantly higher at the 10% level than do successful subjects.

When the mean sub scores were compared with percentile norms there was found that in sense of personal worth, sense of personal freedom, feeling of belonging, withdrawing tendencies and nervous symptoms, all of the subjects scored somewhat below the norms, especially with regard to personal feeling and feeling of belonging. This was also true for the family, school and community relations. These findings agree others who commented that bright children experienced defeated feelings of self-worth as compared to other people.



Eames (1965) writes that the adolescent is at loose ends; he is faced with an uncertain future just as his predecessors have been, possibly more so, and he sees himself as hedged in by those who oppose his natural development and put limits on his progress. Preparation for effective adulthood is a major problem of the adolescent. He is wrestling with questions about what is good, what is right, what is true, what is worthy.

King and Guson (1965) found it is important to begin by recognizing that for a variety of reasons many of our youth are present oriented. They are concerned with immediate gratification and are not thinking about the future. One reason for this may be the fact that so many youngsters come from economic circumstances which prohibit any kind of planning. The emphasis is on survival from day to day. In a survey of school dropouts it was shown that their goals were immediate, personal, and of a material nature. An example of the immediate needs is that many young people have the need to be up-to-date with the latest clothing fads and hair-styles. How the youngster sees himself may or may not be expressed in a way that both he and those attempting to assure him can understand. Those youngsters whom we mentioned earlier as being present oriented may be those who have a negative or poor self-image. However, the others who seem to be better motivated and can plan along the long range basis may have a better self-image.

In the study previously referred to of dropouts and students still in school, it was found that those individuals with well-defined and positive self-images had on the whole clearly defined goals, and were more concerned with their future. Those individuals with a negative self-image had fewer or less clearly defined goals which were in general more immediate and materialistic in nature. The individual's conception of himself is then a basic determinant of the formulation of goals.

Keller and Rowley (1964) reveal that personality theorists and educators have shown considerable interest in the discrepancy between potential and scholastic performance and commonly have felt all the personality attributes, and anxiety especially are significant factors in producing this discrepancy. However, paucity of studies is seen in the literature concerning the variables thought to be relevant to his situation, i.e., anxiety, intelligence, and scholastic achievement. There appears to be an extreme lack of developmental data regarding the inter-relationships of these variables over



an extended age period. Keller and Rowley found that correlations between I.Q. and anxiety scores were generally non-significant. Only five of twenty-six coefficients had significance. As usual, a high correlation between I.Q. and scholastic achievement was found. In an attempt to increase the efficiency of predicting scholastic achievement multiple correlations were computed using anxiety and intelligence as predictor variables and generally the magnitude of the multiple coefficients showed little or no increase over the simple correlations between I.Q. alone and achievement. It was, therefore, stated that it was suggested that consideration of manifest anxiety as measured does not seem useful in predicting school achievement in junior high school children.

Keogh and Benson (1964) whose study was a part of a systematic attempt to isolate those subject variables which are relevant to learning disorders investigated a number of biological, psychology, and sociological variables. They also looked at and tried to describe certain specific motor characteristics of under-achieving boys of adequate intelligence to determine if these boys differed significantly from normative data in relation to these variables. There is little definitive information regarding the physical abilities of underachieving boys. Available studies are mostly concerned with physical and growth measurement when it is directed to the relationship of variability and physical measurements in academic achievements. In ability to participate successfully in physical activities with peer groups provide another general failure in the area which occupies a position of considerable importance during middle childhood. Of concern is the need to determine if an increase in the performance level of these boys contributes in a positive way to related behavior. That is we need to know what changes in behavior are related to an increased ease and confidence of movement. Keogh and Benson stated that age was an important differential in describing the motor characteristics of the clinic school boys, and they found that if generalized failure was a central problem in children with learning disorders that one-half of the young boys seem to be destined to compound and support their learning disorders by problems which they have in terms of physical performance.

## METHOD

Two hundred and eight junior high school boys from grades seven, eight, and nine, classified on the basis of athletic ability or lack of it, were given the California Psychological Inventory (CPI) at the beginning of the school year and again just before the school year ended the following spring. (Appendix C)

One hundred and fifty-nine of these boys were labelled as "underdeveloped" boys. The classification of underdeveloped was given any boy who failed to pass the fitness standards set down in the handbook developed by the President's Council on Physical Fitness (1961).

The tests measured strength, flexibility and agility. Cardiorespiratory endurance was also tested using a half-mile run. Pullups were used to measure arm and shoulder strength, situps measured flexibility and abdominal strength, and squat thrusts were used to measure agility.

Following the Fitness Test recommendation, the boys were divided into pairs. One boy acted as scorer and his partner performed the test. Each boy served in both functions. After each test the results were recorded on a record form by the teacher.

The only equipment used was a chinning bar, a stop watch and the required forms. The chinning bar was adjustable so that the boys were able to jump up and grasp the bar so that their feet were hanging slightly off the floor. Boys of ages 10 - 13 had to do one pull-up to pass that subtest.

The second required exercise situps called for the boy to lie on his back with his legs extended, feet about one foot apart, the hands with the fingers interlaced are grasped behind the neck. The other boy holds his partner's ankles to keep his heels in contact with the floor and counts the successful situps. The action has to be, sit up, turn to the right, touch the left elbow to the right knee, return to the starting position. One complete situp is counted as accomplished each time the pupil returns to the starting position. To pass this test boys from ages 10 - 17 are required to do fourteen situps.

The squat thrust test was the third test administered. The action involved was to bend the knees and

place the hands on the floor in front of the feet, thrust the legs as far back as necessary to a pushup position, to return to the squat position, and to stand back to attention in the upright position. The boys were carefully instructed in how to do correct squat thrusts. They were then instructed by the teacher to do as many as possible within a ten second limit. The teacher gave a starting signal "ready - go" and on "go" the pupils began. The partner counted each squat thrust. At the end of ten seconds, the teacher's command was "stop." The final rule was that the pupil must return to the upright position of attention to complete each squat thrust. For boys 10 - 17 years of age, four squat thrusts are required in ten seconds to pass.

The forty-nine boys classified as athletic were those who had successfully qualified for a position on any athletic team which competed in inter-school competition with other junior high schools in Northern Colorado.

The California Psychological Inventory was administered to the underdeveloped boys in small groups to which they were assigned for the school year for participating in the structured physical education program designed for this experiment. The groups ranged in size from twelve to fifteen. Part of the sections met Monday and Wednesday. The remaining sections met on Tuesdays and Thursdays. Due to the shortness of the time allotted for each class session and the length of the CPI the test had to be administered in two sittings. The CPI manual says that this procedure has been shown not to have an adverse effect on test data results. All of the CPI testing had been completed by the third week of the school year. The post-test collection of the CPI data was conducted in the same way during the final three weeks of the spring term. The pretest and posttest of the athletes was handled in a similar but separate session during the same periods of time in the fall and spring.

The underdeveloped boys were involved in the structured physical educational program. Additional physical measurements were taken on all boys in the underdeveloped category (See Appendix B 14 - 16). Monthly self-evaluations of growth in these additional areas was made. Each boy was given his checklist and encouraged to achieve above his previous months high scores. The emphasis of the testing sessions was self-growth not competitive achievement against other class members. After the

second testing session, the boys themselves began to talk not about how many more bench presses, etc., they could do as compared to boy X, but rather they talked about how much personal increase they had made.

Thirty boys from the underdeveloped group were chosen at random to be given additional encouragement by the instructor. (The original plan to counsel one-half of the boys proved unworkable because of time factors.) Once each month these boys were talked with and their improvements and growth were pointed out in detail to them. The other underdeveloped boys were just given their record forms once a month but no added encouragement was given to them. Any boy could see his record form at any time he wished.

Of the two hundred and eight boys initially tested one hundred and fifty-five were available for retesting. One hundred and twenty-eight were classified as physically weak boys originally. The main reason for the population reduction was caused by the opening of a new junior high school during the second semester of the year. Boys who lived in the area of the new school left the experimental program at that point.

The correlation matrix of the 18 CPI variables was submitted to a principle-component factor analysis program for the 7094 computer at the Western Data Processing Center at UCLA. Communality estimates were based upon the squared multiple correlations between each variable and all other variables. The factor-extraction program also gives rotation of axes to a varimax criterion. Discrimination analysis for two groups was also run on the 7094 computer at WDPC at UCLA for all possible combinations of the underdeveloped boys and the athletes. All additional statistical comparisons were done with desk calculators. Plans to investigate a short-form CPI were discontinued on the basis of remarks and suggestions returned with the proposal at the time the grant contract was completed.



## RESULTS

The rotated factor matrix for the CPI pre-test underdeveloped boys is presented in Appendix B, Table 1. Based on the factor loadings the following descriptions of the factors are given.

Factor A had high loadings which ranged from .62 to .82 for the CPI scales labelled Dominance (Do), Capacity for Status (Cs), Self-Control (Sc), Tolerance (To), Good Impression (Gi), and Achievement by Conformance (Ac). Factor B yielded high loadings ranging from .73 to .85 for the three scales Sociability (Sy), Social Presence (Sp), and Self-Acceptance (Sa). Factor C had loadings of .60 and .85 on the scales Achievement via Independence (Ai), and Factor D had loadings ranging from .62 to .81 on scales Responsibility (Re), Socialization (So), Communality (Cm), and Femininity (Fe).

The pre-test findings for the athletic boys is presented in Appendix B, Table 2. The factors for this group varied from the underdeveloped boys and were as follows: Factor A had loadings from .58 to .90 on the CPI scales of Well-Being (Wb), Self-Control (Sc), Tolerance (To), Good Impression (Gi), Achievement via Conformance (Ac), Achievement via Independence (Ai), and Intellectual Efficiency (Ie). Factor B was composed of scales loaded from .65 to .79. The scales were Dominance (Do), Capacity for Status (Cs), Sociability (Sy), Social Presence (Sp), Self-Acceptance (Sa), and Intellectual Efficiency (Ie). Factor C was made up of three scales with loadings ranging from .63 to .80. Responsibility (Re), Socialization (So), and Communality (Cm) compose the factor. Factor D was poorly defined by only one scale Flexibility (Fx) with a loading of .86.

The factor analysis of the underdeveloped boys after the physical education program are different from the pre-test factorings. As shown in Appendix B, Table 3. Factor A had loadings from .58 to .92 on the scales of Well-Being (Wb), Responsibility (Re), Socialization (So), Self-Control (Sc), Tolerance (To), Good Impression (Gi), Achievement via Conformance (Ac), Achievement via Independence (Ai), and Intellectual Efficiency (Ie). Factor B with loadings ranging from .67 to .87 was composed of the Dominance (Do), Capacity for Status (Cs), Sociability (Sy), Social Presence (Sp) and Self-Acceptance (Sa) scales. The final two factors each had only two scales with loading of mentionable size. Factor C had Achievement via Independence (Ai) with .57 and Flexibility (Fx) with a .86. Factor D made up of the



Communality (Cm) and Femininity (Fe) scales had loadings of .74 and .58 respectively.

The post-test factor analysis of the athletic boys is shown in Appendix B, Table 4. Only three factors were found. Factor (A) had loadings from .53 to .91 on Well-Being (Wb), Responsibility (Re), Socialization (So), Self-Control (Sc), Tolerance (To), Good Impression (Gi), Achievement via Conformance (Ac), Achievement via Independence (Ai), Intellectual Efficiency (Ie), and Psychological Mindedness (Pm) scales. Factor (B) had loadings ranging from .68 to .90. The CPI scales of Dominance (Do), Capacity for Status (Cs), Sociability (Sy), Social Presence (Sp), and Self-Acceptance (Sa) formed the factor. Factor (C) had three scales with loadings from .60 to .77. They were Socialization (So), Communality (Cm) and Flexibility (Fx). Socialization also had a substantial loading on Factor (A).

Using the null hypothesis that no difference existed between the underdeveloped boys before and after the program, between the athletes before and after the years natural development, and between the underdeveloped boys and the athletes before and after the program, discriminant analysis using the CPI scales yielded significant differences on all combinations when the F-Test was applied.

Based on the findings of significant F-Test differences the means of the individual scales were tested for significant differences. Significant differences for underdeveloped boys were found on before and after comparisons on the CPI scales, Capacity for Status, Social Presence, Socialization, Tolerance, Communality, Achievement via Conformance, Achievement via Independence, Intellectual Efficiency, Well-Being, and Self-Control (See Table 9, Appendix B).

Four tests for mean difference were significant for the athletic boys. The scales were Capacity for Status, Social Presence, Self-Acceptance, and Intellectual Efficiency. (See Table 10, Appendix B).

Significant mean differences were found between the underdeveloped boys and the athletic boys on CPI scales Sociability, Social Presence, Self-Acceptance, Commu-nality and Self-Control. (See Table 11, Appendix B). These differences were on the pre-test data. Examination of the post-test data yielded significant mean differ-ences on the Social Presence, Self-Acceptance, Capacity for Status and Femininity scales (See Table 12, Appendix B).

The counseled boys from the underdeveloped boys group had mean differences on the CPI scales of Well-Being, Communality, Intellectual Efficiency, Psychological Mindedness, and Flexibility. (See Table 13, Appendix B).

Items which were significantly identified with one of the two groups, underdeveloped or athletic boys, at the .01 level are listed in Appendix B, Table B5-7.

## DISCUSSION

The findings of this study tend to agree with earlier studies in which the California Psychological Inventory has been factor analyzed. The factor groupings on both the pre- and post-test for the athletic boys were basically the same as those in studies by Mitchell and Pierce-Jones (1960), Nichols and Schnell (1963), Springob and Struening (1964) and Crites (1964). The factor analysis results of the post-test data for the underdeveloped boys was also in close agreement with these earlier studies. The only factor groupings which did not indicate the pattern generally found was the pre-test factor analysis of the underdeveloped boys. While factors one and two, listed by Gough in the CPI Manual (1957) as Measures of Poise, Ascendancy and Self-Assurance and Measures of Socialization, Maturity and Responsibility, are generally evident in the other studies these scales did not develop clearly as factors in the pre-test data for the underdeveloped boys. The post-test data for the underdeveloped boys eight months later did yield, however, the expected factor groupings. Examination of this lack of the usual factor development tends to indicate, when the definition of scale meanings is studied, that the underdeveloped boys were experiencing problems in adjustment in social conformity and self-acceptance.

These underdeveloped boys tended to be more self-centered and have higher self-concern than the later data analysis reveals. The correctness of the hypothesis that these boys had difficulties in the areas of social adjustment and self-acceptance is evident in their personality factor structure. Factor one has been generally identified in earlier studies as Social Conformity and factor two as Social Pose. The investigators chose to use these terms in this study. The post-test factor analysis of the underdeveloped boys shows clear agreement with the findings of earlier studies and with the pre-test and post-test factor analysis of the athletic boys. The basic outlook of the underdeveloped boys had the greatest evidence of change.

This indication of change is evident in the number of CPI scales where significant mean score differences were found between the pre- and post-test data comparisons of the underdeveloped boy and the athletic boys. All possible combinations were compared. The underdeveloped boys had significant gains in ten of the eighteen CPI scales (Table 9). The athletic boys show gain in only four of the scales (Table 10). Of the scales showing

gains for the underdeveloped boys seven scales were related to the make-up of factors one and two (Table ). The other three scales composed what Gough has labelled Measures of Achievement, Potential and Intellectual Efficiency. In cases where significant differences were found between the mean scores on the CPI scales in the pre-test and those on the post-test the direction of the increase was always positive. A more detailed look at these scales yielded the following information. (In discussing the scales the numbered order and arrangement found in the CPI Manual will be used. The order of discussion is not meant to indicate degree of importance relative to any scale or mean increase).

Comparison of the athletes and underdeveloped boys on the Capacity-For-Status scale which purports to reflect the personal qualities which underlie and lead to status and social attainment; being ambitious, forceful and interested in success; the kind of person who will get ahead in the world still had a difference favoring the athletes after the program's completion, however, a comparison of the underdeveloped boys' pre- and post-test scores also showed a gain on this scale significant at the .01 level. The Social Presence scale is said to pertain to factors of poise, spontaneity, self-confidence and vivaciousness in personal and social interaction. The groups were significantly different on the post-test comparison with the athletic boys having the higher mean score. The underdeveloped boys also had a significant gain on this scale, however, indicating an increased social adjustment.

The Sense-of-Well-Being scale which is said to indicate a sense of physical and emotional well-being and comfort; the feeling of being able to enjoy life showed a significant gain only for the underdeveloped boys. This gain was one of the most encouraging developments to the investigators. As has been previously mentioned there are ten CPI scales which the underdeveloped boys showed pre-test/post-test differences while the post-test comparisons for the athletes were significant on only four scales. The next seven scales refer to gains made only by the underdeveloped boys.

The Socialization scale refers to a strong sense of probity and propriety; acceptance of rules, proper authority and custom, indicating a person who seldom if ever gets into trouble. The Tolerance scale indicates permissiveness, tolerance and acceptance of others. Despite the fact that the program emphasized personal growth and comparison it seems noteworthy that the boys



grew in concern for others also. Another very encouraging finding was the gain made on all the scales on the CPI which relate to Measures of Achievement, Potential and Intellectual Efficiency.

The Achievement via Conformance and Achievement via Independence scales both are supposed to access factors of drive and ambition which facilitate achievement one relating to independence the other to group cooperation. Intellectual Efficiency measures the level at which one utilizes intellectual and personal resources. Remarks made by teachers and counselors about the boys in the program at the end of the school year tended to confirm this finding. The Communality scale which is to indicate a fitting in with the crowd, having the same reaction and feelings as everyone else, and seeing things the way most people see them also showed a significance for the underdeveloped boys. This gaining of a common reaction and fitting in with the crowd is viewed as a positive indication of the success of the program.

The final scale showing significant difference was the Femininity scale which the manual says indicates the tendency to help and support others through patience and having kindness; being in general gentle and sympathetic. The values of the underdeveloped boys, as has been mentioned before, based on this difference could be seen as an indication that despite the fact that the program called for getting the boys to become involved in realistic self-evaluation of self-growth and self-development they retained a sensitivity and concern for others.

The underdeveloped boys receiving additional attention during the program had mean differences on two scales which are not mentioned in previous discussions. (Table 13). Both of the scales are in the section of the CPI profile which is used to indicate Measures of Personal Orientation and Attitudes Toward Life. Psychological-Mindedness is said to relate to the trait of being intrceptive and sensitive to others. The other scale is Flexibility. This scale is defined as indicating the adaptability of a person's thinking and social behavior. These scales when placed with the other scales that the counseled group had significant differences on Sense of Well-Being, Communality, and Intellectual Efficiency give an overall indication of growth toward healthy emotional adjustment. Since these boys do differ from the boys who were not given additional encouragement more research seems warranted in this area.



## CONCLUSIONS

The findings made in this program where an effort was made to establish an atmosphere where boys could utilize self-evaluation of their development and achievements seems to corroborate Rogers' (1951) statement that:

Self-evaluation appears to be the logical procedure for discovering those ways in which experience has been a failure and those ways in which it has been meaningful and fruitful. --- The person most competent to perform this task would appear to be the responsible individual who has experienced the purposes, who has observed his efforts to achieve them, --- the learner who has been the center of the process. ---

Rogers stated further in comparing self-evaluation to external evaluation that:

As we have struggled with this problem of grades and academic bookkeeping, and have contrasted it with those experiences in which the students are free to evaluate themselves, we have reached the conclusion which to some will seem radical indeed. It is that personal growth is hindered and hampered, rather than enhanced by external evaluations.

While this study was not related to any academic subject matter further study should be done to determine the possible applications in academic areas. Students who are experiencing negative self-acceptance because of academic pressures and perceived intellectual lacks may be able to show similar responses to those of the boys who were initially self-effacing because of physical underdevelopment. Few, if any, of these boys were turned into "Charles Atlas" types in the eight months of the study. They did not look much more physically developed than they did at the beginning of the program (Appendix B). The change in the boys appears more internal and somewhat wider spread in its effects than just the physical development gained during the program. Teachers at the school commented during and at the end of the program how the attitudes of some of these boys had and were changing toward academic subjects and class participation as they gained a measure of self-acceptance.

Duel (1956) found that students can make reliable self-judgment concerning the gain they make in skills and knowledge in technical courses and that self-evaluation by students can be accomplished effectively at the action level. The findings of this study seem to indicate that self-evaluation is an area where more serious investigation should be done. Duel concluded, and the present investigation agrees, that:

One of the greatest voids in research related to self-evaluation is that which indicates the value that self-evaluation might have in promoting growth and development of the student.

Further studies in areas other than the one covered in this study, especially academic areas, should be conducted to investigate the general applicability of allowing students to relate their growth to their own personal achievement free from the threat of external standards which may have already begun to retard growth because of felt self-inadequacy and hopelessness. It is likely that the gain made by being able to experience a sense of growth in any area, physical or academic, and well-being in light of gaining self-acceptance equips those individual experiencing such growth to continue to compete and succeed in the context of competitive society. The investigators hope that a follow-up study of these boys can be accomplished to investigate the permanence of their growth and adjustment in personal and social outlook.

Despite the fact that education has been talking individual differences for many years the actual framework of the classroom and the society does not indicate acceptance of this insight. Systems still seem to operate on the assumption that all students, regardless of their own level of ability, if they are of a certain age or in a particular grade level, should master the same skills and knowledges and attain the same understandings and adjustments as all others at that level. This assumption does not seem realistic if one takes time to observe the wide spread of abilities that can be found within any age group or grade level or, looking even wider, from one community to another community. Involving students in the process of evaluation will not be easy but it does appear to be an area which must be faced realistically in the near future.

## SUMMARY

A structured physical education program consisting mostly of body building exercises and weight lifting was used as means to give physically underdeveloped boys a sense of personal accomplishment. Two hundred and eight junior high school boys from grades seven, eight and nine classified on the basis of athletic ability or lack of it were given the California Psychological Inventory (CPI) at the beginning of the school year and again just before school year ended the following spring.

One hundred and fifty-nine of these boys were labelled as "underdeveloped" boys. Any boy who failed to pass the fitness standards set down in the handbook developed by the President's Council on Physical Fitness (1961) was called "underdeveloped." The tests measured strength, flexibility and agility. Cardiorespiratory endurance was also tested using a half-mile run. Pullups were used to measure arm and shoulder strength, situps measures flexibility and abdominal strength, and squat thrusts were used to measure agility.

Forty-nine boys who had successfully qualified for a position on an athletic team which competed in inter-school competition with other junior high schools in Northern Colorado were called "athletic."

The underdeveloped boys involved in the structured physical education program had additional measurements taken on their weight, biceps, calves, etc.

Monthly self-evaluations of growth in these measurements was made along with the amount of weight that could be lifted. Each boy was given his check-sheet and encouraged to achieve above his previous month's record. The emphasis of the testing sessions was self-growth not competitive achievement against other class members.

[ Thirty boys from the underdeveloped boys were chosen at random to be given additional encouragement by the instructor. Once each month these boys were talked with and their improvements and growth were pointed out in detail to them. The other underdeveloped boys were just given their record forms once a month but no added encouragement was given to them. Any boy could see his record form at any time he wished.

[ Of the two hundred and eight boys initially tested one hundred and fifty-five were available for retesting. ]

One hundred and twenty-eight were classified as physically weak boys originally. The main reason for the population reduction was caused by the opening of a new junior high school during the second semester of the year. Boys who lived in the area of the new school left the experimental program at that point.

The correlation matrix of the 18 CPI variables was submitted to a principle-component factor-analysis program for the 7094 computer at the Western Data Processing Center, at UCLA. Discriminant analysis for two groups was also run on the 7094 computer.

On the basis of an earlier pilot study five hypotheses were stated. Four of the five were accepted.

- H1. Physically underdeveloped boys are less socially adjusted than athletic boys. (accepted)
- H2. Physically underdeveloped boys have lower self-esteem and sense of personal worth than athletic boys. (accepted)
- H3. A measure of achievement which allows underdeveloped boys to become aware of growth in a given area will enhance their self-perception enough to be evident in pre-test post-test comparisons of mean scores on a personality inventory measurement. (accepted)
- H4. A sense of adequacy experienced by underdeveloped boys will raise their personal perceptions of their own worth to approximately the level of athletic boys. (accepted)
- H5. Additional encouragement given to underdeveloped boys during the experience of self worth would increase the level of acceptance. (rejected)

The findings of this study tend to agree with earlier studies in which the California Psychological Inventory has been factor analyzed. The factor groupings on both the pre- and post-test for the athletic boys were basically the same. The factor analysis results of the post-test data for the underdeveloped boys was also in close agreement with these earlier studies. The only factor groupings which did not indicate the pattern



generally found was the pre-test factor analysis of the underdeveloped boys.

Examination of this lack of the usual factor development tends to indicate, when the definition of scale meanings is studied, that the underdeveloped boys were experiencing problems in adjustment in social conformity and self-acceptance. These underdeveloped boys tended to be more self centered and have higher self concern than the later data analysis reveals. The correctness of the hypothesis that these boys had difficulties in the areas of social adjustment and self acceptance is evident in their personality factor structure.

107 [ The underdeveloped boys had significant gains in ten of the eighteen CPI scales. ] The athletic boys show gain in only four of the scales.

In cases where significant differences were found between the mean scores on the CPI scales in the pre-test and those on the post-test the direction of the increase was always positive. A more detailed look at these scales yielded the following information. On scales reflecting the personal qualities which underlie and lead to status and social attainment indicating the kind of person who will get ahead in the world the difference still favored the athletes after the program's completion. A comparison of the underdeveloped boys' pre- and post-test scores, however, showed a gain on this scale significant at the .01 level.

On tables related to factors of poise, spontaneity, self-confidence and vivaciousness in personal and social interaction, the groups were significantly different on the post-test comparison with the athletic boys having the higher score. Again the underdeveloped boys had a significant gain indicating an increase in social adjustment. Scales showing the feeling of being able to enjoy life indicating sense of physical and emotional well being and comfort; showed a significant gain only for the underdeveloped boys. This gain was viewed as one of the most encouraging developments in the study. Despite the fact that the program emphasized personal growth and comparison it seems noteworthy that the boys grew in concern for others also. Measures related to factors of drive and ambition also increased for the underdeveloped boys. This growth was evident in both independent and group related activities. Discussions with teachers and counselors supported this change in attitude.



The scale which indicates a fitting in with the crowd, having the same reactions and feelings as everyone else, and seeing things the way most people see them also showed a significance for the underdeveloped boys. This gaining of a common reaction and fitting in with the crowd is viewed as a positive indication of the success of the program. The final scale showing significant difference was also on a scale which the CPI manual says indicates the tendency to help and support others through patience and kindness. The values of the underdeveloped boys, as has been mentioned before, based on this difference could be seen as an indication that despite the fact that the program called for getting the boys to become involved in realistic evaluation of self-growth and self-development they have retained a sensitivity and concern for others. Despite the fact that the level of acceptance in the counseled group was not found. The factor structure was somewhat different and additional investigation should be made here.

The effort made in this program to establish an atmosphere where boys could utilize self-evaluation of their development and achievements seems to corroborate Rogers (1951) statement that:

Self-evaluation appears to be the logical procedure for discovering those ways in which experience has been a failure and those ways in which it has been meaningful and fruitful. --- The person most competent to perform this task would appear to be the responsible individual who has experienced the purpose, who has observed his efforts to achieve them, --- the learner who has been the center of the process. ---

While this study was not related to any academic subject matter further study should be done to determine the possible applications in academic areas. Students who are experiencing negative self-acceptance because of academic pressures and perceived intellectual lacks may be able to show similar responses to those of the boys who were initially self-effacing because of physical underdevelopment. Few, if any, of these boys were turned into "Charles Atlas" types in the eight months of the study. They did not look much more physically developed than they did at the beginning of the program. The change in the boys was more internal and somewhat wider spread in its effects than just the physical development gained during the program. Teachers at the school commented during and at the end of the program how the attitudes

of some of these boys had and were changing toward academic subjects and class participation as they gained a measure of self-acceptance. Further studies in areas other than the one covered in this study should be conducted to investigate the general applicability of allowing students to relate their growth to their own personal achievement free from the threat of external standards which may have already begun to retard growth because of felt inadequacy and hopelessness. It is hoped that the gain made by being able to experience a sense of growth in any area, physical or academic and well being in light of gaining self-acceptance would equip those individuals experiencing these things to continue to compete and succeed in the context of competitive society.

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**APPENDIX A**

**APPENDIX A**  
**Proposal S-303-64**  
**Project S-165**

**Project Title:** The Influence of a Structured  
Physical Education Program on  
Adolescent Personality

**Submitted by:** Gordon College  
Wenham, Massachusetts

**Telephone:** 927-2300 (Gordon College)  
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**Initiated by:** W. Eugene Trimble, M.A.  
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**Date:** May 6, 1964

## ABSTRACT

**Objectives:** One objective of this study is to analyze the personal adjustment of athletes as compared to the personal adjustment of "physically weak" boys in junior high school by making comparisons of the self-concept and personality make-up of the two groups before a physical development program is used with the "physically weak" boys. A second objective is to identify any personality factors peculiar to junior high students and to assess the possibilities for using a short form of the California Personality Inventory for junior high students rather than the long CPI form of 480 items as originally developed. The third objective is to develop and evaluate a structured program in physical development specifically designed for "physically weak" boys.

**Procedures:** The analysis will be accomplished by identifying the "physically weak" boys through the use of the National Physical Fitness Test during the first two weeks of the fall term. The athletes will be selected on the basis of participation on a varsity team. Both groups will be tested on the CPI before the developmental physical education program begins. The "physically weak" boys will be randomly assigned to groups receiving and not receiving "additional encouragement" (note definition). Both athletes and "physically weak" boys will be retested on the CPI in the late spring with the athletes receiving the short-form CPI inventory. The computation of discriminant functions and factor analysis will be accomplished by using IBM computers, and any "t" statistics, chi-squares, or correlations which require fewer calculations will be done manually.



## PROBLEM

Personality has been defined as "the individual characteristics and ways of behaving which, in their organization or patterning, account for the individual's unique adjustments to his total environment" (Hilgard, 1962). Snygg and Combs (1959) have further stated, "what a person thinks and how he behaves are largely determined by the concept he holds about himself and his abilities."

Our culture with its social and intellectual complexities forces adolescents while in a period of "growing to maturity" to feel social, emotional, and physical insecurity. Adolescence is a period of transition; a child is becoming an adult. During this period, however, he is in the position of being neither. Physically he is no longer a child; emotionally and socially he is not yet an adult, and because of the rapidity of the adolescent transition it is, within our culture, a difficult period. During this time, however, the adolescent's education must continue. If the adolescent can gain self-understanding and self-confidence in this transition, much ground will be gained for future maturity.

Adolescents need to experience social acceptance while maintaining their individuality. These early adolescent years are times of low self-acceptance, of low emotional well-being, and of insecurity. The mental health of the individual adolescent needs to be improved; and the self-concept of actually being, or of soon becoming, an adequate self needs to be developed. A possible solution may be to get these young people to compare themselves more realistically, in circumstances encountered daily, to standards based on self-growth and self-improvement rather than to the presently used standards based on social, academic, or athletic competition. If more self-evaluation and self-growth of this type were encouraged, more confidence might be achieved. As an individual sees and recognizes growth in himself, he justly gains security and a sense of well-being. This re-direction of standards resulting in improved self-concepts is a goal of this study. It is hoped that this emphasis will have considerable positive influence on general maturity and overall education. Also, the increased physical fitness gained by the subjects during this period will in itself give adequate justification for the physical development portion of the project.

At every age the individual is a product of his social environment. Belonging is important; but before an individual can belong to others, he must belong to himself. He must accept himself, experience some sense of his individuality, and gain a measure of security. The more this can be accomplished the greater becomes the likelihood of educational adjustment.

## REVIEW OF RELATED RESEARCH

Sines (1959) studied the possibilities that the information available to the clinical psychologist through tests and other resources could enable him to make judgment and descriptive and diagnostic statements about subjects. He found that clinicians were generally able to describe psychiatric patients more accurately than did a single stereotyped description.

DeSoto and Kueth (1959) studied the response set which seems to be operative whenever items are difficult or ambiguous enough to arouse the operation of response sets. The findings of the study indicate, however, that the set was essentially absent as a factor on the personality scale used. Instead, a symptom-claiming set seems to be pre-potent among response sets.

Proponents of varying schools of psychotherapy, such as Freud (1950), Rank (1945), Reich (1949), Reik (1948), Rogers (1957), and Sullivan (1954) have claimed that it is necessary for certain conditions to exist and to continue over a period of time if basic personality change is to be effected in disturbed individuals. Ellis (1959) contends that there are probably no absolutely necessary conditions for constructive personality change, and his study tends to substantiate this contention.

Accepting the hypothesis that the nature of test items influences the response set, Hanley (1959) explored the possibility that there are different "acquiescences" and that these include responses to specific types of items wordings. He concluded on the basis of his study that studies of "acquiescent personality" require considerable attention to item wording before results can be accepted as definitive.

Canter (1960) investigated the ability of a short-form MMPI to differentiate as successfully as the long form using all scales and found the effectiveness of the scales in the short form to be as efficient as those ordinarily used in the long form.

Using Erickson's (1950) statement that "the sense of ego identity is the (individual's) accrued confidence that (his) inner sameness and continuity are matched by the sameness and continuity of (his) meaning for others..." (p. 228), Block (1961) investigated the hypothesis that excessive role variability ("diffusion") and insufficient role variability ("rigidity") would reflect problems in ego identity and would also be associated with maladjustment. Role variability proved to relate significantly to maladjustment as measured by a California Personality Inventory scale to measure "susceptibility to anxiety." Role rigidity, however, did not show a relation to maladjustment.

Washburn (1962) investigated the effect of body build and family situation on personality self-concepts. The analysis of variance method used indicated that physique did not have a significant effect on self-concepts. The F ratio for intra-family tension and non-tension was significant, however.

Crites, et. al., (1961) factor analyzed the California Personality Inventory and identified four basic classes of personality clusters which agree somewhat with Gough's (1957) objective classification of the 18 CPI scales. However, some scales when factor analyzed required reclassification. The statistical analysis indicated that a reduced set of six scales accounts for about two-thirds of the total variance. The use of these CPI scales, it was concluded, could show promise as measures of the normal personality. The study by Mitchell and Pierce - Jones (1960) tends to agree with the other factor analysis of the CPI run by Crites, et. al., and also concludes that some scales have been mis-classified on Gough's objective placement. They also found that four scales accounted for sixty per cent of the total variance and concluded that those scales identified through factor analysis could permit personality descriptions to be made in such conventional psychological terms as "dominance," "self acceptance," and the like, rather than such complex social behavior terms as "social presence" and "capacity for status."

Brookover, Paterson, and Thomas (1962) have directed their attention to a study designed to determine whether or not the student's concept of his ability is a significant factor in his achievement. The major results of the study seem to be that self-concept of ability differs from measured intelligence when grade point average is partialled out, that self-concept of his ability is a significant factor in his achievement, and that self-concept of ability may vary substantially from area to area. In addition, it seems that a student's self-concept of ability is positively related to the image which he perceives significant--others hold of him. For the most part these are parents, teachers, and peers.

Additional research which may be important in later analysis but which is not directly related to the present study has been done by Dinitz, Kay, and Reckless (1957) on delinquency and asocial behavior. The drop-out problem has been investigated by Gough (1954), Stivers (1958), and Straight (1961). Studies of overall personality development as measured by the CPI at various age levels have been done by McKee and Turner (1961), Mussen, (1961) (1962), Payne and Mussen (1956), and Sears (1961). Studies of Scholastic achievement have been conducted and reported by Gough (1949) (1953) and Pierce - Jones (1961).

For the past two years the investigators have been conducting an informal program with some volunteer boys. The school district is now expressing interest and will co-operate in the expansion of the entire program. No analysis of data has been run on the pilot study at this time.



## OBJECTIVES

1. To compare the self-concept and personality make-up of athletes and "physically weak" boys in junior high.
2. To compare the self-concept and personality make-up before and after a structured program of physical education and weight lifting.
3. To compare "physically weak" boys receiving special encouragement during the physical development program with those simply having occasional checks of their records.
4. To identify factors formed by responses on the California Personality Inventory by junior high school boys.
5. To develop and investigate the ability of a short form CPI, from scales identified by factor analysis, to measure personality as well as do the present eighteen scales. (athletes used)
6. To measure the amount of physical growth gain made by "physically weak" boys while engaged in a structured physical development program.

## PROCEDURES

- (a) General Design--Identification of the "physically weak" boys will be based on their failure to pass the minimum requirements on the National Physical Fitness Test which will be administered in the early fall. Early fall administration of CPI to athletes and "physically weak" boys will be given before the Corrective Physical Education Program begins sometime during the first two weeks of school. Following their identification, "physically weak" boys will be enrolled in a nine-month corrective physical education program. A table of random numbers will be used to designate counseled and non-counseled groups of "physically weak" boys. One half of these boys, the counseled group, will be called in for special discussion of their physical growth and advances in the physical development program once every other week. Gains in strength and physical dimensions will be especially noted by the program director, and encouragement will be given to the individual boy. The full scale CPI, at the end of the year, will be re-administered to the "physically weak" boys. These boys will also be given a physical fitness re-examination in the late spring. A comparison of the statistical analysis of both testings will be made after the data is scored. The development of a short form CPI for use in comparison with the long form CPI on athletes will be done after the program is under way. (This form will be developed on the basis of the factor-analysis studies previously noted.) An early fall testing of athletes in the junior high school, selected by having participated on a varsity team, using the full CPI will be done in the early fall. The short form four-scale CPI will



be used to retest the athletes in the spring. All tests will be factor analyzed on IBM computer facilities, i.e., "physically weak" boys' first testing and second testing on the long form and athletes' second testing on short form as well as their initial long form testing. Correlations will be run for all of the above descriptions plus an added correlation for athletes' long form vs athletes' short form and any additional comparisons deemed necessary as the study develops. An item analysis will be used on the long form and short form for athletes and for the first and second testing for "physically weak" boys to discover any significant changes which may occur. The Youth Fitness scores in fall will be compared with Youth Fitness scores in the spring using chi-square comparisons for the athletes and "physically weak" boys. The initial early fall scores on the Unterseher Development Series will be compared with scores on the series in the late spring. Athletes' vs "physically weak" boys' mean scores on the fall testing will be compared as well as athletes' and "physically weak" boys' mean scores for spring testing. All combinations will be compared and t-statistics computed.

- (b) **Population and Sample**--The population available for the study is composed of all male students in grades seven through nine in an urban junior high school of 1,024 students. The two groups to be identified for further study, however, are composed of (1) all male students unable to pass the minimum physical requirements as described in the President's Council on Youth Fitness, July, 1961, Bulletin entitled Youth Physical Fitness, and (2) all male students who have participated on a varsity athletic team in junior high. Populations will be referred to as (1) "physically weak" boys and (2) athletes, respectively.
- (c) **Data and Instrumentation**--Two types of data will be gathered, physical data and psychological data. Physical data will be gathered using the Youth Physical Fitness specifications and the Unterseher Development Series. Psychological data will be gathered using Harrison Gough's, California Psychological Inventory, (1957). Data will be collected using the school's facilities, i.e., Physical Education Equipment for physical data and testing rooms for gathering psychological data.
- (d) **Analysis** will be accomplished basically through the use of IBM 7094 computer facilities at Western Data Processing Center at Los Angeles, California. Any additional statistical work necessary will be done manually.

**(a) Time Schedule**

1. Initial collection of first testing for all groups - September, 1964 - October, 1964.
2. Analysis of first test data and any comparisons possible, i.e., athletes vs "physically weak" boys, item analysis, etc. - November, 1964 - December, 1964.
3. Construction and production of CPI short form questionnaire for spring testing - January, 1965 - March, 1965.
4. Second collection of data on both physical and psychological tests - late April, 1965 - early May, 1965.
5. Necessary statistical analysis of second testing data and first testing vs second testing comparisons. June, 1965 - early August, 1965.
6. Final compilation of data and writing of U.S. Office of Education report - late August, 1965 - September, 1965.

**PERSONNEL**

W. Eugene Trimble - A. B. Gordon College in Psychology, 1960, M.A. Colorado State College in Educational Psychology (Research and Statistics emphasis) 1963. Research Fellowship, Bureau of Research, Colorado State College, (1962-64), publications are, "Use of STEP Reading Scores to Predict Students Likely to Experience Academic Difficulty," J. of Research Services, Vol. 3, No. 1, 1963; "The Use of Complex Alternatives in Multiple Choice Items," Educational and Psychological Measurement, in press for March, 1965. "Factor Analysis of Intellectual and Non-intellectual Variables," J. of Educational Psychology, submitted for approval. Member of AERA, ASA, AAUP, FDK, APGA, ACPA, Who's Who in American Colleges and Universities.

Richard Unterseher - A. B. Colorado State College in Biological Sciences 1959, M.A. Colorado State College in Health, 1960. Science Teacher 1961-64, Greeley Colorado. Two years of Physical Fitness experience. Member of NEA, CEA, FDK, NSTA, CAHPER. 4 Physical Fitness Award from Greeley Junior Chamber of Commerce. Fourth Place in Mr. Colorado Contest, 1963.

**FACILITIES**

Statistical--Colorado State College maintains a Bureau of Research Services which is equipped with IBM card key punch, card sorter, and verifier. Colorado State is a member institution of Western Data Processing Center in Los Angeles, California, and has access to the IBM computer facilities and services there. Monroe and Marchant rotary calculators are also available. Additional Printing calculators, IBM electric typewriters and the necessary mimeograph facilities are also available.

Physical--Physical Education facilities are available through the co-operation of Colorado School District No. 6 at Heath Junior High School. (6,656 sq. ft. or space are allotted for the corrective physical education program) Body building equipment for the study is composed of: 1 Martin O. H. Pulley (complete) - 1 Martin O. H. Dorsi Machine (complete with 40 plates) - 3 Martin Incline Benches - 2 Martin Prone Bench - 6 Martin Flat Benches - 1 Set Squat Racks - 1 Leg Extension and Curl Machine Martin - 1 Martin Island Barbell Rack - 1 Martin Leg Press Machine - 1 Martin Combination Dip and High Bar - 1 Roman Chair - 1 Double Calf Machine - 40 Barbells - 50 Dumbells - 6000 lbs. Assorted Weights - 1 Jackson Curling Bar w/2 Collars - 1 20 Martin Dumbell Rack - 1 Martin Wall Type O. H. Pully - 5 Leg Press Plates (weight unknown) - 1 Fairbanks-Morse Health Scale - 1 Set Up Rack - 2 Set Up Boards (padded) - 1 Olympic Weight Lifting Bar with 350 lbs. - 1 Isometric Rack - 1 Lever Towing Bar - 2 Iron Shoes.

OTHER INFORMATION

School District six will underwrite one-half of Mr. Unterscher's salary and hire a replacement science teacher, as well as, share over-head costs resulting during the project.

UNTERSEHER DEVELOPMENT SERIES

PROGRESS CHART

Measurement to be taken	Before Exercise	End of 1 Mo.	End of 2 Mo.	End of 3 Mo.	End of 4 Mo.	End of 5 Mo.	End of 6 Mo.
Height							
Weight							
Right Arm							
Left Arm							
Neck							
Chest							
Waist							
Rt. Thigh							
Left Thigh							
Rt. Calf							
Left Calf							

STRENGTH TEST

1. B.P.							
2. S.P.							
3. C.B.N.							
4. R.C.							
5. Dips							
6. Sit Ups							
7. Push Ups							
8. Jump							

CONDITIONING PROGRAM

Exercise	Area of Anatomy	Equipment Used	S		S		S		S	
			Wt.	R	Wt.	R	Wt.	R	Wt.	R
Standing Press	Shoulder	Barbell								
Bench Press	Chest	Barbell								
Pull Overs	Chest	Barbell								
Rowing	Back	Lat Machine								
Cleans	Back	Barbell								
Curls	Biceps	Dumbbells								
Triceps Press	Triceps	Barbell								
Sit Ups	Stomach	Incline Boards								
Thigh Press	Thigh	Leg Press Machine								
Toe Raises	Calves	Calf Machine								

S = Sets

R = Repetitions

Wt. = Weight



**APPENDIX B**

TABLE 1

ROTATED FACTOR LOADING FOR THE  
CALIFORNIA PSYCHOLOGICAL INVENTORY  
UNDERDEVELOPED BOYS PRE-TEST

CLASS	CPI SCALES	I	II	III	IV	h <sup>2</sup>
<b>I.</b>	<b>Measures of Poise, Ascendance and Self-Assurance</b>					
	1. Dominance	62	51	26	07	72
	2. Capacity for Status	69	41	19	12	69
	3. Sociability	45	73	14	16	77
	4. Social Presence	07	81	35	02	78
	5. Self-Acceptance	04	85	02	22	77
	6. Sense of Well-Being	53	27	35	50	73
<b>II.</b>	<b>Measures of Socialization, Maturity and Responsibility</b>					
	7. Responsibility	47	25	13	65	72
	8. Socialization	35	19	04	79	79
	9. Self-Control	74	16	13	52	86
	10. Tolerance	65	29	45	31	81
	11. Good Impression	82	03	15	31	80
	12. Communality	01	27	14	82	76
<b>III.</b>	<b>Measures of Achievement, Potential and Intellectual Efficiency</b>					
	13. Achievement via Conformance	67	26	06	49	77
	14. Achievement via Independence	51	25	60	25	75
	15. Intellectual Efficiency	54	46	30	47	81
<b>IV.</b>	<b>Measures of Intellectual and Interest Modes</b>					
	16. Psychological Mindedness	47	44	16	20	48
	17. Flexibility	06	02	85	04	72
	18. Femininity	12	09	01	62	41

TABLE 2

ROTATED FACTOR LOADING FOR THE  
CALIFORNIA PSYCHOLOGICAL INVENTORY  
ATHLETIC BOYS PRE-TEST

CLASS	CPI SCALES	I	II	III	IV	h <sup>2</sup>
<b>I.</b>	<b>Measures of Poise, Ascendance and Self-Assurance</b>					
	1. Dominance	08	79	18	23	72
	2. Capacity for Status	26	79	09	16	73
	3. Sociability	09	89	07	19	85
	4. Social Presence	13	76	06	13	62
	5. Self-Acceptance	01	85	14	08	74
	6. Sense of Well-Being	75	27	23	16	72
<b>II.</b>	<b>Measures of Socialization, Maturity and Responsibility</b>					
	7. Responsibility	51	17	64	12	71
	8. Socialization	45	07	68	26	74
	9. Self-Control	89	18	04	13	86
	10. Tolerance	78	36	14	19	80
	11. Good Impression	75	13	27	18	70
	12. Communality	03	18	80	09	68
<b>III.</b>	<b>Measures of Achievement, Potential and Intellectual Efficiency</b>					
	13. Achievement via Conformance	55	36	47	29	74
	14. Achievement via Independence	75	09	08	37	71
	15. Intellectual Efficiency	58	60	17	06	80
<b>IV.</b>	<b>Measures of Intellectual and Interest Modes</b>					
	16. Psychological Mindedness	41	58	11	20	56
	17. Flexibility	09	04	03	87	76
	18. Femininity	17	06	56	34	46

TABLE 3

ROTATED FACTOR LOADING FOR THE  
CALIFORNIA PSYCHOLOGICAL INVENTORY  
UNDERDEVELOPED BOYS POST-TEST

CLASS	CPI SCALES	I	II	III	IV	h <sup>2</sup>
I.	<b>Measures of Poise, Ascendance and Self-Assurance</b>					
	1. Dominance	34	80	06	02	76
	2. Capacity for Status	32	67	43	12	75
	3. Sociability	23	87	05	05	82
	4. Social Presence	04	64	42	33	70
	5. Self-Acceptance	05	87	01	17	76
	6. Sense of Self-Being	84	18	14	25	80
II.	<b>Measures of Socialization, Maturity and Responsibility</b>					
	7. Responsibility	77	21	07	04	64
	8. Socialization	82	06	24	25	80
	9. Self-Control	92	01	00	16	87
	10. Tolerance	79	34	36	02	88
	11. Good Impression	75	19	04	38	75
	12. Communality	41	04	23	74	77
III.	<b>Measures of Achievement, Potential and Intellectual Efficiency</b>					
	13. Achievement via Conformance	87	30	04	02	85
	14. Achievement via Independence	58	24	57	06	73
	15. Intellectual Efficiency	75	47	26	08	85
IV.	<b>Measures of Intellectual and Interest Modes</b>					
	16. Psychological Mindedness	49	34	38	00	50
	17. Flexibility	04	05	86	02	74
	18. Femininity	34	08	34	58	58



TABLE 4

ROTATED FACTOR LOADING FOR THE  
CALIFORNIA PSYCHOLOGICAL INVENTORY  
ATHLETIC BOYS POST-TEST

CLASS	CPI SCALES	I	II	III	h
<b>I.</b>	<b>Measures of Poise, Ascendance and Self-Assurance</b>				
	1. Dominance	03	68	06	46
	2. Capacity for Status	31	79	07	73
	3. Sociability	01	90	04	81
	4. Social Presence	08	85	36	86
	5. Self-Acceptance	17	90	14	85
	6. Sense of Well-Being	91	01	19	86
<b>II.</b>	<b>Measures of Socialization, Maturity and Responsibility</b>				
	7. Responsibility	72	27	47	82
	8. Socialization	58	27	60	76
	9. Self-Control	87	26	30	91
	10. Tolerance	91	27	03	90
	11. Good Impression	76	13	00	60
	12. Communality	49	20	68	74
<b>III.</b>	<b>Measures of Achievement, Potential and Intellectual Efficiency</b>				
	13. Achievement via Conformance	91	13	28	91
	14. Achievement via Independence	76	40	34	84
	15. Intellectual Efficiency	54	54	19	62
<b>IV.</b>	<b>Measures of Intellectual and Interest Modes</b>				
	16. Psychological Mindedness	53	53	41	73
	17. Femininity	17	06	77	61

**FACTOR MATRIX (CPI)  
ATHLETIC BOYS PRE-TEST**

TABLE 5

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1	54	71	44	64	15	26	06	-12	23	05	22	37	-04	42	39	-10	-02
2		66	68	55	39	20	-07	10	53	38	13	36	27	55	54	14	03
3			59	78	26	30	13	-04	33	25	10	46	04	69	52	-02	-04
4				55	37	08	-02	-	40	14	14	33	26	53	38	05	-06
5					29	17	07	<del>-16</del>	33	08	16	31	15	61	47	09	14
6						47	46	58	76	42	26	48	64	68	42	15	-01
7							55	43	58	26	48	64	40	49	36	02	16
8								44	35	23	38	60	26	36	09	-08	24
9									56	72	-05	49	55	38	29	-03	-04
10										54	19	53	66	69	48	04	-06
11											-25	33	35	42	33	-03	-11
12												32	08	24	28	03	26
13													42	62	42	-11	05
14														48	43	29	-04
15															62	04	-13
16																21	-02
17																	22

**FACTOR MATRIX (CPI)  
UNDERDEVELOPED BOYS PRE-TEST**

**TABLE 6**

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1	58																
2	62	54															
3	29	39	55														
4	45	34	60	63													
5	38	42	45	41	37												
6	51	43	46	18	34	60											
7	35	26	38	20	35	68	67										
8	32	26	28	02	06	71	59	66									
9	46	58	48	42	32	75	63	54	64								
10	48	46	45	07	13	54	48	52	78	50							
11	16	12	32	21	32	52	61	67	39	39	22						
12	53	49	57	26	37	66	68	66	72	66	42						
13	29	52	34	42	32	60	57	42	50	77	36	35	60				
14	50	51	61	49	46	75	69	68	59	78	50	52	74	68			
15	50	42	50	40	34	45	46	38	39	53	38	34	57	46	55		
16	-14	13	-08	22	00	22	13	04	08	25	-10	13	04	36	20	13	
17	15	06	11	-02	09	21	44	39	34	24	33	32	33	21	25	15	11

**FACTOR MATRIX (CPI)  
UNDERDEVELOPED BOYS POST-TEST**

TABLE 7

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1	54																
2	71	60															
3	43	55	54														
4	68	56	67	50													
5	42	39	36	31	22												
6	46	40	36	13	24	62											
7	34	19	23	08	17	71	63										
8	27	30	24	01	04	75	62	68									
9	52	62	44	43	36	82	67	59	71								
10	37	39	40	06	14	57	52	51	83	62							
11	18	06	08	17	13	43	32	50	24	26	05						
12	55	44	46	20	29	78	71	80	73	68	32						
13	40	56	28	38	26	55	52	35	48	78	40	11	53				
14	57	69	56	45	45	77	68	62	65	80	57	30	80	66			
15	42	51	40	37	24	47	48	26	41	60	43	19	48	55	56		
16	-04	30	-09	28	04	07	06	-18	-03	21	-10	-14	-07	36	18	15	
17	11	03	-01	-28	-11	03	18	24	32	12	30	-02	26	08	09	-02	-21



FACTOR MATRIX (CPI)  
ATHLETIC BOYS POST-TEST

TABLE 8

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	56	61	49	54	01	15	-02	-20	15	-01	-02	04	08	19	36	-10
2		61	61	59	26	51	01	10	52	15	29	31	47	56	68	20
3			74	85	02	24	-26	-14	24	-02	23	21	39	44	37	-09
4				63	-02	14	-42	-30	29	-01	05	07	26	56	60	-34
5					-05	15	-26	-33	09	-28	15	04	38	37	31	-04
6						70	71	81	80	59	52	89	79	51	45	25
7							70	66	77	47	77	77	77	56	31	33
8								69	46	37	60	63	46	21	-08	43
9									70	77	53	85	64	34	19	44
10										55	44	87	79	60	59	02
11											36	62	46	41	23	20
12												68	69	48	07	41
13													89	54	39	26
14														67	46	30
15															42	36
16																-11

**TABLE 9**  
**MEANS AND STANDARD DEVIATIONS ON THE CALIFORNIA**  
**PSYCHOLOGICAL INVENTORY FOR UNDERDEVELOPED BOYS**

<b>CPI SCALES</b>	<b>UNDERDEVELOPED BEFORE</b>		<b>UNDERDEVELOPED AFTER</b>	
	<b><math>\bar{X}</math></b>	<b>SD</b>	<b><math>\bar{X}</math></b>	<b>SD</b>
<b>Do</b>	22.80	5.66	23.71	5.86
<b>Cs</b>	12.88	3.68	14.02	4.19*
<b>Sy</b>	20.22	5.12	20.91	5.23
<b>Sp</b>	29.41	5.79	31.66	5.40*
<b>Sa</b>	17.96	3.90	18.41	3.81
<b>Wb</b>	28.53	7.29	29.85	6.91**
<b>Re</b>	26.10	6.29	27.05	6.11
<b>So</b>	33.57	6.68	35.91	6.48*
<b>Sc</b>	21.55	7.79	23.33	8.07**
<b>To</b>	14.58	5.29	16.44	6.05*
<b>Gi</b>	12.07	5.17	13.01	6.16
<b>Cm</b>	24.39	3.54	25.31	2.99*
<b>Ac</b>	19.61	5.44	22.05	5.88*
<b>Ai</b>	12.42	4.43	14.16	4.48*
<b>Ie</b>	29.11	5.99	32.67	6.43*
<b>Py</b>	9.02	2.61	9.91	2.53
<b>Fx</b>	7.80	3.48	7.96	3.66
<b>Fe</b>	16.34	3.53	15.84	3.40

\* Significant at .01 level

\*\* Significant at .05 level

TABLE 10  
 MEANS AND STANDARD DEVIATIONS ON THE CALIFORNIA  
 PSYCHOLOGICAL INVENTORY FOR ATHLETIC BOYS

CPI SCALES	ATHLETIC BEFORE		ATHLETIC AFTER	
	$\bar{X}$	SD	$\bar{X}$	SD
Do	23.43	5.53	25.35	6.07
Cs	13.08	3.88	15.94	3.45*
Sy	22.16	4.96	22.59	6.15
Sp	31.96	5.54	35.35	4.48*
Sa	19.73	3.94	21.47	3.55**
Wb	29.00	6.94	30.53	7.12
Re	25.69	5.53	25.18	5.79
So	33.45	4.83	35.41	7.18
Sc	19.35	6.76	20.12	8.56
To	14.06	4.23	16.24	6.50
Gi	10.71	4.86	11.70	5.79
Cm	25.78	2.15	25.76	2.51
Ac	20.18	4.53	21.94	5.98
Ai	12.26	3.63	13.01	3.84
Ie	29.33	5.08	32.59	7.00**
Py	9.51	2.47	10.06	2.66
Fx	7.57	3.12	7.65	4.15
Fe	15.94	3.05	14.53	2.00

\* Significant at .01 level

\*\* Significant at .05 level

TABLE 11

MEANS AND STANDARD DEVIATIONS ON  
THE CALIFORNIA PSYCHOLOGICAL INVENTORY  
FOR UNDERDEVELOPED AND ATHLETIC BOYS

CPI SCALES	UNDERDEVELOPED BEFORE		ATHLETIC BEFORE	
	$\bar{X}$	SD	$\bar{X}$	SD
Do	22.80	5.66	23.43	5.53
Cs	12.88	3.68	13.08	3.88
Sy	20.22	5.12	22.16	4.96*
Sp	29.41	5.79	31.96	5.54
Sa	17.96	3.90	19.73	3.94*
Wb	28.53	7.29	29.00	6.94
Re	26.10	6.29	25.69	5.53
So	33.57	6.68	33.45	4.83
Sc	21.55	7.79	19.35	6.76**
To	14.58	5.29	14.06	4.23
Gi	12.07	5.67	10.71	4.86
Cm	24.39	3.54	25.78	2.15*
Ac	19.61	5.44	12.26	3.63
Ai	12.42	4.43	29.33	5.08
Ie	29.11	5.99	9.51	2.47
Py	9.02	2.61	7.57	3.12
Fx	7.80	3.48	15.94	3.05
Fe	16.34	3.53		

\* Significant at .01 level

\*\* Significant at .05 level

TABLE 12

MEANS AND STANDARD DEVIATIONS ON  
THE CALIFORNIA PSYCHOLOGICAL INVENTORY  
FOR UNDERDEVELOPED AND ATHLETIC BOYS

CPI SCALES	UNDERDEVELOPED AFTER		ATHLETIC AFTER	
	$\bar{X}$	SD	$\bar{X}$	SD
Do	23.71	5.86	25.35	6.07
Cs	14.02	4.19	15.94	3.45*
Sy	20.91	5.23	22.59	6.15
Sp	31.66	5.40	35.35	4.48*
Sa	18.41	3.81	21.47	3.55*
Wb	29.85	6.91	30.53	7.12
Re	27.05	6.11	25.18	5.79
So	35.91	6.48	35.41	7.18
Sc	23.23	8.07	20.12	8.56
To	16.44	6.05	16.24	6.50
Gi	13.01	6.16	11.70	5.79
Cm	25.31	2.99	25.76	2.51
Ac	22.05	5.88	21.94	5.98
AI	14.16	4.48		
Ie	32.67	6.43	32.59	7.00
Py	9.91	2.53	10.06	2.66
Fx	7.96	3.66	7.65	4.15
Fe	15.84	3.40	14.53	2.00*

\* Significant at .01 level



TABLE 13

MEANS AND STANDARD DEVIATIONS ON  
THE CALIFORNIA PSYCHOLOGICAL INVENTORY  
FOR UNDERDEVELOPED COUNSELED GROUP

CPI SCALES	PRE-TEST		POST-TEST	
	$\bar{X}$	SD	$\bar{X}$	SD
Do	27.23	8.45	24.61	7.28
Cs	14.08	4.64	14.38	5.03
Sy	21.38	5.52	21.31	6.08
Sp	31.84	4.78	33.23	3.49
Sa	19.31	3.03	19.46	3.67
Wb	26.23	8.14	30.54	7.14*
Re	25.99	6.84	27.07	6.51
So	31.69	6.63	33.99	8.43
Sc	20.61	8.79	21.54	9.02
To	16.54	5.73	16.38	6.18
Gi	12.23	6.92	13.54	8.18
Ca	22.69	3.26	24.92	2.76*
Ac	19.69	6.96	20.61	7.37
Ai	13.99	4.12	13.54	3.63
Ie	29.15	5.24	31.84	6.04*
Py	7.77	3.39	10.23	2.45*
Fx	11.31	3.45	8.23	2.13*
Fe	15.61	3.36	15.23	3.62

\* Significant at .01 level

**TABLE 14**  
**PHYSICAL MEASURES - SEVENTH GRADE**

	Pre-Test		Post-Test	
	<u><math>\bar{X}</math></u>	<u>SD</u>	<u><math>\bar{X}</math></u>	<u>SD</u>
<b>Bench Press</b>	44.0	10.67	68.7	17.39*
<b>Standing Press</b>	40.1	10.44	51.6	13.65*
<b>Chin Behind Neck</b>	0.6	1.51	1.47	3.12*
<b>Incline Curls</b>	5.0	2.44	11.8	2.58*
<b>Dips</b>	1.87	3.01	4.0	4.13*
<b>Sit-ups</b>	38.2	13.01	56.7	9.29*
<b>Push-ups</b>	16.6	13.02	21.06	18.17
<b>Jumps</b>	9.9	2.53	11.0	2.36*
<b>Squats</b>	17.26	7.55	37.26	18.40*
<b>Pull-ups</b>	1.2	2.45	1.7	2.83

\* Significant at .01 level

**TABLE 15**  
**PHYSICAL MEASURES - EIGHTH GRADE**

	Pre-Test		Post-Test	
	<u><math>\bar{X}</math></u>	<u>SD</u>	<u><math>\bar{X}</math></u>	<u>SD</u>
<b>Bench Press</b>	75.7	18.09	82.7	16.46
<b>Stand Press</b>	57.7	14.66	66.0	13.42*
<b>Chin Behind Neck</b>	1.6	2.83	4.0	3.51*
<b>Incline Curls</b>	13.1	4.44	13.9	3.46
<b>Dips</b>	5.9	5.69	6.9	5.57
<b>Sit-ups</b>	52.8	12.24	66.8	11.06*
<b>Push-ups</b>	23.4	19.44	35.1	13.42*
<b>Jumps</b>	13.9	2.07	13.7	3.88
<b>Squats</b>	35.8	17.18	42.4	22.23
<b>Pull-ups</b>	3.5	5.20	5.8	4.64

\* Significant at .01 level

**TABLE 16**  
**PHYSICAL MEASURES - NINTH GRADE**

	Pre-Test		Post-Test	
	<u><math>\bar{X}</math></u>	<u>SD</u>	<u><math>\bar{X}</math></u>	<u>SD</u>
<b>Bench Press</b>	78.0	23.79	104.3	21.83*
<b>Standing Press</b>	58.9	17.48	78.6	16.46*
<b>Chin Behind Neck</b>	1.8	2.51	2.9	2.69*
<b>Incline Curls</b>	14.9	1.93	20.5	6.67*
<b>Dips</b>	4.3	4.06	5.0	5.69
<b>Sit-ups</b>	46.5	10.01	58.5	8.72*
<b>Push-ups</b>	24.3	17.58	30.9	13.01
<b>Jumps</b>	13.8	3.55	15.3	4.72
<b>Squats</b>	26.9	13.19	37.6	18.62**
<b>Pull-ups</b>	2.8	3.12	4.2	3.53

\* Significant at .01 level

\*\* Significant at .05 level

**APPENDIX C**



FIGURE 1. CPI MEAN PROFILES  
 UNDERDEVELOPED BOYS - PRETEST

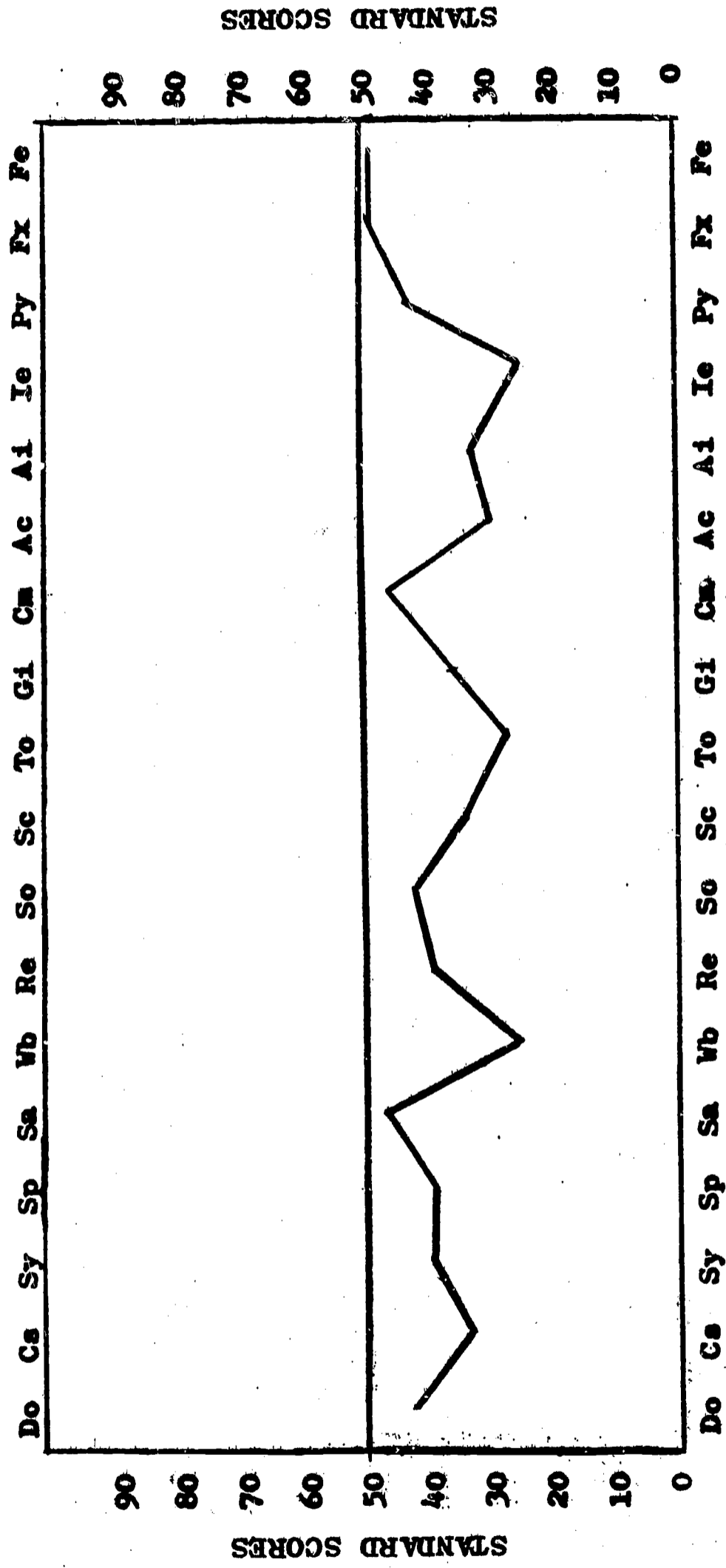


FIGURE 2. CPI MEAN PROFILES  
 UNDERDEVELOPED BOYS - POSTTEST

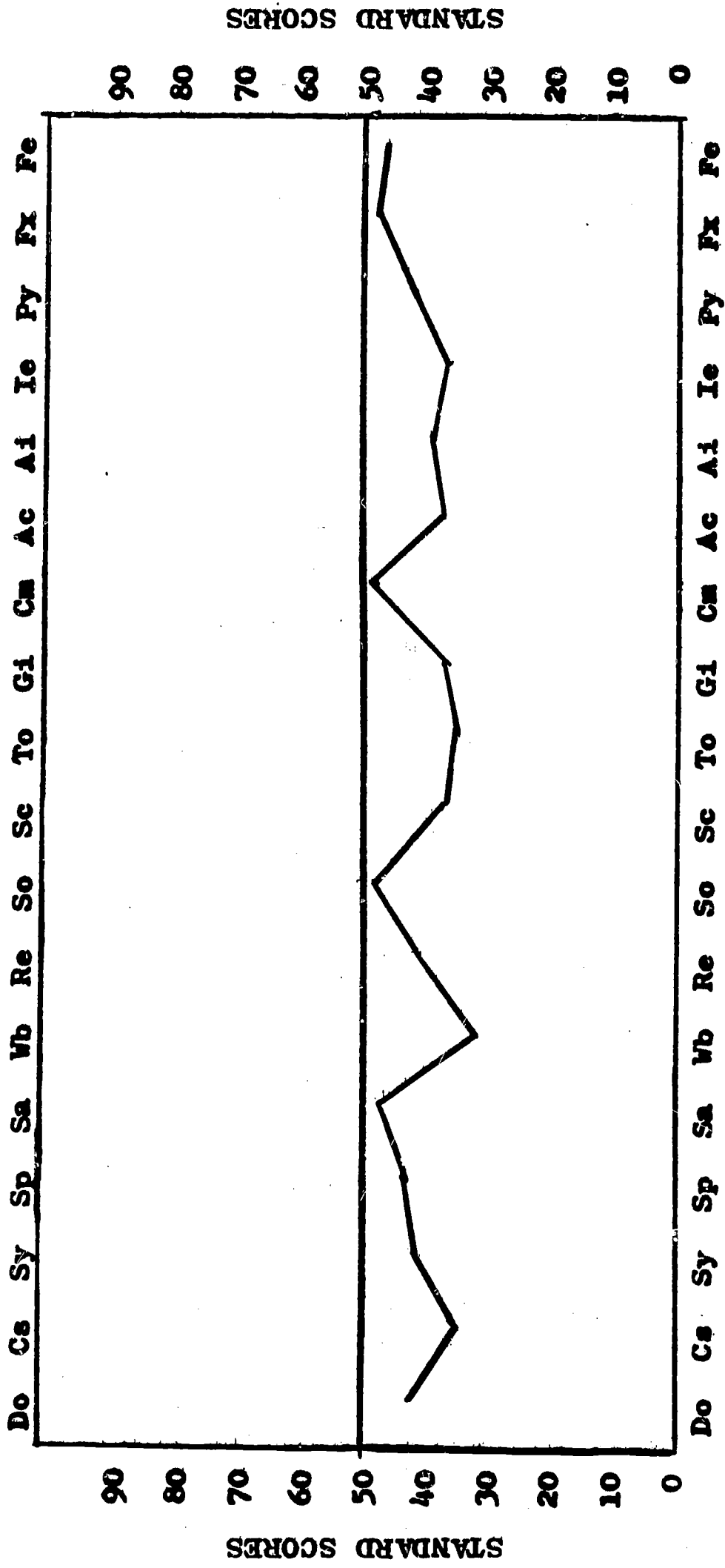


FIGURE 3. CPI MEAN PROFILES  
 UNDERDEVELOPED BOYS - PRETEST (COUNSELED)

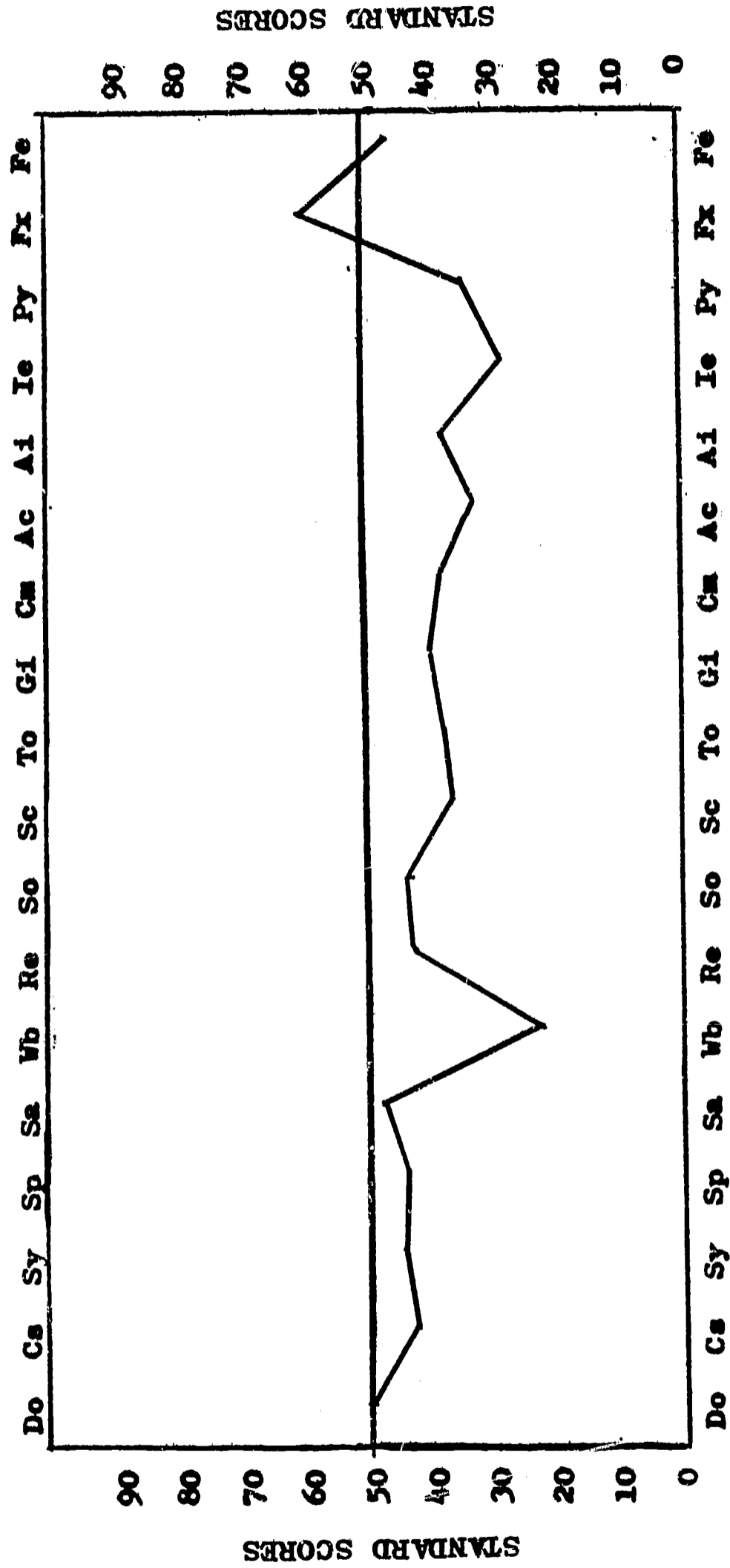


FIGURE 4. CPI MEAN PROFILES  
 UNDERDEVELOPED BOYS - POSTTEST (COUNSELED)

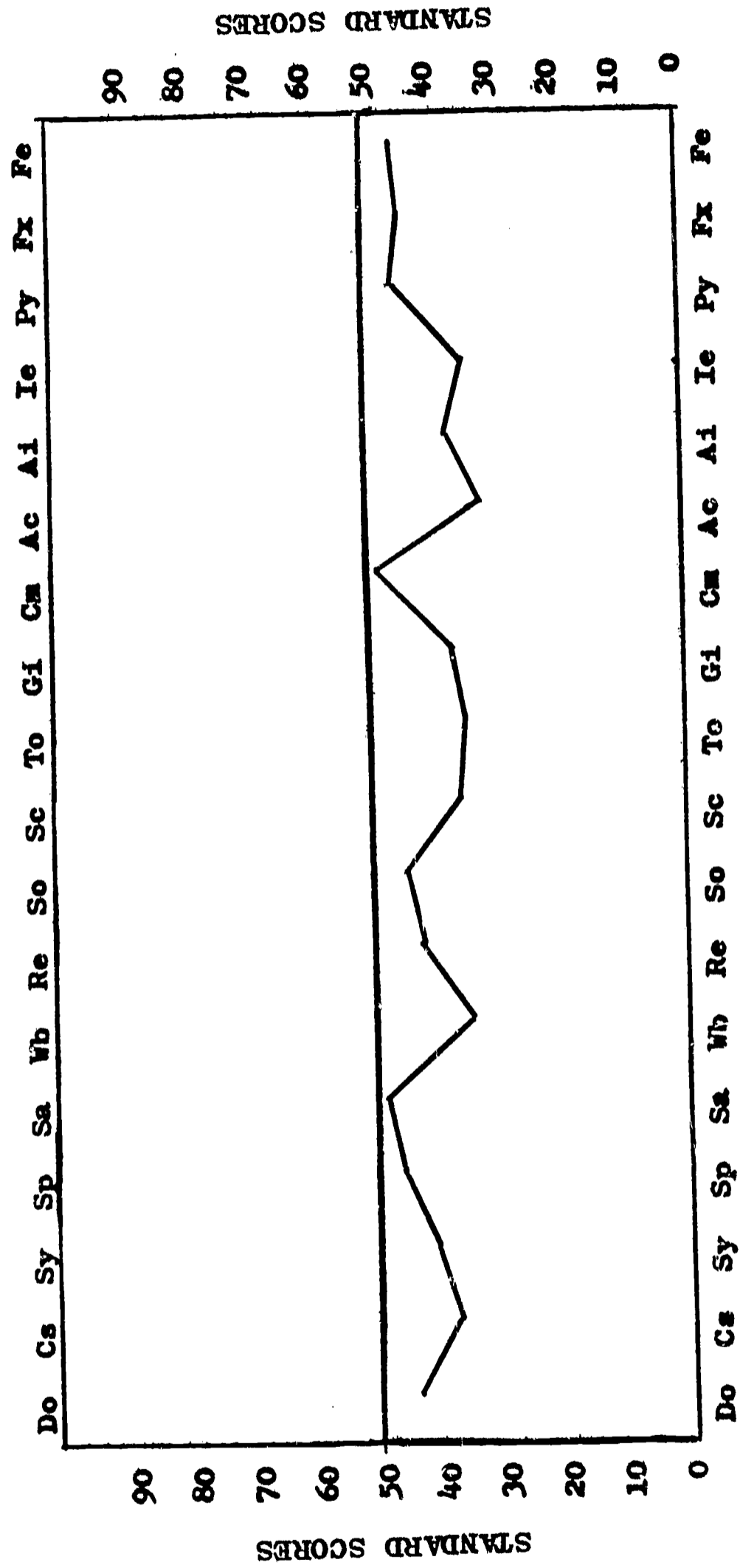


FIGURE 5. CPI MEAN PROFILES  
ATHLETIC BOYS - PRETEST

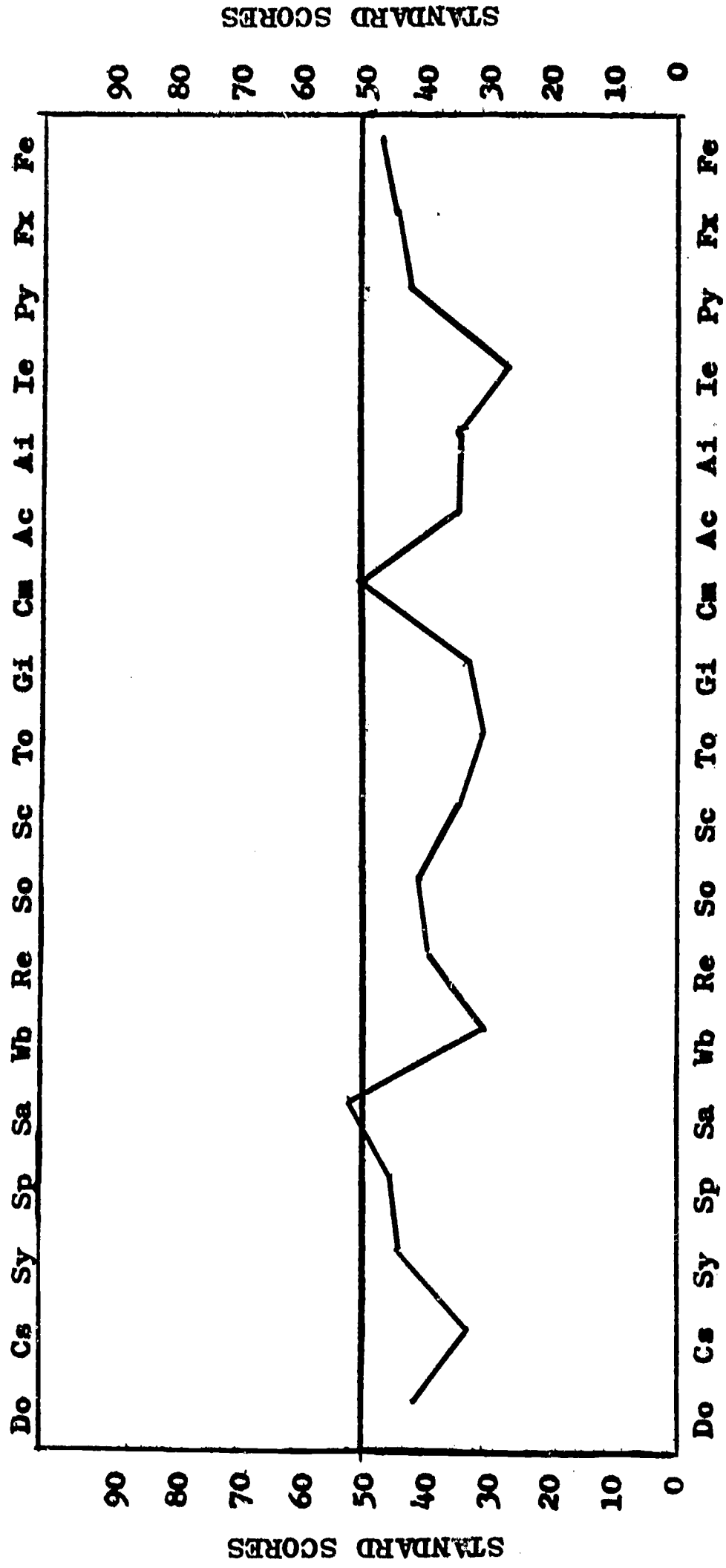
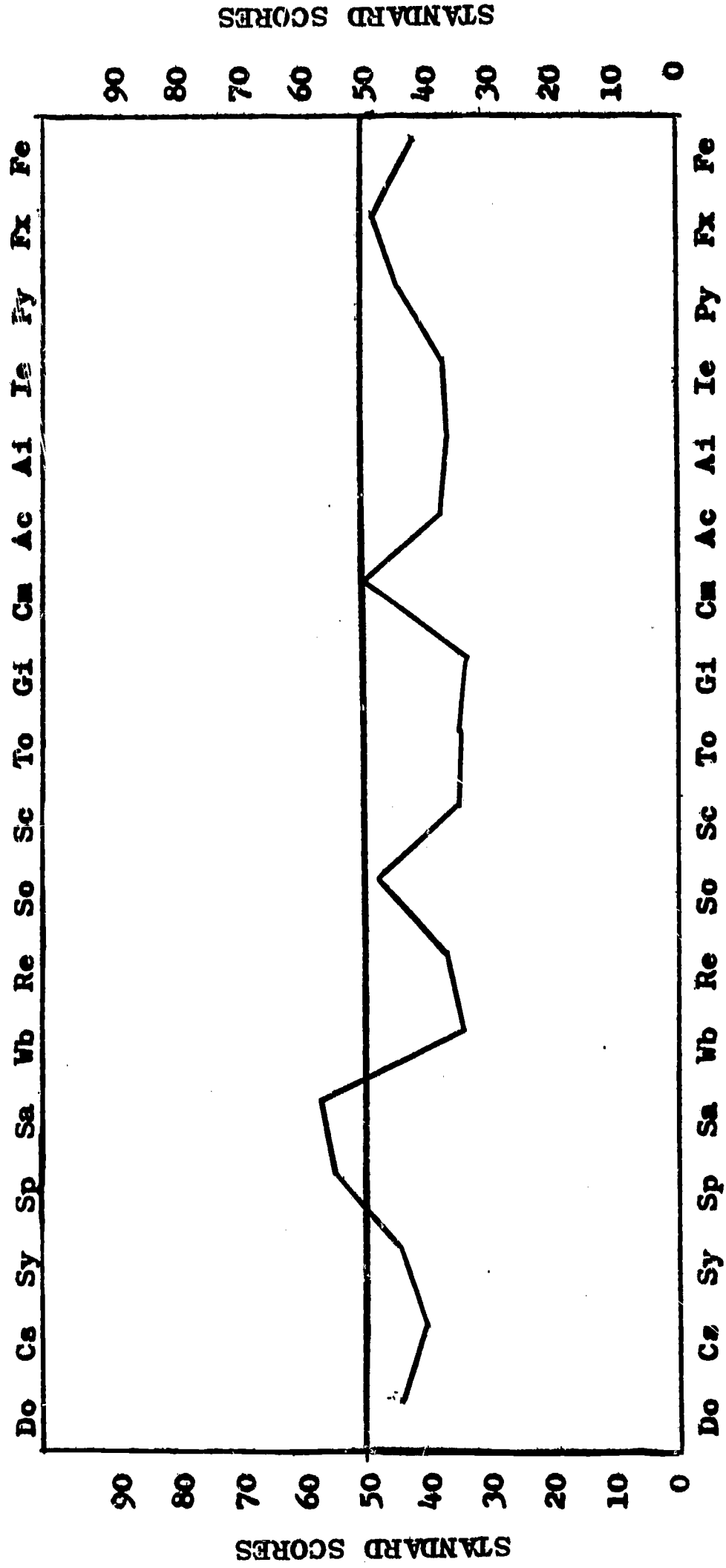




FIGURE 6. CPI MEAN PROFILES  
ATHLETIC BOYS - POSTTEST



**APPENDIX D**

**BRIEF DESCRIPTIONS OF SCALES AND SCALE GROUPINGS  
ON THE CALIFORNIA PSYCHOLOGICAL INVENTORY**

**Class I. Measures of poise, ascendancy, and self-assurance.**

- \* 1. **Do (Dominance) (46 items).** **Purpose:** To assess factors of leadership ability, dominance, persistence, and social initiative. **Trait equivalent:** DOMINANCE - indicating dominance, leadership, initiative, and the tendency to behave in a forthright and resolute manner.
  
2. **Cs (Capacity for Status) (32 items).** **Purpose:** To serve as an index of an individual's capacity for status (rather than of his actual or achieved status). The scale attempts to measure the personological qualities and attributes which underlie and lead to status. **Trait equivalent:** CAPACITY FOR STATUS - reflecting the personal qualities which underlie and lead to status and social attainment; being ambitious, forceful, and interested in success; the kind of person who will get ahead in the world.
  
3. **Sy (Sociability) (36 items).** **Purpose:** To identify persons of outgoing, sociable, participating temperament. **Trait equivalent:** SOCIABILITY - indicating a liking for and interest in social life and activity, being outgoing and sociable; the kind of person who enjoys group activities and likes to be with and work with other people.
  
4. **Sp (Social Presence) (56 items).** **Purpose:** To assess factors such as poise, spontaneity and self-confidence in personal and social interaction. **Trait equivalent:** SPONTANEITY - indicating factors such as poise, spontaneity, self-confidence, and vivaciousness in personal and social interaction.
  
5. **Sa (Self-Acceptance) (34 items).** **Purpose:** To assess factors such as sense of personal worth, self-acceptance, and capacity for independent thinking and action. **Trait equivalent:** SELF-ACCEPTANCE - reflecting one's sense of personal worth and satisfaction with one's self; relative freedom from self-doubt and critical attitudes

about one's self.

6. Wb (Sense of Well-Being) (44 items). Purpose: To identify persons who minimize their worries and complaints, and who are relatively free from anxiety and disillusionment. Trait equivalent: SENSE OF WELL-BEING - indicating a sense of physical and emotional well-being and comfort; the feeling of being able to enjoy life.

**Class II. Measures of socialization, maturity and social responsibility.**

7. Re (Responsibility) (42 items). Purpose: To identify persons of conscientious responsible and dependable disposition and temperament. Trait equivalent: RESPONSIBILITY - indicating seriousness of thought and manner, conscientiousness, dependability, and uprightness; being the kind of persons that others tend to trust and to rely upon.
8. So (Socialization) (54 items). Purpose: To indicate the degree of social maturity, probity, and rectitude which the individual has attained. Trait equivalent: PROPRIETY - indicating a strong sense of probity and propriety; acceptance of rules, proper authority, and custom; a person who seldom if ever gets into trouble.
9. Sc (Self-Control) (50 items). Purpose: To assess the degree and adequacy of self-regulation and self-control, and the freedom from impulsivity and self-centeredness. Trait equivalent: SELF-CONTROL - indicating the degree and adequacy of self-regulation and self-control; not impulsive or given to acting on the spur of the moment.
10. To (Tolerance) (32 items). Purpose: To identify persons with permissive, accepting, and nonjudgmental social beliefs and attitudes. Trait equivalent: TOLERANCE - indicating attitudes of permissiveness, tolerance, and acceptance of others; being open-minded and unprejudiced about beliefs and values quite different from one's own.
11. Gi (Good Impression) (40 items). Purpose: To identify persons capable of creating a favorable

impression and who are concerned about how others react to them. Trait equivalent: GOOD IMPRESSION - indicating an interest in making a good impression and being concerned about how others will react to oneself.

12. Cm (Communality) (28 items). Purpose: To indicate the degree to which an individual's reactions and responses correspond to the modal ("common") pattern established for the inventory. Trait equivalent: SIMILARITY TO OTHERS - indicating a fitting in with the crowd, having the same reactions and feelings as everyone else, seeing things the way most people see them.

**Class III. Measures of achievement potential and intellectual efficiency.**

- \*13. Ac (Achievement via Conformance) (32 items). Purpose: To identify those factors of interest and motivation which facilitate achievement in any setting where conformance is a positive behavior. Trait equivalent: ADAPTIVE ACHIEVEMENT - indicating someone with a strong need for achievement, and who is at his best in situations having definite rules and structure.
14. Ai (Achievement via Independence) (32 items). Purpose: To identify those factors of interest and motivation which facilitate achievement in any setting where autonomy and independence are positive behaviors. Trait equivalent: INDEPENDENT ACHIEVEMENT - indicating the kind of person who has a strong need for achievement and who is at his best in new or untried situations where he must work on his own and without external guidance.
15. Ie (Intellectual Efficiency) (52 items). Purpose: To indicate the degree of personal and intellectual efficiency which the individual has attained. Trait equivalent: INTELLECTUAL EFFICIENCY - indicating the efficiency with which one uses intellectual and personal resources; the ability to start working quickly, without need to delay or procrastinate, and to keep working on intellectual tasks over long periods of time.



**Class IV. Measures of personal orientation and attitudes toward life.**

- \*16. **Py (Psychological-Mindedness) (22 items).** Purpose: To measure the degree to which the individual is interested in, and responsive to, the inner needs, motives, feelings, and experiences of others. Trait equivalent: SENSITIVITY TO OTHERS - indicating the degree to which one is interested in and responsive to the inner needs, motives, and feelings of others, being intrceptive, sensitive to others; having a knack for understanding how others feel and react inwardly.
17. **Fx (Flexibility) (22 items).** Purpose: To indicate the degree of flexibility and adaptability of a person's thinking and social behavior. Trait equivalent: FLEXIBILITY - indicating the degree of flexibility and adaptability of a person's thinking and social behavior; the liking for change and innovation and even a preference for things new and untried.
18. **Fe (Femininity) (38 items).** Purpose: To assess the masculinity or femininity of temperament (high scores more feminine, low scores more masculine). Trait equivalent: NURTURANCE - indicating the tendency to help and support others through patience and loving kindness; being in general gentle and sympathetic. (Low scorers tend to be more decisive, robust, and action-oriented.)

**SIGNIFICANT ITEMS (.01) ON THE ITEM ANALYSIS  
OF THE CPI STATEMENTS FOR THE ATHLETIC BOYS**

- Item No. 52 - I usually take an active part in the entertainment at parties.**
- Item No. 92 - People often expect too much of me.**
- Item No. 112 - I set a high standard for myself and I feel others should do the same.**
- Item No. 300 - Police cars should be especially marked so that you can always see them coming.**
- Item No. 302 - I have often gone against my parents wishes.**
- Item No. 408 - I always see to it that my work is carefully planned and organized.**
- Item No. 412 - I like to give orders and get things moving.**

**SIGNIFICANT ITEMS (.01) ON THE ITEM ANALYSIS  
OF THE CPI STATEMENTS FOR THE NON-ATHLETIC BOYS**

- Item No. 24 - I always like to keep my things neat and tidy and in good order.
- Item No. 25 - Clever sarcastic people make me feel very uncomfortable.
- Item No. 38 - It is hard for me to start a conversation with strangers.
- Item No. 40 - I get very nervous if I think someone is watching me.
- Item No. 70 - Sometimes I cross the street just to avoid meeting someone.
- Item No. 78 - I like to boast about my achievements every now and then.
- Item No. 101 - I must admit that I often do as little work as I can get by with.
- Item No. 111 - When in a group of people I have trouble thinking about the right things to talk about.
- Item No. 127 - I always try to consider the other fellow's feelings before I do something.
- Item No. 134 - It makes me uncomfortable to put on a stunt at a party even when others are doing the same sort of thing.
- Item No. 137 - I wish I were not bothered by thoughts of sex.
- Item No. 159 - I feel nervous if I have to meet a lot of people.
- Item No. 163 - I like parties and socials.
- Item No. 165 - I do not mind taking orders and being told what to do.
- Item No. 167 - I should like to belong to several clubs or lodges.

- Item No. 219 - Most people inwardly dislike putting themselves out to help other people.
- Item No. 227 - It is hard for me to find anything to talk about when I meet a new person.
- Item No. 232 - Sometimes I feel that I am about to go to pieces.
- Item No. 237 - The future is too uncertain for a person to make serious plans.
- Item No. 243 - I am often bothered about useless thoughts that keep running through my mind.
- Item No. 250 - I must admit I find it very hard to work under strict rules and regulations.
- Item No. 252 - I sometimes feel that I am a burden to others.
- Item No. 258 - In school I found it very hard to talk before the class.
- Item No. 314 - I must admit that I try to see what others think before I take a stand.
- Item No. 387 - I don't like things to be uncertain or unpredictable.
- Item No. 433 - It is more important that a father be kind and that he be successful.
- Item No. 452 - I dislike to have to talk in front of a group of people.
- Item No. 467 - At times I think I am no good at all.