

**RELATIONSHIPS BETWEEN SELECTED MEASURES OF SELF-CONCEPT
AND BODY-IMAGE TO DANCE IMPROVISATIONAL ABILITY
OF COLLEGE WOMEN**

A Thesis

Presented to

**the Graduate College of Physical Education
Wisconsin State University--La Crosse**

**In Partial Fulfillment
of the Requirements for the Degree
Master of Science**

by

Eileen Patricia Muth

July 28th, 1969

WISCONSIN STATE UNIVERSITY--LA CROSSE

GRADUATE COLLEGE

Candidate: Eileen Patricia Muth

We recommend acceptance of this thesis to the Graduate College in partial fulfillment of this candidate's requirements for the degree Master of Science.

Jim Fos
Thesis Committee Member

July 25, 1969
Date

Norene D. Smith
Thesis Committee Member

July 28, 1969
Date

W. D. Van Pitt
Thesis Committee Member

28 July 1969
Date

This thesis is approved for the Graduate College:

James H. Erickson
Dean, Graduate College

August 4, 1969
Date

ABSTRACT

RELATIONSHIPS BETWEEN SELECTED MEASURES OF SELF-CONCEPT
AND BODY-IMAGE TO DANCE IMPROVISATIONAL ABILITY
OF COLLEGE WOMEN

The purpose of this study was to investigate the self-concept and body-image of women physical education majors and the relationship of these factors to dance improvisation. The self-concept was determined by the Sixteen Personality Factor Test and the body-image was determined by a questionnaire which was constructed by the investigator.

Eighty-eight junior women physical education majors from Wisconsin State University at La Crosse were rated on their ability to improvise by a panel of five trained judges. On the basis of scores obtained from these ratings, two groups of twenty-eight each were established to participate in the study. Group I was designated as the superior improvisers; Group II as the poor improvisers.

The 16 P. F. test and body-image inventory were administered to both groups and results were analyzed through the application of the "t" test of significance for difference between means. It was established that the null hypothesis would be accepted or rejected at the five percent level of confidence. Conclusions made as a result of the analysis

were as follows: The poor improvisers were more shy, withdrawing and retiring than the superior improvisers. They also exhibited a higher anxiety level. The good improvisers showed a more favorable body-image. They pictured themselves as being more attractive physically and more efficient in movement situations.

ACKNOWLEDGMENTS

I would like to express my sincere gratitude to my adviser, Dr. Jean Foss, from the College of Physical Education at Wisconsin State University, La Crosse, for her patient guidance of this study. I would also like to thank committee members, Dr. Norene Smith and Dr. William Van Atta for their assistance.

"Bouquets" to the junior physical education majors of this university who cheerfully, willingly, and most co-operatively gave of their time and energy during all phases of this study.

TABLE OF CONTENTS

CHAPTER	PAGE
I. INTRODUCTION	1
Statement of Problem	3
Need for the Study	3
Definitions of Terms	4
Delimitations	5
Limitations	5
II. REVIEW OF THE LITERATURE	7
Self-concept	7
Body-image	17
Improvisation	22
III. PROCEDURE	29
IV. ORGANIZATION AND ANALYSIS OF DATA	36
V. SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS	53
BIBLIOGRAPHY	57
APPENDIX	60

LIST OF TABLES

TABLE		PAGE
I	Means, Standard Deviations, Standard Error of Means, and t Ratios for Judges' Ratings of Students' Improvisational Ability	37
II	Froehlich Adaptation of the Kuder-Richardson Measure of Reliability of Judges' Scores	38
III	Means, Standard Deviations, Standard Error of the Mean, and t Ratios for Groups I and II on 16 Personality Factors	40
IV	Means, Standard Deviations, Standard Error of Means, and t Ratios for Groups I and II on Second Order Personality Factors	47
V	Means, Standard Deviation, Standard Error of Means, and t Ratios for Groups I and II on Body-Image Questionnaire	52

CHAPTER I

INTRODUCTION

Instructors of creative dance are constantly searching for ways or tools which will assist them in best drawing out creative ability in all students with whom they work. This is often a difficult task because the teacher is sometimes unaware as to how to proceed. People differ in their abilities to create, but most are able to reach some level of creativity if they are properly encouraged and directed. Some may become quite successful.

Creativity is based primarily upon one's experiences. The new born infant acts or reacts primarily on a reflex basis. The child, with the development of his brain and his coordination, begins to base his behavior more on reasoning and conditioning. The adolescent can reason better; therefore, his actions are based more upon reasoning, tempered by his experiences. The adult's behavior is based on all of his past experiences. He is better able to pick and choose and, hopefully, has better control of his actions. It would seem that creativity should reach its peak at the adult level.

Mooney and Razik (Explorations in Creativity, 1967) stated:

Creative behavior consists in any activity by which man imposes a new order upon his environment. It

is organizing activity. More specifically, it is the original act by which that organization is first conceived and given objective expression. (20:5)

One of the goals of creative dance teachers is to bring their students to a point where they are able to "make up" or create a dance. It was the contention of this writer that a student will be greatly aided in this venture if he has been exposed to a wide variety of improvisational kinds of movement. As a child must develop a verbal vocabulary before he can tell a story, that same child needs to develop a movement vocabulary before he can make up a dance. This "movement vocabulary" can be greatly enhanced through the student's work in improvisation.

The values of improvisation for the student of dance are many. Improvisation can contribute to the development of the individual as a personality and as a dancer. It can help her to discover her movement potential. It can give her a feeling of accomplishment as she discovers those things which she is able to do more easily than others. It can provide an awakening to the abilities and talents of others. It can provide a springboard to an increased interest in, and a greater appreciation for, dance.

The investigator developed an interest in doing this study as a result of her observation of high school and college level students who were engaged in improvisational

dance activity. It was noted that many girls enjoyed and were quite productive at improvising, while others seemed not to enjoy improvisation and were only slightly successful at it. The uncertainty as to why these differences existed was the motivation for this study.

Statement of the problem

This study was an investigation of the self-concept and body-image of women physical education majors and the relation of these factors to dance improvisation. One major consideration was to examine differences in the self-concept as measured by Cattell's Sixteen Personality Factor Test (16 P. F.). The other major consideration was to examine differences in body-image as determined by a questionnaire. These differences were investigated on the basis of two groups of college women, one group having been judged as superior at improvising and the second group having been judged as poor at improvising.

Need for the study

If it is agreed that improvisation has a place in the teaching of modern dance, then it is essential to know why some girls are more successful than others. The information obtained from this study, if utilized properly, could be used to improve the attitudes of students toward many movement situations, social as well as recreational. It could be used

by dance educators as criterion for selecting kinds of improvisational experiences and for structuring guided improvisational problems to be presented to their students.

Definition of terms

Improvisation. Improvisation, as used in this study, refers to extemporaneous dance movement. Improvisation is closely related to creativity. In fact, it is a means to creativity. It is the process which leads to the product. It is not the product itself. In dance, improvisation may be a means to the creating of a dance. It is not the finished dance.

Creativity. Creativity, as used in this study, refers to the ability to solve problems in an individual manner. In dance, it refers to an original movement sequence.

Body-image. Body-image, as used in this study, refers to the concept one possesses of her own body within her own mind.

Self-concept. Self-concept, as used in this study, refers to how the individual perceives herself in several facets of life, as measured by Cattell's Sixteen Personality Factor Test (16 P. F.).

Delimitations

The participants in the study were junior women physical education majors at Wisconsin State University, La Crosse, Wisconsin. The investigation was conducted during the second semester, 1968-1969. Prior to this time, the subjects had completed two one-semester courses in modern dance, one at the sophomore level and one at the junior level.

Limitations

Some subjects had the same instructor for both dance courses; others had two different instructors. Some subjects may have had more experience with improvisation at the high school level. Some subjects may have been exposed to private dance lessons and other dance or performing experiences which could have influenced their performances.

The judges' ratings were based on limited observation because of the nature of improvisation.

Basic assumptions and hypotheses

It was assumed that all of the participating subjects had some understanding of, and experience with, improvisation.

It was assumed that all subjects were capable of some degree of creativity.

It was assumed that improvisation is an integral part of creative dance.

The following hypotheses were tested:

1. There are differences in the self-concept, as determined by the 16 P. F. test, between those subjects who were judged as doing well at improvising and those who were judged as poor improvisers.
2. There are differences between the body-images of the two groups, as measured by a body-image questionnaire.

CHAPTER II

RELATED LITERATURE

There has been a considerable amount of research dealing with physical performance and its relation to personality. Most of these studies dealt with a particular area of physical skill, such as personality differences between football players and swimmers, and most have dealt with men, rather than women, subjects.

The few studies of women physical education majors dealt primarily with physical conditioning rather than with a particular area of activity such as basketball, gymnastics, or dance. In this chapter, the discussion is divided into the three main aspects of the study, namely self-concept, body-image, and improvisation.

Self Concept

Omwake, in his discussion of the self, pointed out evidence that in the normal population, as well as those undergoing therapy, attitudes toward the self appear to be reflected in attitudes toward other people. Consequently, the lower the opinion of self, the lower the opinion of others.

Only when the self is regarded with a fairly high degree of acceptance is it possible to relate effectively to others, to understand them, and to regard them as persons of worth. (24:443)

Little research has been directed specifically toward investigating the role of movement experience as a factor in the development and enhancement of the self-concept. Even less research has been directed specifically toward the role of modern dance and its relationship to the development of the self-concept.

The self-concept is a highly complex aspect of personality and, as such, has diverse definitions. Wylie, in The Self Concept, (1961), defines the term self as "the individual who is known to himself." (32) The self-concept, as it is used in most studies, refers to the individual who is known to himself, how the individual perceives himself in all facets of life.

Rogers, in Client Centered Therapy, 1951, characterized the self-concept as self-integration, the self-concept or self structure as being thought of as an "organized configuration of perceptions of the self which are admissible to awareness." (27:14) All experiences are organized into some relationship with the self, ignored because they have no perceived relationship to the self or given distorted symbolization because they are inconsistently with the self structure. The self-concept is constantly used as a frame of reference when choices are made and serves to regulate behavior. This theory views the end point of personality

development as being a basic harmony between the phenomenal field of experience and the conceptual structure of the self. (27)

A theory presented by Murphy may be called self-orientation. There are at least two selves, a self observed and a self glimpsed as something to be realized. Selfhood is viewed as the result of activity. Attitudes toward the self are heterogeneous since the individual's perceptions vary with experience. As an integrated system of responses, the organism orders these diverse impressions into a perceived whole. This whole is known and observed against the outer world and a conceptual unity is deduced. The self is then perceived, conceived, and constantly responded to by the individual. (21)

A theory of the self-concept proposed by Lecky, in his book, Self Consistency, A Theory of Personality, 1954, may be called self-consistency. Lecky felt that personality is an organization of ideas felt to be consistent with one another. The individual then is a unified system attempting to maintain harmony with the self and with the environment in the face of new ideas created by experiences. The most constant factor in these experiences is the individual's interpretation of himself. The interpretation or organization of values regulates behavior, defines the self-role, and furnishes standards. (15)

At a meeting of the Midwest Association for Physical Education of College Women, (1968), Allen, in her discussion of the role of the self-concept in physical education, pointed out that:

It would seem from existing theories that the self-concept can be shaped to a great degree by the kinds of experiences available to the individual, as well as the self-concept itself determining the experiences which are available. (1:20)

Much has been assumed about the cause-effect relationships between self-concept and movement experiences. However, there is little research upon which to base these assumptions. (1)

The self-concept is a highly complex aspect of the total personality of an individual. There is much controversy about the best method of reaching this phase of personality. Many people do not believe a totally adequate measure exists at this time. Some authorities maintain that the self-concept is composed of three or more orientations; the actual self (objective assessment), the perceived self (myself as I really am), the ideal self (myself as I think others see me), or as Wylie defined the ideal self, "the subject's concept of the kind of person he would like to be." (32:5)

Measurement techniques dealing with the self-concept indicate that the use of a single self-concept score is not an adequate measure; yet this single technique has been most

frequently used in the past. Few researchers have concerned themselves with the variables involved with any of the instruments they use. Construct validity in measuring the self-concept is difficult yet necessary, because this evaluation requires that one measure a stated class of variables, the subject's conscious process. By definition the subjects' phenomenal fields are private and beyond direct observation. (1)

In any self-report measure, it is possible for the responses to be influenced by the following factors:

1. Situational and methodological factors which may exert other influences of the responses.
2. Subject's intent to say he has attitudes or perceptions which he does not have.
3. Subject's response habits--response set.
4. Subject's intent to select what he wishes to reveal to the experimenter. (1:20)

There is also a problem of classifying and quantifying responses obtained from a self report if a certain amount of freedom is allowed such as exists in an open essay or statement kind of report.

In common with a number of other psychologists, Loevinger, in the book, Psychological Testing by Anastasi, stated that he regarded such test taking attitudes (described as facade, test taking defensiveness, response set, social desirability, acquiescence, and personal style) not as instrumental errors to be ruled out, but as the major source of valid variance in personality inventories. (2)

On the basis of data from many sources, Loevinger suggested that the ability to form a self-concept increases with age, intelligence, education, and socioeconomic level. At the lowest point, infancy, the individual is incapable of self conceptualization. By adolescence he gradually forms a stereotyped, conventional, and socially acceptable concept of himself. With increasing maturity, the individual progresses beyond such a stereotyped concept to a differentiated and realistic self-concept. At this point, he is fully aware of his idiosyncracies and accepts himself for what he is. Many people fail to reach this final stage. (2)

Allen (1) pointed out that the state of one's self regard, self esteem, self acceptance is an important factor in the evaluation of self-concept and the maintenance of self structure. However, little is known about the value of movement experiences in the maintenance of such self structures nor is much known about movement esteem and its possible relationships to various movement experiences.

In an attempt to apply some of the research findings in the area of self-concept, Thomas (31) defined basic constructs of three theories of the self and, through application of logic, attempted to show whether these constructs have been integrated with current educational theory, indicated the implications for physical education, and explored the

potential for the development of the self-concept inherent in modern dance as an educational instrument. She concluded that the three theories of self defined the self as being "a set of ideas and a standard of values, a regulator of behavior, and a fluid, constantly changing and expanding entity." (31:46) All of these aspects have been accepted in educational theory and practice. Some physical educators have also oriented their subject matter toward the development of the self-concept. Thomas concluded, further, that of several physical education activities, modern dance seemed to contain the highest potential for the development of the self.

Smith and Clifton (30) conducted a series of investigations concerning the effect of movement patterns within various populations and in the performance of selected motor skills. The instrument used was a Perception Checklist which was devised by the investigators. The subject selected words or phrases which were descriptive of his performance and then indicated whether the items were a favorable or unfavorable description of his performance.

From their investigations Smith and Clifton drew the following conclusions:

1. Males in a general population, as well as those poorly skilled, hold more favorable concepts of their own performance than do females of the same population.

2. Males' self-concept of motor performance will not change after viewing films of that performance, whereas females will exhibit significant change in self concept of motor performance after viewing films of their own performance.
3. Highly skilled performers have favorable concepts regarding their own performance, whereas poorly skilled performers have less favorable concepts.
4. College age females of low skill revise their concepts of their own performance in a negative direction after viewing motion pictures of a "model" performance and of their own performance.
5. The highly skilled female's concept of her performance is not affected by viewing a motion picture of a "model" performance and a motion picture of her own performance of the same movement pattern.

In an investigation of the relationship between motor ability and self-concept of women physical education major students and non-major students, Parker (25) concluded that there is no relationship between motor ability and self-concept as measured by the "WHO AM I?" Twenty-Statement Test. The only significant difference which existed between the various groups on the self-concept dimension was between the low non-physical education major group and the physical education major group.

Doudlah (8) investigated the relationship between self-concept, body-image, and movement concept of college freshmen women with low and average motor ability. Results

of this study indicated a relationship between self and body, and between body and movement concepts. There was little relationship between the subject's conceptualization of self and movement; motor ability was related to movement concept but not to self and body concepts. The results seemed to suggest an existing relationship between the psychological and physical aspects of the individual and lent support to the empirical belief in the relationship between self, body and movement.

Nation (22) conducted a study involving the effect of physical education instruction upon the movement concept of college freshmen women from three service program classes. All classes were taught by the same instructor using a pre-test, post-test Q-sort. There was a positive change in the movement concept for subjects enrolled in the body mechanics class.

In another study conducted by Stroble (29), the relationships among selected measures of physical fitness, body-image, self-concept, movement concept and selected personality traits of college physical education majors with low physical fitness indices were investigated. It was concluded that increased physical fitness resulted in a more secure body image and higher scores on the Q-sort and Edwards Personal Preference Schedule.

In 1967, Nelson (23) investigated the relationships between selected aspects of positive mental health, self cathexis, body cathexis, movement concept and motor creativity. (Cathexis, as defined by Webster's Third New International Dictionary (1961), refers to "the investment of emotional significance in an activity, object, or idea.") Self-regard, spontaneity, and inner directedness were found to be significantly related only to movement concept, body cathexis, and self cathexis. Self acceptance was significantly related only to body cathexis and bodily concern. Body cathexis, self cathexis and movement concept were significantly related to each other. Motor creativity was not related to any of the main variables.

Groups participating in this study were composed of randomly selected freshman women in the required physical education program at the University of Michigan. Freshman physical education majors were then added to the groups. The physical education major group and a golf group were found to be significantly higher than two other groups (modern dance and tennis) in movement concept, and no significant differences appeared on any of the other variables. It was concluded that movement concept may be a significant component of self-concept and may warrant more attention as a factor than has been afforded it in the past.

Body Image

Fisher and Cleveland have done extensive research in the area of the body-image. They have described the body-image as follows:

...a psychological experience focusing on the individual's feelings and attitudes toward his body. Body image is necessarily concerned with the individual's subjective experience with his body and the manner in which he organizes these experiences. (9:223)

Wheeler and Hooley, in their book, Physical Education for the Handicapped (1969), described the body-image as being the same as body concept, body schema, somato-psyche, or body percept. It plays a basic role in all human movement. This image is arrived at by looking at one's self through attitudes that have been learned from others. A person's image, body as well as self, regulates and modifies his behavior and personality as well as his inter-relationships with other people. Since concept building comes from one's experiences, individuals are continually developing new concepts and changing old ones, depending upon their varying experiences and insights. (13)

A happier life may depend upon the image one has of oneself. Many people do not see themselves the same way as others see them. Some people identify themselves as the persons they would like to be. Since the perception of self and body are subjective, it includes height, weight, body build, and facial appearance. (13)

Self respect, confidence, acceptance, and peer respect come with success in movement situations. With the adult, body-image and self-concept are not approximate equivalents. It is possible to improve the body-image at all age levels and to enhance neuromuscular control and physiological fitness. A well defined body-image is important for effective living and maintaining an effective personality throughout life. (16)

Lowen, in his book, The Betrayal of the Body, (1967), indicated that there is a feeling of identity which stems from a feeling of contact with the body. To know who one is, an individual must be aware of what he feels. He should know the expression on his face, how he holds himself, and the way he moves. "Without this awareness of bodily feeling and attitude, a person becomes split into a disembodied spirit and a disenchanting body." (16:23) The schizophrenic has a complete loss of body contact--the schizoid does not identify his ego with his body...he feels unrelated to the world and to people. Similarly, his conscious sense of identity is unrelated to the way he feels about himself. This conflict does not exist in a healthy person whose ego is identified with his body and in whom the knowledge of his identity stems from the feeling of the body. (16)

Lowen also stated the following:

Mental health refers to the condition where image and reality coincide. A healthy person has an image of himself that agrees with the way his body looks and feels. A person experiences the reality of the world only through his body. The external environment impresses him because it impinges upon his body and affects his senses. In turn, he responds to this stimulation by acting upon the environment. If the body is relatively unalive, a person's impressions and responses are diminished. The more alive the body is, the more vividly does he perceive reality and the more actively does he respond to it. We have all experienced the fact that when we feel particularly good and alive, we perceive the world more sharply. In states of depression the world appears colorless. (16:29)

In a study of college women, Zion (33) found a significant linear relationship between self-concept and body concept in most of the dimensions measured. In this study measurements of self description, self acceptance, ideal self, and self-description-ideal discrepancy were correlated with measurements of body description, body acceptance, ideal body, and body description-ideal discrepancy.

From the research in the area of body-image it appears that only as man is aware of the attitude and orientation of his body do his perceptions and actions find meaning. The body-image, then, appears to be a fundamental part of the total self perception.

Mathes, in a discussion about the body-image, pointed out the following:

There is a great deal of support for the concept that body knowledge is developed as the first perceptual component of self, and that this development is totally dependent upon movement. (18:17)

She then concluded that movement is vital to the development of the body-image, just as is the body-image vital to movement. (18) In support of this conclusion, Mathes quoted Schilder as follows:

When knowledge of our body is incomplete and faulty, all actions for which this knowledge is necessary will be faulty too. We need body-image in order to start movement. We need it especially when actions are directed toward our body. (18:17)

From her investigation of the existing research on the body-image, Mathes concluded that since it is concerned with the total interacting organism, there is much difficulty in its analysis. She pointed out that the body-image is "the sum of the variety of sensations, times the nature of the organism with all his varied, past, present and future experiences." (18:17)

In continuing research in the area of body knowledge, Fisher and Cleveland (9) conducted a study involving small group behavior. It had been observed from earlier studies that individuals differing sharply in their body-image schema also differed in their broad philosophy of life. Three populations comprised of university students and student dietitians were given the group Rorschach test. From these results, two groups of subjects who varied widely on

the body-image index were then formed. These two groups were those who were judged as having either high or low barrier index scores. The high barrier scores indicated that the subjects had a well defined body-image concept; the low barrier group were those who had a relatively less distinct body-image concept. These two groups were then assigned specific tasks that would elicit a range of behavior. From the performances of these tasks, observations and conclusions were made.

It appeared from these studies that the individual who perceives his body as having firm, clearly defined boundaries is characterized in the following descriptions.

1. One who dedicates his life to getting ahead and establishing himself as an independent person, well differentiated from others.
2. They appeared to show greater concern with achievement and high aspiration in comparison with those scoring low on the barrier index.
3. They exhibited the ability to tolerate stress, the need for task completion, and the ability to resist suggestion.
4. They exhibited a philosophy which involves the idea that it is the individual and his own efforts that determine his fate.
5. They were more assertive and exhibited more self initiative.
6. This group displayed a greater amount of inter-action among each other, a keener sense of humor, and more freedom of expression. (9:231)

The low barrier group were characterized as follows:

1. They were much less concerned with the importance of the individual.
2. Their philosophy seemed to emphasize a strict hierarchical structuring of human relations.
3. They believed people behave in a certain way because of tradition.
4. They were uncertain and apprehensive as to purpose.
5. They were less tolerant of stress, more passive and significantly less success oriented. (9:231)

Fisher and Cleveland concluded that the body-image index seems to furnish an understanding of the way in which the individual sets himself off from others.

Improvisation

In her book, An Introduction to the Teaching of Dance, (1955), Hayes discussed the role of improvisation in creativity. She felt that, "improvisation has value in accelerating the creative process." (12:24) Often new movement that might never have been found by means of intellectual visualization is accidentally discovered through the process of improvising. (12)

Anderson, a research professor in psychology at Michigan State University, headed an extensive research project on creativity. He defined creativity as follows:

Creativity is an expression of individual differences, individual originality, integrity, integrity of each particular person or organism. Creativity emerges from the person's own perceiving, thinking, knowing, feeling, and acting. Creativity is spontaneous behavior, where spontaneity is defined as behavior in the relative absence of environmental threat or coercion. (3:47)

He stated that creativity represents a perception, response, action or communication, uncoerced by persons in the environment. If creativity could be forced or produced by threat, there would obviously be much more creativity in the world. Improvisation, a part of creativity, is the spontaneous emergent that can only be elicited; it can only be elicited in proportion to the absence of threat from the environment. (3)

Guilford, a professor of psychology at the University of Southern California, discussed creativity from a psychological standpoint. He indicated that creativity is closely related to personality and noted the general agreement that the highly creative person, particularly the more original person, is self confident. The relationship probably works both ways. The person who is original succeeds; this success in turn builds up his self confidence, and his self confidence encourages him to attempt problems where others would not, giving him the opportunity for further success. (10)

Guilford described the personality of the creative individual as being self confident and self assured. He

is also socially bold. This social boldness, however, does not necessarily make for sociability. The creative person is generally self sufficient. He can accept people or he can let them alone. He doesn't allow other people to "bug" him. He is an independent thinker and not dependent upon others for evaluation of his work. Although not necessarily a social recluse, the creative person may become estranged from his peers, his parents, and teachers because of a lack of mutual understanding. (10) Guilford further described the creative individual in the following manner:

Those persons who stand high on tests of originality tend to have strong esthetic interests and they like to indulge in divergent thinking and reflective thinking. They are tolerant of ambiguity, and somewhat surprisingly they show no particular dislike for conventional or socially approved behavior, nor do they show signs of neuroticism. They do not feel much need for discipline or for being meticulous. (10:69)

Guilford was quick to point out, however, that although many of these personality qualities have been demonstrated to be related to creativity, the relationships from a psychometric point of view are usually so small (with correlations typically below .30) that none is promising as a very dependable sign of creative potential. (10)

Guilford also made a distinction between creativity and creative productivity. An individual may have all the necessary attributes of a creative person, yet he does not

produce. He is "potentially" creative and may become productively creative if given the necessary motivation and environmental occasion. The implication for the teacher is axiomatic.

Mooney and Razik, (Explorations in Creativity) (1967), contended that the creative attitude requires both courage and strength, and most studies of creative people have reported one or another version of courage; popularity becomes a minor consideration, stubbornness, independence, self sufficiency, a kind of arrogance, strength of character, and ego-strength. Fear and weakness make creativity less likely. (20)

In a study involving doctoral candidates who had been rated as to their originality, Barron (5) concluded that creative individuals are more at home with complexity and disorder than other people are.

Burkhart (6) found that the self-concept of the highly creative student included self-descriptive words like free, involved, self seeking, whereas such words were lacking in the low student.

Michael (19) found trial and error, instead of a pre-determined approach, typical of those students producing works of high quality. Maslow (17) has described creativeness in what he calls self actualizing people, as being spontaneous, effortless, a kind of freedom from cliches and

stereotypes. He has contended that the basic difference between creative people and average people is that the more creative lacked fear of the unknown or of themselves. Average and neurotic people, he stated, control and suppress much that lies within them.

In a study of personality correlates involving college students, Rutherford (28) defined the behavior of the creative person in terms of the ability to create new and original designs, objects, and ideas, and to prefer these designs, objects, and ideas commonly judged most aesthetic and beautiful. Her results suggested that the creative individual is one whose approach to a new situation is characterized by:

1. The ability to differentiate various aspects of the situation and to integrate these aspects into a meaningful whole.
2. An openness of self-esteem so that there is the ability to take new ideas into the system of subject-object relationships and to change old relationships when change is called for.
3. Self-strength so that having adequately differentiated various aspects of a new situation, these aspects may be realistically perceived and reacted to as differentially involving to self. (28:4434)

Ausubel (4) stated that true creativity is a unique manifestation of talent in a particular field of human endeavor. It consists of rare sensitivity to particular kinds of intellectual or aesthetic experience, and a rare capacity

for making original discoveries or producing original work in a particular area of human achievement. Creative persons tend to surpass them in IQ. A certain minimal degree of the general creative abilities, along with a certain minimal degree of intelligence, is necessary for the actualization of creative potentialities, but beyond this minimum the degree manifested in either case does not crucially affect creative output. The general creative abilities, however, are probably more intrinsically related to creative accomplishment than is IQ. They correlate just as highly with academic achievement as IQ does but more highly than IQ with research accomplishment and vocational productivity. (4)

The general creative abilities also resemble general intelligence in being continuously and normally distributed. Unlike the situation with respect to substantive creativity, however, differences among individuals are solely differences in degree, not in kind. From a descriptive standpoint, these abilities consist of such intellectual problem-solving traits as sensitivity to the existence of problems; facility in formulating, testing, and reformulating hypotheses; skill in improvising solutions; openness to new experience; and spontaneity and flexibility in approach to problems. Also involved are personality traits bearing on problem-solving such as perseverance and venturesomeness. According to

Guilford, Wilson, Christensen, & Lewis, 1951 (11) the distinctive attribute of creativity is divergent thinking ability as measured by such tests as Unusual Uses, Consequences, and Impossibilities.

CHAPTER III

PROCEDURE

The purpose of this study was to investigate the self-concept and body-image of women physical education majors and the relationship of these factors to dance improvisation. The investigation involved two groups. Group I was comprised of twenty-eight junior women who had been judged as superior in dance improvisation. Group II was comprised of twenty-eight junior women who had been judged as poor in dance improvisation.

The subjects participating in the study were physical education majors at Wisconsin State University, La Crosse, Wisconsin. They were members of the junior class and had approximately the same background in modern dance at the college level. This experience consisted of two semesters of modern dance at the college level: one at the sophomore level and the other at the junior level.

Eighty-eight junior women were assigned a specific time to report to the dance studio for judging of their improvisational ability. They reported at four different intervals. The groups numbered twenty-two, twenty-eight, seventeen, and twenty-one respectively. They were asked to report wearing either leotards or their regular activity costume of shorts and blouse. No shoes or socks were worn.

Five dance instructors were selected from the physical education staff of the university to serve as judges. The criteria for rating the participants had been discussed and decided upon. The judges were instructed to rate each student on the basis of these criteria. (Appendix)

The judges were provided with a rating sheet and asked to give a score to all subjects on each of three attempts at improvising. The scores were based on a one to five rating scale. A score of one was low and a score of five was high. Decimal scores were allowed.

Three of the judges met prior to the judging and selected the music which was used as the stimulus for improvising. Three different types of music were selected, each of which would elicit a distinctly different kind of interpretation.

Judges and subjects met in the dance studio. Each subject was given a number which was pinned to the front of her costume, and told to take a place anywhere in the studio. Judges were instructed to sit in the front of the studio for observation and rating but were told they could get up and move around if it would enable them to observe better.

The subjects were given a brief explanation as to the purpose of the meeting and were then instructed to improvise to the music. They were given a short time to listen to the

music and were told to begin moving whenever they wanted. All subjects improvised at the same time. Judges observed and made their ratings for each subject on each of the three different attempts at improvising. The groups of subjects reported and were rated at four thirty-minute intervals.

Each judge had three scores for every participant. These scores were added for a total score for each subject. The scores from each judge were compiled to obtain one total score for each of the participants. The top score for each trial at improvising was five. It was possible for a student to receive a maximum point total of fifteen from any one particular judge and a composite maximum point total of seventy-five from the five judges. The point totals were listed in rank order from high to low. The highest point total of any one subject was seventy-four. The lowest was 16.7. The top twenty-eight scores were selected to comprise Group I and the lowest twenty-eight scores were selected to comprise Group II. A "t" test to determine the significance of differences between groups was employed. Reliability of judges' scores was determined by the Froehlich adaptation of the Kuder-Richardson measure of reliability.

After the two groups were selected, a letter was sent to each of the prospective subjects requesting her participation in the self-concept and body-image portion of the study. A card stating the time for the administration of

the tests was included with the letter. (Appendix) Subjects were asked to return their appointment cards to the investigator, either in person or through the university mail. All fifty-eight subjects contacted consented to participate in the testing portion of the study.

Most of the subjects reported to take the 16 P. F. test and the body-image questionnaire in an appointed room on either one of two evenings. A few of the subjects made individual appointments and took the test in the office of the investigator.

The Sixteen Personality Factor Test Profile (16 P. F.), Form A, was selected as the instrument for measuring the self-concept because it is a test giving "fullest information in the shortest time about most personality traits." (7:1) It is a universally used and reliable test which "sets out to cover planfully and precisely all the main dimensions along which people can differ, according to basic factor analytic research." (7:1) It is easily scored and does not require of the tester a broad background in psychology and interpretation. The majority of questions in the 16 P. F. are indirect, asking about interests which the subject would not necessarily perceive to be related to the trait in question, so it escapes some of the usual distortions of self rating techniques. The results of the test are interpreted

on the basis of sixteen separate personality traits and show a comparison of the subject with the average college woman. (Appendix)

The nature and purpose of the study were briefly described to the subjects at the time that they reported to take the tests. They were further informed that the information obtained from both the 16 P. F. test and the body-image questionnaire would be interpreted on a group basis rather than on an individual basis. They were also assured that all information obtained would be kept confidential.

The instructions for the 16 P. F. test were read aloud by the investigator while the subjects followed in their booklets. It was emphasized that on both tests there were not necessarily any right or wrong answers but that the subject's opinion of herself was the important factor. Standard answer sheets were provided for the 16 P. F. test. Subjects answered the questions in the body-image questionnaire on the form itself. The amount of time needed for the subjects to complete both questionnaires varied from thirty to seventy-five minutes.

The body-image questionnaire was personally constructed by the investigator with ideas gleaned from Wessel's Movement Fundamentals (1961). The content of the questionnaire was discussed with members of the psychology and women's physical

education departments at the university. The questions were divided into three main categories: (Appendix)

1. How the subject perceives her body in movement situations.
2. How the subject perceives her body in situations not involving movement.
3. How the subject feels others might perceive her body in various situations.

The questionnaire was administered to a pilot group of women physical education majors who were not participating in the study to determine if it was necessary to rework any of the questions. No major changes were made as a result of this pilot study.

Both the 16 P. F. test and the body-image questionnaire were hand scored by the investigator. Raw scores were used in the first analysis of the 16 P. F. test. The "t" test of significance for differences between means was applied to each of the sixteen factors.

The raw scores were converted to sten scores through the use of the standard table of norms for college women. (Appendix) These sten scores were used to determine "second order personality factors", which are broader and less specific than the sixteen original factors. These second order personality factors are combined into four personality areas: (1) anxiety, (2) extraversion, (3) alert poise and (4) independence. A "t" test of significance for

differences between the means for each of the four second-order factors of the 16 P. F. was applied.

Scores for the body-image questionnaire were obtained by assigning number values to the answers. A "yes" answer was assigned a point value of three; a "somewhat" answer was assigned a point value of two; a "no" answer was assigned a value of one. The questions were constructed so that a yes answer always indicated the more favorable body-image, while the no answer indicated the less favorable image. Individual scores were obtained by totaling points from all items on the questionnaire. A high total score indicated a favorable body image while a low total score indicated an unfavorable body image. (Appendix) The "t" test of significance for differences between means was applied to the scores of each group.

CHAPTER IV

ORGANIZATION AND ANALYSIS OF DATA

Differences in the self-concept, as measured by the 16 P. F. test, and the body-image, as measured by an inventory, of women physical education majors were examined. The analysis was made on the basis of two groups of junior women who had been judged as being either superior or poor in dance improvisation. The "t" test of significance for differences between means was utilized to analyze the data statistically. The five percent level of confidence was used for acceptance or rejection of the null hypothesis.

For this study, students were rated on their improvisational ability by a panel of five judges and, on the basis of these scores, were placed into one of the two groups. Group I was designated as the good improvisers and Group II was designated as the poor improvisers. The "t" test for significance of differences between mean scores of the two groups was applied. The obtained "t" ratio was 11.719, which was statistically significant beyond the .001 level. (Table I)

The Froelich adaptation of the Kuder-Richardson measure of reliability was applied to the judges' ratings. Agreement of the judges was at least .97 in all cases. (Table II)

TABLE I

MEANS, STANDARD DEVIATIONS, STANDARD ERROR OF MEANS,
AND t RATIOS FOR JUDGES' RATINGS OF
STUDENTS' IMPROVISATIONAL ABILITY
N=56

GROUP I

MEAN 60.333

STANDARD DEVIATION 13.236

STANDARD ERROR OF THE MEAN 2.596

GROUP II

MEAN 27.444

STANDARD DEVIATION 5.439

STANDARD ERROR OF THE MEAN 1.067

t RATIO BETWEEN GROUPS I AND II 11.719*

*Statistically significant at the .05 level. A t ratio
value of 1.96 was required for significance.

TABLE II
 FROELICH ADAPTATION OF THE KUDER-RICHARDSON MEASURE
 OF RELIABILITY OF JUDGES' SCORES

	Judge 1	Judge 2	Judge 3	Judge 4	Judge 5
Mean	88.965	89.046	82.558	85.744	97.348
Sigma	33.393	35.338	33.698	33.210	42.360
S.E.M.	3.600	3.810	3.633	3.581	4.567
K-R	.974	.977	.973	.973	.987

To test the hypothesis that there were no differences between the two groups on the selected variables for the self-concept, a "t" ratio for independent observations was computed. (Table III) As noted in Table III, the only factor on which there was a significant difference was on Factor H, where the "t" ratio was 2.553. A 1.96 "t" ratio was needed for significance at the five percent level. Though the groups were significantly different from each other, they both fell within the average raw score range for college women, which was ten to fifteen. The mean score on Factor H for Group I was 14.321 whereas for Group II it was 10.751.

As interpreted by the 16 P. F. Handbook:

A low score on Factor H indicates a person to be shy, withdrawing, cautious, retiring, a "wall-flower." He usually has inferiority feelings. He tends to be slow and impeded in speech and in expressing himself, dislikes occupations with personal contacts, prefers one or two close friends to large groups, and is not given to keeping in contact with all that is going on around him.

The person who scores high on Factor H is sociable, bold, ready to try new things, spontaneous, and abundant in emotional response. His "thick-skinned-ness" enables him to face wear and tear in dealing with people and grueling emotional situations, without fatigue. However, he can be careless of detail, ignore danger signals, and consumes much time talking. He tends to be "pushy" and actively interested in the opposite sex. (7:15)

TABLE III

MEANS, STANDARD DEVIATIONS, STANDARD ERROR OF THE MEAN, AND *t* RATIOS
FOR GROUPS I AND II ON 16 PERSONALITY FACTORS

Factor	Norms*	Group I			Group II			<i>t</i>
		Mean	S. D.	S. E. M.	Mean	S. D.	S. E. M.	
A	10-13	11.786	2.512	.483	11.143	2.985	.574	.856
B	7-8	8.607	1.291	.248	8.321	1.255	.242	.824
C	13-16	15.857	3.068	.590	14.571	2.718	.523	1.630
E	9-12	10.893	3.405	.655	10.893	4.143	.797	.000
F	13-17	16.964	4.411	.849	16.393	4.245	.817	.485
G	11-13	13.571	3.417	.658	13.179	3.060	.588	.445
H	10-15	14.321	5.399	1.039	10.750	4.867	.937	2.553**
I	11-13	10.964	2.078	.400	9.964	2.026	.390	1.790
L	6-9	7.393	2.992	.576	7.893	2.540	.489	.662
M	11-14	13.143	3.701	.712	12.000	2.559	.491	1.321
N	9-11	9.821	2.791	.537	9.643	2.622	.505	.242
O	8-12	9.929	3.046	.586	10.929	3.918	.755	1.047

TABLE III (continued)

Factor	Norms*	Group I		Mean	S. D.	S. E. M.	Group II		t
		Mean	S. D.				S. D.	S. E. M.	
Q1	8-9	10.464	2.958	9.893	2.650	.569	.511	.748	
Q2	8-11	9.214	3.405	8.464	3.354	.655	.645	.815	
Q3	10-12	11.571	2.993	10.179	2.550	.577	.491	1.841	
Q4	11-15	12.357	3.667	14.464	4.946	.706	.952	1.778	

*Norms for college women as noted in 16 P. F. Handbook.

** Significant at the .05 level. A t ratio value of 1.96 was required.

It should be noted that while both groups fell within the normal range for college women on Factor H, there was a significant difference between the two groups. On the basis of this difference, it would seem advisable to take these differences into consideration when presenting material and assigning tasks. For example, it would be unrealistic for a teacher to expect all students to be equally willing or comfortable in performing a solo dance. Attempts to develop improvisational ability and creativity on the part of poor improvisers might be facilitated by a more structured approach, thereby giving support and confidence to those who tend to be shy and withdrawing.

Although the differences between groups on other factors of the 16 P. F. were not statistically significant, the investigator summarized several trends which were observed.

Factor B. It was interesting to note that both groups had a slightly higher mean score on Factor B than did their college peers. Group I scored slightly higher than did Group II which lends support to Ausubel's findings that creative persons tend to surpass non-creative persons in IQ. (4:345) A description of Factor B follows:

The person scoring low on Factor B tends to be slow to learn and grasp, dull, given to concrete and literal interpretation. His dullness may be simply a reflection of low intelligence, or it may represent poor functioning due to psychopathology.

The person who scores high on factor B tends to be quick to grasp ideas, a fast learner, intelligent. There is some correlation with level of culture, and some with alertness. High scores contraindicate deterioration of mental functions in pathological conditions. (7:13)

Factor C.

The person who scores low on Factor C tends to be low in frustration tolerance for unsatisfactory conditions, changeable and plastic, evading necessary reality demands, neurotically fatigued, fretful, easily emotional and annoyed, active in dissatisfaction, having neurotic symptoms (phobias, sleep disturbances, psychosomatic complaints, etc.). Low Factor C score is common to almost all forms of neurotic and some psychotic disorders.

The person who scores high on Factor C tends to be emotionally mature, stable, realistic about life, unruffled, possessing ego strength, better able to maintain solid group morale. Sometimes he may be a person making a resigned adjustment to unsolved emotional problems. (Shrewd clinical observers have pointed out that a good C level sometimes enables a person to achieve effective adjustment despite an underlying psychotic potential. (7:14)

Again, both groups fell within the normal range for college women, which was thirteen to sixteen. The poor improvisers tended to score lower on this factor than did the good improvisers indicating a slightly lower ego strength.

Factor G.

Low scores on this factor suggest casual, undependent, impatient and obstructive individuals. This type of person tends to evade rules and feels few obligations. A low score on the factor indicated a weaker superego strength. A person scoring low on Factor G tends to be unsteady in purpose. He

is often casual and lacking in effort for group undertakings and cultural demands. His freedom from group influence may lead to anti-social acts, but at times makes him more effective, while his refusal to be bound by rules causes him to have less somatic upset from stress.

A high score on Factor G indicates that the individual is more conscientious, persevering, staid, and rule-bound, indicating a stronger superego strength. He tends to be exacting in character, dominated by sense of duty, persevering, responsible, planful, "fills the unforgiving minute." He is usually conscientious and moralistic, and he prefers hard-working people to witty companions. The inner "categorical imperative" of this essential superego (in the psychoanalytic sense) should be distinguished from the superficially similar "social ideal self" of Q3+. (7:15)

There was no significant difference in the scores between the two groups; however, both groups scored slightly higher than the average college woman. This result might be accounted for by the fact that the subjects involved in this study were all enrolled in a teacher training course. People in teacher training, as opposed to those in some other professional training areas, are often characterized as being more conscientious and rule bound.

Factor I.

The person who scores low on Factor I tends to be practical, realistic, masculine, independent, responsible, but skeptical of subjective, cultural elaborations. He is sometimes unmoved, hard, cynical, smug. He tends to keep a group operating on a practical and realistic "no nonsense" basis.

The person who scores high on Factor I tends to be tenderminded, day-dreaming, artistic, fastidious, feminine. He is sometimes demanding of attention and help, impatient, dependent, impractical. He dislikes crude people and rough occupations. He tends to slow up group performance, and to upset group morale by unrealistic fussiness. (7:15)

It is interesting to note that on Factor I both groups were slightly lower than the normal range for college women, which was eleven to thirteen. This would seem to indicate that, in general, physical education majors tend to be more tough minded, self-reliant, and realistic than their women peers. It appeared that the poor improvisers possessed these characteristics to a greater degree than the good improvisers.

Factor Q3.

The person who scores low on Factor Q3 will not be bothered with self control and regard for social demands. He is not overly considerate, careful, or painstaking. He may feel maladjusted, and many maladjustments (especially the affective, but not the paranoid) show low Q3 scores.

The person who scores high on Factor Q3 tends to have strong control of his emotions and general behavior, is inclined to be socially aware and careful, and evidences what is commonly termed "self-respect" and regard for social reputation. He sometimes tends, however, to be obstinate. Effective leaders, and some paranoids, are high on Q3. (7:18)

Both groups fell within the normal range on this factor although there appeared to be a tendency for the subjects in Group II to score lower than the subjects in Group I. This

seemed to indicate that the good improvisers had a higher self-concept control.

Factor Q4.

The person who scores low on Factor Q4 tends to be sedate, relaxed, composed, and satisfied (not frustrated). In some situations his over-satisfaction can lead to laziness and low performance, in the sense that low motivation produces little trial and error. Conversely, high tension level may disrupt school and work performance.

The person who scores high on Factor Q4 tends to be tense, excitable, restless, fretful, impatient. He is often fatigued, but unable to remain inactive. In groups he takes a poor view of the degree of unity, orderliness, and leadership. His frustration represents an excess of stimulated, but undischarged, drive. (7:18)

There appeared to be a tendency for the poor improvisers to be slightly more tense than subjects in Group I, although both groups fell within the normal range for college women.

The "t" test of significance for differences between means was employed to analyze the scores of the second order personality factors. (Table IV) There was a significant difference, at the five percent level of confidence, between the groups on Factor I, as indicated by the obtained "t" ratio of 2.511. A mean score of 5.5 is considered the norm on all of the second order factors. The mean score for Group I on Factor I was 4.836 which indicated that the good improvisers were less anxious than normal college women. The mean score for Group II was 5.982 which indicated that the poor improvisers, besides being significantly different

TABLE IV
 MEANS, STANDARD DEVIATIONS, STANDARD ERROR OF MEANS,
 AND t RATIOS FOR GROUPS I AND II ON
 SECOND ORDER PERSONALITY FACTORS
 N=56

Factor	Group I			Group II			t
	Mean	S.D.	S.E.M.	Mean	S.D.	S.E.M.	
I	4.836	1.639	.315	5.982	1.715	.330	2.511*
II	6.200	1.985	.382	5.689	2.014	.388	1.122
III	6.050	1.228	.236	6.493	1.643	.316	1.122
IV	5.521	1.819	.350	5.614	1.643	.316	.197

*Statistically significant at the .05 level. A t ratio value of 1.96 was required for significance.

from the good improvisers on Factor I, also were slightly more anxious than their college peers.

The description for Factor I, as reported in the 16 P. F. Handbook follows:

LOW ANXIETY: The person who scores low on this factor tends to be one whose life is generally satisfying and one who is able to achieve those things that seem to him to be important. However, an extremely low score can mean lack of motivation for different tasks, as is generally known in studies relating anxiety to achievement.

HIGH ANXIETY: The person who scores high on this factor is high on anxiety as it is commonly understood. He need not be neurotic, since anxiety could be situational, but it is probable that he has some maladjustment, i.e., he is dissatisfied with the degree to which he is able to meet the demands of life and to achieve what he desires. Very high anxiety is generally disruptive of performance, and productive of physical disturbances. (7:21)

It would appear to be essential for the teacher of modern dance to take into consideration the possible differences in anxiety levels when considering the type of problem to be presented in the dance class.

Although there was not a statistically significant difference between groups on the other second order personality factors, several interesting trends were noted. On Factor II (Introversion versus Extraversion), the good improvisers tended to score slightly higher toward extraversion than did the poor improvisers. The good improvisers tended to score higher than the average college woman on this factor,

a tendency which would appear to indicate that they were more extraverted than their college peers. The poor improvisers also scored slightly higher on Factor II, a fact which would seem to indicate that women physical education majors, in general, are slightly more outgoing than their college peers. The Factor II description follows:

INTROVERSION: The person who scores low on Factor II tends to be shy, self-sufficient, and inhibited in interpersonal contacts. This can be either a favorable or unfavorable finding, depending upon the particular situation in which the person is expected to function; e.g., introversion is a favorable predictor of precision workmanship.

EXTRAVERSION: The person who scores high on this factor is a socially outgoing, uninhibited person, good at making and maintaining interpersonal contacts. This can be very favorable in situations that call for this type of temperament, e.g., salesmanship, but should not be considered necessarily favorable as a general predictor, e.g., of scholastic achievement. (7:21)

On Factor III (Tenderminded Emotionality versus Alert Poise) both groups tended to score higher than the norm for the peer group, suggesting that women physical education majors, in general, are more poised than are other college women. This trend might be partially explained by the fact that the subjects participating in the study were all college juniors, whereas the norms were established for college women, freshmen through seniors inclusively. The poor improvisers scored slightly higher than the good improvisers on Factor II, a fact which might appear to be unusual; however,

a person who scores lower on this factor is described as being more artistic and gentle, characteristics one would expect to find more prevalent in the better improvisers.

A factor description follows:

TENDERMINDED EMOTIONALITY: The person who scores low on Factor III is likely to be troubled by pervasive emotionality, and may be of a discouraged, frustrated type. He is, however, sensitive to the subtleties of life, likely to be artistic and rather gentle. If he has problems, they often involve too much thought and consideration before action is taken.

ALERT POISE: The person who scores high on this factor is likely to be an enterprising, decisive, and resilient personality. However, he is likely to miss the subtle relationships of life, and to orient his behavior too much toward the obvious. If he has difficulties, they are likely to involve rapid action with insufficient consideration and thought.

No significant differences between groups or between the groups and the normal college population were noted on Factor IV. The description for Factor IV is as follows:

SUBDUEDNESS: The person who scores low on Factor IV is a group-dependent, chastened, passive personality. He is likely to desire and need support from other persons, and likely to orient his behavior toward persons who give such support.

INDEPENDENCE: The person who scores high on this factor tends to be an aggressive, independent, daring, incisive person. He will seek those situations where such behavior is at least tolerated and possibly rewarded, and is likely to exhibit considerable initiative. (7:22)

The "t" test of significance for differences between means was utilized to analyze the results of the body-image

questionnaire. The obtained "t" ratio was 5.544. A "t" ratio of 1.96 was needed to reject the null hypothesis at the .05 level of confidence. The average mean score for Group I was 83.893; the average mean score for Group II was 70.679. (Table V)

In the body-image questionnaire, poor improvisers did not view themselves as favorably as did the good improvisers. They evidently did not picture themselves as being as attractive physically, or as efficient in movement as did the good improvisers. This observation would appear to have implications for the teachers of dance.

Thomas (31) indicated that, of several physical education activities, modern dance seemed to contain the highest potential for the development of the self-concept. It would appear that the body and movement image need to be improved in order to build a more favorable self-concept. It was the contention of the investigator that this improvement would be feasible if differences in body and movement images were recognized by physical educators, particularly dance teachers.

TABLE V

MEAN, STANDARD DEVIATION, STANDARD ERROR OF MEAN,
AND t RATIO FOR GROUPS I AND II ON
BODY-IMAGE QUESTIONNAIRE
N=56

GROUP I

MEAN 83.893

STANDARD DEVIATION 6.461

STANDARD ERROR OF THE MEAN 1.243

GROUP II

MEAN 70.679

STANDARD DEVIATION 10.566

STANDARD ERROR OF THE MEAN 2.033

t RATIO BETWEEN GROUPS I AND II 5.544*

*Statistically significant beyond the .05 level. A t ratio value of 1.96 was required for significance.

CHAPTER V

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

The purpose of this study was to investigate the self-concept and body-image of women physical education majors and the relationship of these factors to dance improvisation. The self-concept was determined by the Sixteen Personality Factor Test and the body-image was determined by a questionnaire which was constructed by the investigator. The investigator reasoned that if there were significant differences in the self-concept and body-image between those who had been judged as being either superior or poor dance improvisers, these differences could have implications for teachers of modern dance.

Eighty-eight junior women physical education majors from Wisconsin State University at La Crosse were rated on their ability to improvise by a panel of five trained judges. On the basis of scores obtained from these ratings, two groups of twenty-eight each were established to participate in the study. Group I was designated as the superior improvisers; Group II as the poor improvisers. No attempt was made to determine the dance experience which students might have had outside of their college program.

The 16 P. F. test and body-image inventory were administered to both groups and results were analyzed through the

application of the "t" test of significance for differences between means. It was established that the null hypothesis would be accepted or rejected at the five percent level of confidence. On the basis of this investigation, the conclusions were as follows:

1. There was a statistically significant difference between the good and poor improvisers on Factor H of the 16 P. F. Test. The poor improvisers were more shy and restrained than were the good improvisers.
2. There was a statistically significant difference between the two groups on Factor I of the second order personality factors. This indicated that the poor improvisers were more anxious than were the good improvisers.
3. There was a statistically significant difference between the two groups on the body-image. This result indicated that the poor improvisers, in general, had a less favorable impression of themselves in regard to body-image. Whether, in fact, this impression was an accurate one was not determined because the subjects were asked only to respond to the questionnaire on the basis of how they perceived themselves.

As a result of this study, the following recommendations have been made:

1. That teachers of modern dance re-examine the methods used in presenting dance experiences to their students. In view of the likelihood that some of the students differ in degrees of shyness and in anxiety levels, perhaps not all participants should be expected to perform before an audience by themselves or, for that matter, even with several others. It is suggested that teacher-structured problems be used, particularly with beginning dance students, as a tool for improvisational work in order to ensure that everyone will enjoy at least some degree of success.

2. That teachers take into consideration the apparent differences in body-images. Some consideration might be given to the usual practice of wearing uniform costumes within a dance class. Some thought might be given to the specific kinds of movement that one would expect from girls who possess various body-images. Should the same types and qualities of movement be expected from all girls?
3. That further investigations of the self-concept and body-image be conducted, keeping constant the various dance experiences which students may have encountered outside of their regular school classes.
4. That an attempt be made to develop a better tool for testing the body-image.

BIBLIOGRAPHY

BIBLIOGRAPHY

1. Allen, Dorothy. Self-concept studies and human movement. Midwest Assoc. for P. E. of College Women, Conference Program pp. 19-23, 1968.
2. Anastasi, Anne. Psychological Testing. N. Y.: Macmillan Co., 1968.
3. Anderson, Harold H. Creativity in childhood and adolescence. Science and Behavior Books, Inc., 1965.
4. Ausubel, David P. Creativity, general creative abilities, and the creative individual. Psych. in the Schools 1:344-47, 1964.
5. Barron, Frank. Some relationships between originality and style of personality. Amer. Psychologist 9:326, 1954.
6. Burkhart, R. C. An analysis of individuality of art expression at the senior high school level. Unpub. Doct. Thesis, Penn. State U., 1957.
7. Cattell, Raymond and Herbert Eber. Handbook of the Sixteen Personality Questionnaire. The Institute for Personality and Ability Testing, Champaign, Ill., 1964.
8. Doudlah, Anna M. The relationship between the self-concept, the body-image and the movement concept of college freshmen women with low and average motor ability. Unpub. Master's Thesis, Univ. of N. Carolina, Greensboro, 1962.
9. Fisher, Seymour and Sidney Cleveland. Prediction of small group behavior from a body image schema. Human Relations 10:223-233, 1957.
10. Guilford, J. P. Creativity. Amer. Psychologist 5:444-445, 1950.
11. Guilford, J. P., R. C. Wilson, P. R. Christensen and D. J. Lewis. A factor analytic study of creative thinking: hypothesis and description of tests. Los Angeles: Univ. S. Cal. Press, 1951.

12. Hayes, Elizabeth R. Dance composition and production for high schools and colleges. Ronald Press Co., 1955.
13. Hooley, Agnes M. and Ruth H. Wheeler. Physical education for the handicapped. Lea and Febiger, 1969.
14. Isenberger, Wilma. Self attitudes of women physical education majors and physical education teachers. Res. Quart. 30:44-54, March, 1959.
15. Lecky, P. Self-consistency, a theory of personality. New York: Harper, 1954.
16. Lowen, Alexander. The betrayal of the body. New York: Macmillan Co., 1967.
17. Maslow, A. H. Motivation and personality. New York: Harper and Row, 1954.
18. Mathes, Sharon. Body-image research and problems. Midwest Assoc. for P. E. of College Women, Conference Program. pp. 16-19.
19. Michael, J. The effects of award, adult standard, and peer standard upon the creativeness in art of high school pupils. Unpublished Doct. Thesis, Penn. State Univ., 1959.
20. Mooney, Ross L. and Taher Razik. Explorations in creativity. Harper and Row, 1967.
21. Murphy, Gardner. Personality: a biosocial approach to origins and structure. New York: Harper, 1947.
22. Nation, Edna. Effect of physical education instruction on movement concept. Unpublished master's thesis, Univ. of North Carolina, Greensboro, 1962.
23. Nelson, Barbara. Relationships between selected aspects of self-actualization, body and self-cathexis and two movement factors. Unpublished Doctoral Dissertation, University of Mich., 1967.
24. Omwake, K. T. Relationship between acceptance of self and acceptance of others shown by three personality inventories. J. of Consult. Psych. 18:443-446, Dec., 1954.

25. Parker, Nancy Kay. Relationship between motor ability and self-concept of women non-physical education major students and physical education major students. Unpublished Master's Thesis, Univ. N. Carolina, Greensboro, 1961.
26. Phillipp, Joan Alice. Comparison of motor creativity with figural and verbal creativity and selected motor skills. Doct. Dissertation, Univ. Mich., 1967.
27. Rogers, Carl. Client-centered therapy. Cambridge: Riverside Press, 1951.
28. Rutherford, Jeanne. Personality of correlates. Dissertation Abstracts 20:4434, 1959.
29. Strobble, Sharon E. Relationship among selected measures of physical fitness, body image, self concept, movement concept, and selected personality traits of college P. E. majors with low physical fitness indices. Unpub. Doct. Dissertation, Ohio State Univ., 1956.
30. Smith, Hope M. and Marguerite A. Clifton. Sex differences in expressed self concepts concerning the performance of selected motor skills. Perceptual and Motor Skills 14:71-73, 1962.
31. Thomas, G. Patience. Some aspects of the self concept in modern dance. Unpub. master's thesis, Ohio State Univ., 1956.
32. Wylie, Ruth C. The self concept. Univ. of Neb. Press, 1961.
33. Zion, Leela C. Body concept as it relates to self concept. Res. Quart. :494, 1965.

APPENDIX

**JUDGES' CRITERIA FOR RATING
STUDENTS' IMPROVISATIONAL ABILITY**

I. Criteria to be considered

A. Originality in movement

1. lack of stereotyped dance movement
2. not necessarily based on skill of performance

B. Willingness to get started immediately

C. Ability to keep going

D. Total involvement

1. seeming lack of awareness of people watching
2. dynamic involvement
3. seeming enjoyment

Please rate every girl on all three attempts using a number grade from one to five. (1 is low, 5 is high) If possible, try to avoid the middle score.

RAW DATA - JUDGES' RATINGS
ON STUDENT'S IMPROVISATIONAL ABILITY

GROUP 1

Number	Judge 1	Judge 2	Judge 3	Judge 4	Judge 5	Total
1	7.5	10.5	9.5	9.1	5.9	42.5
2	11	3	9	6	7	36
3	13	13.5	12	12.8	15	66.3
4	10	10.5	5.5	7.5	5	38.5
5	10	9	11	10.5	9.8	50.3
6	6	7.5	7	4.8	12.5	37.8
7	13	7.5	9.5	7.5	10.7	48.2
8	4	3	3.7	3	3	16.7
10	13	15	11.5	11.3	6.8	57.6
11	9	12	9.5	10.6	15	56.1
12	14	15	11	10.6	15	65.6
13	11.5	6	9	3.4	4.5	34.4
14	14	10.5	14	14.2	15	67.7
15	4.5	11	12.5	13.6	10	51.6
16	14	15	15	15	15	74
17	14	10.5	9	12.6	15	61.1
18	14	13	14	10.6	15	66.6
19	8	13	14	7.9	12	54.9
20	10	7.5	8.5	6.5	5.2	37.7
21	13	6	10.5	7.3	10.2	47
22	10	12	14	9.5	12.2	57.7

RAW DATA - JUDGES' RATINGS
ON STUDENTS IMPROVISATIONAL ABILITY

GROUP 2

Number	Judge 1	Judge 2	Judge 3	Judge 4	Judge 5	Total Score
24	10	6	10.6	11	7	44.6
25	7	6	10	6.7	7.3	37
26	5	4.5	5	3.7	4	22.2
27	8	9	8	10	10	45
28	10	6	8.5	13.3	10	47.8
30	5	3	4.5	5	4	21.5
31	11	12	14	11	15	63
32	6.5	9	5.5	3.6	6	30.6
33	3	7	6	4.6	13	33.6
34	7	10.5	8	3.6	6	35.1
35	15	13.5	14	12	15	69.5
36	14	9	8	11.1	8	50.1
37	7	3	5	3	5	23
39	14	15	14	6.2	6	55.2
40	10.5	6	9	8	7	40.5
41	8	7.5	8	10	14	47.5
42	5	6	5.5	5	11.7	33.2
43	12.8	13.5	12	12.5	14	64.8
44	5	4.5	5.5	4.8	10	29.8

RAW DATA - GROUP 2 (continued)

Number	Judge 1	Judge 2	Judge 3	Judge 4	Judge 5	Total Score
45	5	10	6	5	8	34
46	10	10.5	10.5	5.4	15	51.4
47	6	5	6	6	9	32
48	3	4.5	5	4	5	21.5
49	3	4	3.5	4	6	20.5
50	12	14	11	12	15	64
51	12	10.5	12	10	8	52.5
52	6	7.5	5	5.6	3	27.1
53	5	3	6	5	7	26

RAW DATA - JUDGES' RATINGS
ON STUDENTS IMPROVISATIONAL ABILITY

GROUP 3

Number	Judge 1	Judge 2	Judge 3	Judge 4	Judge 5	Total Score
54	4	6	4.5	9.7	11	35.2
55	11.5	6	6	4.8	5	33.3
57	9	9	10	10.8	8	46.8
58	4	6	6.5	5.7	12	34.2
59	9	4.5	4.5	4.7	4.5	27.2
60	11.5	13	7	9.5	15	56
61	9	14	10	10.4	14	57
62	9	8	7	10.7	15	49.7
63	9	9	9	13.2	15	55.2
64	13.5	15	14	14	15	71.5
65	9	9	10	9.7	11	48.7
66	6	6	6.5	9.8	5	33.3
67	13.5	12	8	13.2	15	61.7
68	11	11	7.5	10	12.5	52
70	13.5	15	12	15	15	70.5
71	13.5	13	12	13	15	66.5
72	4	6	3	3.3	3	19.3
73	4	9	3	3.3	4	23.3
74	9	9	13.5	9	15	55.5
75	7	9	5	9	4	34
76	9	4	5	9	4	31

RAW DATA - JUDGES' RATINGS
ON STUDENTS' IMPROVISATIONAL ABILITY

GROUP 4

Number	Judge 1	Judge 2	Judge 3	Judge 4	Judge 5	Total Score
77	5	4	4.2	9.8	3	26
79	6	10.5	5.5	12.4	12	46.4
80	13	14	15	13	15	70
82	4.8	3	5	8	3	23.8
84	5	7.5	4	4	4.5	25
85	9	13	5	10	9.5	46.5
86	6.3	7.5	4.2	9.7	4.5	32.2
87	6.7	8.3	3.3	5.2	9.5	33
88	7	7.5	7	8.5	7	37
90	11	6	8.5	14.5	15	55
91	12.5	13.5	12	10	15	63
92	7.5	7	6.5	9.6	8.4	39
93	9	7.5	6.5	10	13	46
95	10	12	5	9	15	51
96	7	9	8	4	6	34
97	7	5	4	8	10	34
98	11	12	5	12	15	55

April 18, 1969

Dear

As partial fulfillment of the requirements for a Masters of Science Degree in Physical Education, I am writing a thesis on the personality characteristics of physical education majors involved with dance improvisation. You have been selected as one of those qualified for the study.

If you are willing to participate in the study, you will be involved in taking a personality test and in filling out a questionnaire. This project will take approximately one hour of your time.

I assure you that your test results will be held in the strictest confidence. I am interested only in statistical relationships and will under no circumstances report responses on an individual basis.

The dates the test will be given are listed on the enclosed card. If you are willing to participate in this study please complete the card and either return it to your instructor, put it in my mail box in the Wittich office or return it to me personally. Please return the card on or before April 22nd, Tuesday. If you wish more information concerning the study you may contact me whenever possible.

Your participation in this study will be greatly appreciated and will be invaluable to the success of my thesis. Thank you.

Sincerely,

Eileen Muth

P. S. The test will be administered in Room 204, Main Hall.

Name _____

I will take the test at the following time.

Please check one. (X)

6:30 Wed., April 23rd 6:30 Thurs., April 24th

7:45 Wed., April 23rd 7:45 Thurs., April 24th

I will make special arrangements with you to take the test at another time.

Please notify me if you have to make a change of time at the last minute.

E. Muth

BODY-IMAGE QUESTIONNAIRE (continued)

30. Do you possess a sense of rhythm which enables you to recognize rhythmical patterns of movement in your work and play?

YES

SOMEWHAT

NO

31. Do you have sufficient balance to move smoothly and easily with maximum efficiency and force in your work and play?

YES

SOMEWHAT

NO

32. Do you consider your reaction time to be adequate in most situations?

YES

SOMEWHAT

NO

RAW SCORES ON 16 P. F.
GROUP I

12	9	10	11	14	13	12	12	14	10	14	11	12	14	12	14	10	7	9	9	18	16	12	14	7	12	13	
11	7	11	10	11	9	8	8	9	8	8	9	8	8	9	9	9	9	8	8	7	8	7	6	10	11	8	
11	15	19	14	12	14	17	14	19	14	16	13	16	13	15	15	18	16	19	11	15	15	13	16	24	18	21	11
10	11	12	15	9	4	9	14	12	17	8	14	5	15	6	10	15	9	14	7	10	7	16	8	12	14	10	12
13	19	15	9	14	21	22	21	19	12	17	20	16	17	18	21	15	20	18	9	8	13	19	20	20	8	23	18
14	14	14	9	15	20	16	17	10	9	17	15	16	9	16	6	6	14	16	14	11	14	15	13	15	11	18	16
16	15	9	13	6	12	14	19	22	14	10	17	7	18	8	11	22	11	18	8	4	8	18	19	24	17	20	21
6	13	9	10	11	9	10	13	12	10	10	12	12	13	9	10	14	11	9	10	12	8	14	9	12	11	12	16
3	8	9	11	10	6	8	1	7	13	14	4	6	9	8	6	8	4	5	5	11	8	7	9	4	9	10	4
0	12	18	14	10	14	12	23	17	18	9	11	11	13	11	12	20	14	9	16	16	6	15	11	13	13	12	8
9	8	8	11	13	12	8	5	11	12	12	12	9	14	9	4	9	14	11	7	5	8	12	11	11	5	13	
6	11	7	11	13	16	9	10	6	9	9	8	15	9	11	12	9	11	9	7	12	9	16	7	2	12	10	12
2	12	11	11	10	10	7	13	11	12	18	10	5	10	10	10	11	11	10	9	10	7	7	7	15	9	18	7
9	6	10	11	5	7	9	10	9	16	11	8	7	5	11	14	9	4	11	11	14	7	4	7	5	13	17	8
6	11	14	7	12	15	12	7	11	12	13	13	13	9	12	8	13	7	14	15	7	11	8	10	18	8	13	15
4	14	7	15	16	12	8	11	8	17	14	17	14	19	13	16	14	12	8	10	12	15	17	11	7	14	8	13

RAW SCORES ON 16 P. F.
GROUP II

12	14	14	15	14	17	8	11	9	5	8	11	8	11	12	11	8	7	12	17	12	12	12	9	7	13	14	
9	9	7	9	9	8	8	10	9	8	8	9	9	8	7	12	9	7	7	8	7	6	7	8	7	8	7	10
12	15	14	13	19	10	13	11	13	17	15	17	19	14	11	16	18	14	16	14	11	20	11	14	18	13	13	
11	12	12	10	12	22	5	8	7	4	7	14	9	17	9	7	15	11	14	9	15	16	8	5	17	11	8	
19	15	15	6	13	23	15	21	9	19	23	13	12	21	16	21	11	17	23	21	16	16	15	19	13	13	18	
11	13	18	13	17	10	12	12	13	17	12	11	16	14	14	19	10	14	6	13	10	17	16	11	13	17	8	
10	11	12	4	14	20	2	7	5	3	9	9	12	7	1	17	13	7	13	19	13	15	9	12	13	14	13	
9	11	7	11	11	12	8	12	15	7	10	12	6	9	9	10	10	8	10	10	8	13	11	11	9	13		
8	9	6	9	6	12	10	12	9	9	8	12	8	5	9	8	4	6	6	4	5	10	11	6	8	12	5	
12	12	12	11	10	10	7	14	16	11	9	9	10	12	16	12	16	8	12	13	13	13	15	10	13	12	18	
8	11	7	7	10	10	9	5	10	12	8	10	8	12	10	15	6	9	15	5	13	6	10	10	12	13	9	
17	16	10	6	11	10	15	14	11	15	11	13	6	13	14	10	9	3	5	7	15	11	9	7	15	12	17	
6	9	12	7	8	14	9	5	8	10	10	10	12	8	8	9	12	9	15	7	6	13	9	12	13	14	9	
7	3	6	8	11	7	10	7	15	8	6	7	13	3	13	6	10	11	8	5	4	8	11	5	13	11	15	
12	15	7	6	10	10	6	10	11	11	10	10	15	7	9	12	13	10	8	7	13	7	15	9	10	11	9	
21	16	16	11	12	20	18	17	12	8	13	21	6	20	21	14	9	10	9	13	20	18	20	8	16	11	20	

16 P. F. STEN SCORES
ON SECOND ORDER PERSONALITY FACTORS

Group I				Group II			
I	II	III	IV	I	II	III	IV
1	7.9	9.5	5.5	4.8	5.9	5.9	4.3
6.5	5.4	6.5	5.5	8.6	2	7.5	4.4
2.7	8.4	5.9	6.7	7.9	5	4.9	3.7
4.6	8.3	4.3	8.3	6	2	3.3	6.5
4.3	7	7.3	4	6	2.7	8.7	4.9
5.4	5.6	6.1	3.2	6.2	6.3	7.7	6.6
7.5	3.2	5.3	3.7	7.9	5.2	6.9	5.9
6.8	5.3	6.5	7.9	2.7	3.9	8.3	6.4
5.6	6.7	6.1	5.7	7.7	7.3	8.1	4.6
5.9	5.2	6.3	5.5	8.9	2.9	5.6	6
4.9	7.7	7.1	6.2	5.4	7.2	7.7	3.2
6.4	3.9	6.1	2.4	3.5	5.7	6.5	8.9
6.9	8.5	4.9	5.7	4.1	8	9.3	8.4
3.8	4.4	7.1	4.8	4.8	8.8	3.3	2.7
3.6	5.9	6.3	7	6.8	7.3	7.1	5.1
4.3	7.8	3.7	6.9	6.4	6.7	7.5	7.1
5.4	6.3	7.1	5.1	5.7	4.1	4.3	5.4
2.9	7.4	5.9	6.4	4.8	5.3	6.3	4.6
4	2.9	5.7	5.9	6.6	8.3	7.9	9.3
7	1.8	5.1	7.9	5.8	5.7	6.5	6.5
5.7	5.1	5.1	1.3	7.5	5.9	3.7	7.2
6.6	9.3	3.7	3.9	8.3	6.2	6.5	4.6
4.4	7.5	7.3	3.6	1.8	6.5	8.1	5.4
1	9.7	6.7	4.9	4.1	4.2	7.9	5.8
5.6	4.9	6.9	8.9	5.9	2.8	3.9	3.8
3.8	7.6	6.7	6.8	5.9	7	7.1	5.5
4.4	8.2	4.1	3.5	7.2	10	6	7
4.4	4.5	6.1	7.4	6.2	6.4	5.5	3.4

BODY-IMAGE QUESTIONNAIRE SCORES

<u>Group I</u>	<u>Group II</u>
84	51
83	73
79	74
93	90
91	62
90	52
85	48
88	71
85	68
70	71
72	63
85	87
82	73
84	78
85	85
91	79
87	89
74	75
83	62
80	61
88	65
93	78
88	67
94	73
80	68
74	64
74	78
87	74

FACTOR	Raw Score			Standard Score	LOW SCORE DESCRIPTION	STANDARD TEN SCORE (STEN)										HIGH SCORE DESCRIPTION
	Form A	Form B	Total			→ Average ←										
						1	2	3	4	5	6	7	8	9	10	
A					RESERVED, DETACHED, CRITICAL, ALOOF (Sizothymia)	.	.	.	.	A	.	.	.	.	.	OUTGOING, WARMHEARTED, EASY-GOING, PARTICIPATING (Affectothymia, formerly cyclothymia)
B					LESS INTELLIGENT, CONCRETE-THINKING (Lower scholastic mental capacity)	.	.	.	.	B	.	.	.	.	.	MORE INTELLIGENT, ABSTRACT-THINKING, BRIGHT (Higher scholastic mental capacity)
C					AFFECTED BY FEELINGS, EMOTIONALLY LESS STABLE, EASILY UPSET (Lower ego strength)	.	.	.	.	C	.	.	.	.	.	EMOTIONALLY STABLE, FACES REALITY, CALM, MATURE (Higher ego strength)
E					HUMBLE, MILD, ACCOMMODATING, CONFORMING (Submissiveness)	.	.	.	.	E	.	.	.	.	.	ASSERTIVE, AGGRESSIVE, STUBBORN, COMPETITIVE (Dominance)
F					SOBER, PRUDENT, SERIOUS, TACITURN (Desurgency)	.	.	.	.	F	.	.	.	.	.	HAPPY-GO-LUCKY, IMPULSIVELY LIVELY, GAY, ENTHUSIASTIC (Surgency)
G					EXPEDIENT, DISREGARDS RULES, FEELS FEW OBLIGATIONS (Weaker superego strength)	.	.	.	.	G	.	.	.	.	.	CONSCIENTIOUS, PERSEVERING, STAID, MORALISTIC (Stronger superego strength)
H					SHY, RESTRAINED, TIMID, THREAT-SENSITIVE (Threctia)	.	.	.	.	H	.	.	.	.	.	VENTURESOME, SOCIALLY BOLD, UNINHIBITED, SPONTANEOUS (Pamia)
I					TOUGH-MINDED, SELF-RELIANT, REALISTIC, NO-NONSENSE (Harria)	.	.	.	.	I	.	.	.	.	.	TENDER-MINDED, CLINGING, OVER-PROTECTED, SENSITIVE (Premsia)
L					TRUSTING, ADAPTABLE, FREE OF JEALOUSY, EASY TO GET ALONG WITH (Alaxia)	.	.	.	.	L	.	.	.	.	.	SUSPICIOUS, SELF-OPINIONATED, HARD TO FOOL (Protensia)
M					PRACTICAL, CAREFUL, CONVENTIONAL, REGULATED BY EXTERNAL REALITIES, PROPER (Praxemia)	.	.	.	.	M	.	.	.	.	.	IMAGINATIVE, WRAPPED UP IN INNER URGENCIES, CARELESS OF PRACTICAL MATTERS, BOHEMIAN (Aurtia)
N					FORTHRIGHT, NATURAL, ARTLESS, UNPRETENTIOUS (Artlessness)	.	.	.	.	N	.	.	.	.	.	SHREWD, CALCULATING, WORLDLY, PENETRATING (Shrewdness)
O					SELF-ASSURED, CONFIDENT, SERENE (Untroubled adequacy)	.	.	.	.	O	.	.	.	.	.	APPREHENSIVE, SELF-REPROACHING, WORRYING, TROUBLED (Guilt proneness)
Q					CONSERVATIVE, RESPECTING ESTABLISHED IDEAS, TOLERANT OF TRADITIONAL DIFFICULTIES (Conservatism)	.	.	.	.	Q ₁	.	.	.	.	.	EXPERIMENTING, LIBERAL, ANALYTICAL, FREE-THINKING (Radicalism)
Q					GROUP-DEPENDENT, A "JOINER" AND SOUND FOLLOWER (Group adherence)	.	.	.	.	Q ₂	.	.	.	.	.	SELF-SUFFICIENT, PREFERS OWN DECISIONS, RESOURCEFUL (Self-sufficiency)
Q					UNDISCIPLINED SELF-CONFLICT, FOLLOWS OWN URGES, CARELESS OF PROTOCOL (Low integration)	.	.	.	.	Q ₃	.	.	.	.	.	CONTROLLED, SOCIALLY PRECISE, FOLLOWING SELF-IMAGE (High self-concept control)
Q					RELAXED, TRANQUIL, UNFRUSTRATED (Low ergic tension)	.	.	.	.	Q ₄	.	.	.	.	.	TENSE, FRUSTRATED, DRIVEN, OVERWROUGHT (High ergic tension)

Table N-7: Norms for
COLLEGE STUDENTS

FEMALE: FORM A

(Based on age 21 years; N = 1012)

Factor	Sten Score										Factor	Mean	Stan. Dev.
	1	2	3	4	5	6	7	8	9	10			
	Raw Score												
A	0-4	5-6	7	8-9	10-12	13	14-15	16	17-18	19-20	A	11.76	3.56
B	0-4	5	-	6	7	8	9	10	11	12-13	B	7.72	1.80
C	0-6	7-8	9-10	11-12	13-14	15-16	17-18	19-20	21-22	23-26	C	14.77	3.94
E	0-3	4	5-6	7-8	9-10	11-12	13-14	15-16	17-18	19-26	E	10.69	3.90
F	0-5	6-7	8-10	11-12	13-15	16-17	18-19	20-21	22	23-26	F	15.36	4.43
G	0-4	5-6	7-8	9-10	11-12	13	14-15	16-17	18	19-20	G	12.88	3.45
H	0-2	3-4	5-7	8-9	10-12	13-15	16-17	18-20	21-22	23-26	H	12.31	5.12
I	0-5	6	7-8	9-10	11-12	13	14	15	16-17	18-20	I	11.76	2.99
L	0-1	2-3	4	5	6-7	8-9	10	11-12	13-14	15-20	L	7.59	3.07
M	0-5	6-7	8	9-10	11-12	13-14	15-16	17	18-19	20-26	M	12.46	3.46
N	0-5	6	7	8	9-10	11	12-13	14	15-16	17-20	N	10.43	2.76
O	0-3	4	5-6	7	8-9	10-12	13-14	15-16	17-18	19-26	O	10.61	3.77
Q ₁	0-3	4	5	6-7	8	9	10-11	12-13	14	15-20	Q ₁	8.64	2.86
Q ₂	0-3	4	5-6	7	8-9	10-11	12-13	14-15	16-17	18-20	Q ₂	9.69	3.48
Q ₃	0-4	5	6-7	8-9	10	11-12	13	14	15-16	17-20	Q ₃	10.63	2.95
Q ₄	0-3	4-5	6-7	8-10	11-12	13-15	16-18	19-20	21-22	23-26	Q ₄	12.80	4.91
	1	2	3	4	5	6	7	8	9	10			
	Sten Score												