

The Inconsistencies Among the Cognitive, Emotional
and Behavioral Aspects of Self-Concept

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Abstract

The interrelationships that exist among general self-concept scores, arousal measurements, and performance scores on a verbal learning task were measured. Results obtained employing chi-square analysis and analysis of variance using unweighted means were not significant. The lack of a systematic relationship between self-concept scores and arousal measurements and performance scores was attributed to the inappropriate employment of a general self-concept scale for this study. No explanation could be supplied to account for the absence of a significant main effect between arousal measurements and performance scores. Based on results obtained from this study, it is suggested that specific measures of self-concept would be more appropriate when attempting to measure specific--situational variables.

The Inconsistencies Among the Cognitive, Emotional and Behavioral Aspects of Self-Concept

Morris Rosenberg (1965) has done extensive research on the adolescent's self-concept. He has considered such factors as content, direction, intensity, importance, salience, consistency, stability, and clarity of self-concept as components of this hypothetical construct. These factors have enabled him to measure more specific variables such as social status, roles, physical characteristics, skills, etc., using self-concept as the "pivotal variable". Usually, researchers employ general self-concept, specific self-concept, or task-specific self-concept measuring instruments when attempting to establish relationships between self-concept measures and related characteristics. However, results have not been consistent among characteristics related to self-concept which have received considerable attention from theorists. Yet, these dimensions, regardless of their ambiguity, combine to provide a more descriptive self-concept that an individual may possess as well as to help define the characteristics related to self-concept.

Since researchers, including the present author, use many terms interchangeably to refer to self-concept, such as self-attitudes, self-esteem, or self-image, it is important to consider what Rosenberg and other psychologists imply by these terms. Self-concept refers to the positive or nega-

tive attitudes an individual has toward himself. These attitudes entail cognitive evaluations and emotions which determine or influence behavior. Thus, someone who possesses a high self-concept has developed a strong, stable, and consistent attitude about himself, his abilities and his limitations. Because his attitude is stable he maintains a balance between his weak points and his strong points, recognizing those areas needing improvement in order to grow and to become a more integrated person. On the other hand, a person who possesses a low self-concept lacks a consistent self-image, and is disoriented and dissatisfied with himself. In other words, a person who possesses a low self-concept rejects who he is and lacks the proper respect which would allow him to develop a consistent image of himself, basically because his self-image is inadequate or inferior to his ideal image (Rosenberg, 1965).

Self-Concept, Self-Evaluation and Performance

Self-concept, by definition, is related to self-evaluation; the latter being the manner in which one perceives himself and assesses his worth accordingly. In this manner it is possible to conceive of self-concept as a personality variable which influences a person's evaluation of his work (Morrison, 1973). Because self-concept becomes an integral part of an individual's personality, a person performs or functions in a way consistent with his self-concept level (Felker, Stanwyck, & Douglas, 1971). Studies have provided

evidence indicating that differential levels of self-esteem are associated with positive and negative degrees of evaluations. This concept was demonstrated by Felker (1971) when he suggested that high esteem subjects tended to make more positive self-directed statements than low esteem subjects. However, he maintained that "the valence of such statements is influenced more by general self-concept than by actual success or failure on the academic task." Similar results were obtained by researchers who have asked subjects to predict their grades before beginning a task. It was found that the mean predicted grade of low esteem subjects was lower than the mean predicted grades of high esteem subjects (Morris, Thomas, Weaver, 1973; Simpson & Boyle, 1975). To demonstrate the importance of self-evaluation, Schrauger (1972) found a positive relationship between self-concept and perceived performance immediately following a task. High esteem subjects evaluated their performances more favorably and more accurately than low esteem subjects after completing the task. In general, theorists maintain that self-evaluations are influenced more by general self-concept than by actual performance on a task.

Although much data have been obtained supporting the hypothesis that differential levels of self-esteem are associated with positive and negative degrees of evaluations, conflicting evidence also exists. Rosenberg (1965) presented results indicating that low esteem respondents generally

refrain from critically evaluating themselves. His results do not support his original hypothesis which stated that low esteem subjects would be expected to devalue self in order to obtain the comfort and support of others. A possible explanation for the conflicting evidence is that Rosenberg's measures are concerned with more general self-evaluations while previous research referred to specific task measurements. In other words, previous literature concentrated on subjects' self-evaluations directly related to the task at hand, but Rosenberg's general self-concept approach was applied to many variables.

As mentioned previously, self-concept scores or self-evaluations are associated with behavior as an index for determining the strength and stability of self-concept. One behavioral variable which has received considerable attention from theorists, in order to measure the effects of self-concept, is academic performance. Self-concept scores have been found to have a strong relationship with academic aptitudes as documented by Prendergast and Binder (1975). They obtained high correlations among reading and mathematic scores and self-concept scores. Self-concept scores have also been correlated with actual academic performance indicating that high esteem subjects generally receive higher grades than moderate esteem subjects, who in turn receive higher grades than low esteem subjects on examinations (Morrison, Thomas, & Weaver, 1973; Simpson & Boyle, 1975).

Schrouger (1972) received similar results measuring performance on a concept attainment task and correlating these with general self-concept scores.

Self-Concept and Anxiety

Social psychologists measure the stability of attitudes according to their resistance to change which is dependent upon the degree of cognitive, emotional, and behavioral integration. Self-concept, termed self-attitudes by many theorists, possesses the same components associated with social attitudes. The cognitive and behavioral components have been introduced and discussed briefly indicating their consequences. To consider the emotional aspect, Rosenberg reported that William James and Charles Cooley referred to self-feelings as a set of emotions associated with self-attitudes which are aroused with reference to the self. These are emotions of "shame, guilt, mortification, pride, self-complacency, etc. . . ." (Rosenberg, 1965, p.12) generally categorized as feelings of anxiety. Thus, a functional relationship may exist between self-concept or self-attitudes.

Rosenberg (1965) has identified four factors associated with low self-concept and manifestations of anxiety: 1) instability of self-concept, 2) the presentation of self, 3) vulnerability, and 4) feelings of isolation. An unstable self-image occurs most often among persons with relatively low self-concepts. Inconsistent self-attitudes require people low in self-esteem to create a facade as a coping

mechanism to prevent revelation of weaknesses. In order to protect this facade tension is generated by constant exertion of energy to guard against inconsistent behavior. Sometimes a person who is over defensive will be very self-conscious and experience anxiety. Therefore, low esteem subjects are more vulnerable and are likely to experience more anxiety than high esteem subjects. Finally, the low esteem subject entertains chronic feelings of isolation, causing him to either retreat to a private world of imagination or maintain his facade. Both are coping mechanisms prohibiting intimacy and spontaneity.

These factors are indicative of the functional relationship that may exist between self-concept and anxiety. It is unclear, however, whether anxiety generates low self-concept or low self-concept causes anxiety. But despite the lack of material to verify the self-concept--anxiety sequence, results consistently indicate that subjects who have low self-concepts experience more anxiety than subjects possessing high self-concepts when required to perform a specific task (Rosenberg, 1965; Fiedler, Dodge, James, Hutchins, & Edwin, 1958).

Anxiety, Physiological Measurements, and Performance

Researchers have investigated the effect anxiety has on performance and have found that high levels of anxiety interfere with performance on a complex task. It is generally accepted that "high anxiety subjects perform differently in

learning situations depending upon the extent to which strong incorrect responses are in competition with the correct, appropriate responses" (Spence, Farber, & MCFann, 1956). For instance, high anxious subjects performed better than low anxious subjects on noncompetitive word pairs or high associated word pairs, while low anxious subjects' performances were superior to high anxious subjects on competitive word pairs or low associated word pairs (Spence, Taylor & Ketchell, 1956; Spence, Farber, & MCFann, 1956). The same variables have been measured using nonsense syllables and serial learning, and similar results were obtained (Raymond, 1953; Taylor & Spence, 1952; Ganzer, 1968). However, Raymond (1953) also found that low anxiety subjects were superior in performance to high anxiety subjects during early learning situations. But as learning progressed low anxiety subjects' performances were equal to or inferior to high anxiety subjects. He attributed this difference to the fact that high anxiety subjects tend to master a task thoroughly through repetition.

The preceding literature is related to general anxiety measures obtained from self-inventory scales; however, researchers are interested in more specific measures of arousal. Four factors have been discussed related to esteem--anxiety measurements in which physiological symptoms are manifested. In extreme anxiety conditions such symptoms as shortness of breath, sleep disturbances, excessive sweating, and pallor

of the face may be observed (Rosenberg, 1965; Coleman, 1972). But in less extreme cases unobserved physiological changes may also occur such as increased heart rate or mild sweating. These symptoms, referred to as general levels of activation or autonomic activity, can be detected and measured scientifically. This is done through electrical conductance, or electrical resistance^α, of the skin which measures the fluctuations of arousal during stimulus--response intervals (Woodworth & Schlosberg, 1954).

Physiological levels of arousal that accompany anxiety have been measured, and these measurements are congruent with previously mentioned results indicating that arousal interferes with performance. Rugel (1971) observed that galvanic skin response (GSR) fluctuations increased as the level of reading difficulty increased. He proposed that an increase in arousal was detrimental to reading performance. Raphelson (1957) correlated self-report anxiety measures and the need to achieve on a competitive verbal task with physiological measures of arousal. High anxious subjects had a greater increase in conductance and poorer task performance than low anxious subjects. Similar results were obtained using GSR measurements with results obtained from previous literature demonstrating that low anxious subjects performed better than high anxious subjects on a complex verbal learning task.

Hypothesis

The major objective of this study is to examine the interrelationships that exist among self-concept scores, arousal levels, and performances on a verbal learning task. As generally accepted by theorists, it is predicted that differential levels of self-concept will be associated with varying levels of arousal while performing a verbal learning task. It is hypothesized that self-concept will be related to arousal and performance. Specifically, subjects with high self-concepts will be less aroused when performing a complex task than low self-concept subjects. Also, subjects with high self-concepts are expected to have higher performance scores on a complex task than low self-concept subjects. Secondly, it is predicted that high aroused subjects' performances will be inferior to low aroused subjects' performances on a verbal learning task.

Method

Subjects. Twenty-three freshmen students at St. Meinrad Seminary--College, an all male institution, served as subjects. The students ranged in ages from 17 to 25 years old. Originally, 30 students were randomly selected from a class of 55 to participate, at their discretion, in the experiment. Twenty-three responded after receiving a letter which briefly explained their selection. Of these, four subjects were excluded from final analysis because of the experimenter's failure to properly perform some aspects of

the experimental procedure.

Apparatus. A Sencore digital voltmeter was used to measure skin resistance during testing. The digital voltmeter was selected because of its accuracy, sensitivity, portability and elimination of the judgemental factor required when reading an analog voltmeter (Risse, 1975).

A setting of 200 K ohms per volt was used to measure resistance of each subject tested. Two clips, connected to two insulated lead wires extending from the voltmeter, were attached to each pole of a 200 K ohm resistor. Two more insulated wires were extended from each pole of the resistor with a steel disk soldered to the end of each wire. The subject was connected to the resistor by attaching the electrodes to the first and third fingers of his left hand. An electrical paste was applied before attaching the electrodes to enhance conductance.

Materials. The Rosenberg Self-Esteem Scale (RSE) was administered to subjects to obtain general self-concept scores (see Appendix A). The scale was selected because of its brevity, the time required to administer it, and its high test-retest reliability. In constructing the test a ten-item Guttman scale was employed to ensure unidimensionality which is achieved by the patterned relationship of each item with all items on the scale. Construction also allowed respondents to be ranked in hierarchical order, from high to low self-esteem scores, based on responses to

weighted items. Reproducibility of the scale is .92 and scalability is .72 which lends credence to its unidimensionality (Rosenberg, 1965).

Wylie (1974) applauded Rosenberg for avoiding heterogeneous statements, sum of total scores across items, and inconsistent psychological indices for self-evaluation while constructing his scale. She was also impressed with high reliability and construct validity using only ten items. For instance, Silber and Tippet (1965), as reported by Wylie, correlated RSE scores with the Kelly Repertory Test, Heath Self-Image Questionnaire, and the interviewer's ratings of self-esteem obtaining scores of $r=.67$, $r=.83$, and $r=.56$ respectively.

Other researchers have correlated the RSE with other general self-concept scales obtaining similar results. Prendergast and Binder (1975) used the RSE when they measured the relationships of selected self-concept scales and academic aptitudes. The RSE and the Brookover Self-Concept of Ability Scale were found to be significantly correlated. Simpson and Boyd (1975) obtained a $r=.59$ correlation between the RSE and the Tennessee Self-Concept Scale. The high correlations obtained by researchers who measured relationships existing between RSE and other self-inventory tests lend credibility to its high test--retest reliability.

Procedure. The experiment was performed in a classroom used by the psychology department. In addition to the

experimenter there were three assistants present to help record the subject's responses. Each subject was seated in a desk approximately six feet in front of the experimenter's desk. In order to avoid distraction the assistants were stationed behind the subject, who was aware of their presence.

Before the experimenter began, each subject completed the RSE scale. After the subject completed the scale, the electrodes were attached to the first and third fingers of his left hand. During the preparation process the experimenter explained the purpose of the electrodes and assured the subject that he would not receive any electrical shock throughout the experiment. The subject was requested to sit back and to remain as still as possible in order to avoid interference with skin resistance measurements. Following these experimental preparations the experimenter instructed the subject about the verbal learning task.

The experimenter administered a verbal learning task composed of ten pairs of words. The ten word pairs were chosen from a list of highly associated word pairs composed by the experimenter. The 20 words were scrambled and then randomly paired to obtain the ten word pairs used. They were presented on flash cards in an alternate study and recall fashion. In order to discourage the subject from memorizing the order in which the words were presented, four different orders of presentation for study and recall were devised and rotated until testing was completed. The words

and order of presentation are shown in Tables A and B. During

Insert Tables A and B about here

the study trial the experimenter presented each of the ten pairs of words individually for three seconds as the subject studied silently. One of the assistants recorded a "study" reading from the voltmeter after each word had been presented for approximately two seconds, to allow time for the voltmeter to register subject's resistance.

The study--recall trials were alternated maintaining rotation of the word pairs until the subject completed two perfect recall trials consecutively. Once testing was completed, the experimenter asked the subject five questions related to the nature of the learning task, the learning technique the subject used, and the experimental conditions. The questions asked are found in Appendix B. Before dismissing the subject, the experimenter explained the objective of the testing and requested that he not divulge any information to fellow classmates about the experiment.

Results

Self-concept scores, arousal measurements, and performance scores were obtained from tests administered to subjects and classified as high, medium, and low in each category. Self-concept scores were derived from subjects' responses on the Rosenberg Self-Esteem Scale and scored according to the

Guttman Scale design (Rosenberg, 1965, p. 305-307). As presented in Table 1, 15 of 19 respondents received high self-

Insert Table 1 about here

concept scores while three respondents received medium scores and one subject a low score. Arousal measurements were obtained by averaging subjects' study, stimulus, and response skin resistance readings over the first three trials. Resistance readings, presented in Table 2, were normally dis-

Insert Table 2 about here

tributed; six, eight, and five respondents receiving high, medium, and low scores respectively. Differential levels of performance were designated by the number of trials required by subjects to reach criteria in order to complete the verbal learning task. As presented in Table 3, scores were not

Insert Table 3 about here

normally distributed; eight subjects received high performance scores, seven subjects medium scores, and four subjects low scores on the verbal learning task.

Chi-square analysis was used to evaluate the interrelationships existing among the three variables. Three 3 X 3 chi-square tests for statistical independence were performed on self-concept scores and arousal measurements, self-concept

scores and performance scores, and arousal measurements and performance scores. The effect of self-concept scores on arousal measurements was not significant, $\chi^2 (4) = 3.798$, $p > .05$. Results from chi-square analysis on self-concept scores and arousal measurements are presented in Table 4.

Insert Table 4 about here

The predicted effect of self-concept scores on performance scores were not significant; $\chi^2 (4) = 3.0749$, $p > .05$. Table 5 contains the chi-square analysis of self-concept scores and

Insert Table 5 about here

performance scores. The expected significant⁺ effect of differential levels of arousal on performance were not obtained, $\chi^2 = 2.9896$, $p > .05$. Results obtained from chi-square analysis on arousal measurements and performance scores are presented in Table 6.

Insert Table 6 about here

An analysis of variance using unweighted means was performed on anxiety measurements and performance scores. As presented in Table 7, no significant difference in levels of

Insert Table 7 about here

performance regardless of levels of arousal was obtained, $F = 1.283$, $df = 2, 16$, $p > .05$.

Discussion

Results indicate that general self-concept scores are not necessarily related to differential levels of arousal and of performance on a verbal learning task. Specifically, general self-concept scores are neither predictive of varying levels of arousal subjects may experience while performing a verbal learning task, nor are they predictive of levels of performance on a task. Data also indicated that differential levels of arousal are not related to levels of performance; therefore, arousal does not necessarily effect performance on a task.

The lack of a systematic relationship between general self-concept measurements and arousal and performance measurements may be attributed to the inappropriateness of the self-concept scale used in the study. Researchers ^{offer} often several criticisms against the construct validity of general self-concept measures. For instance, some researchers contend that general self-concept scales are too encompassing to be useful for predicting specific behaviors (Wylie, 1974), because they do not consider situational factors (Gergen, 1971). Rosenberg (1965), whose scale was employed in this study, concedes that the general self-concept scale does not consider the specific areas which may actually form a respondents self-concept. Therefore, the criticisms leveled against general self-concept scales suggest that task-specific and specific self-concept instruments are likely to show

a significant relationship with specific behavioral variables. (Prendergast & Binder, 1975).

It is difficult to supply an explanation for the absence of a significant main effect between arousal measurements and performance scores. Marten (1969) and Schrauger (1972) contend that "situation--specific measures of arousal should be more predictive of actual performance than generalized (self-report) anxiety measures." Despite the evidence cited supporting an arousal--performance relationship, results were not significant.

Based upon the interrogation of the subjects after the task, a new factor has emerged that may prove to be the most significant in influencing performance. The technique employed by subjects while learning the task may have been more influential on performance than anxiety was. A suggestion for future research would be an investigation of the relationship of technique employed while learning a task and its effect on performance.

Results obtained from this study question the construct validity and employment of general self-concept scales in attempting to measure relationships between self-concept and specific behavioral variables. Researchers should be careful to choose the appropriate instrument suited for their study. Perhaps, more specific measurements should be used when attempting to establish situational relationships.

needs more
elaboration

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Rosenberg Self-Esteem Scale

The following statements refer to self-attitudes--attitudes, thoughts, and feelings you have about yourself. Please circle one number adjacent to each statement which best expresses the attitudes you possess about yourself.

1. Strongly agree 2. Agree 3. Disagree 4. Strongly disagree

1. 1 2 3 4 On the whole, I am satisfied with myself.
2. 1 2 3 4 At times I think I am no good at all.
3. 1 2 3 4 I feel that I have a number of good qualities.
4. 1 2 3 4 I am able to do things as well as most people.
5. 1 2 3 4 I feel I do not have much to be proud of.
6. 1 2 3 4 I certainly feel useless at times.
7. 1 2 3 4 I feel that I am a person of worth, at least
on an equal plane with others.
8. 1 2 3 4 I wish I could have more respect for myself.
9. 1 2 3 4 All in all, I am inclined to feel that I am a
failure.
10. 1 2 3 4 I take a positive attitude toward myself.

Appendix B

After the verbal learning task was completed, the experimenter asked each subject five questions.

1. How would you assess the verbal learning task; was it difficult or easy?
2. What technique did you employ to learn and recall the associated words?
3. Did the unusual word pairs interfere with learning the correct associations?
4. Was the barrier placed on the experimenter's desk (between the subject and experimenter) distracting?
5. Did this room (the classroom used for experimentation) effect your concentration?

Table A: Word Combinations

Order of Presentation for Study Trials

First Set

Table -- White

Soap -- Saucer

Bread -- Pepper

Horse -- Tie

Cup -- Buggy

Mother -- Chair

Shirt -- Water

Needle -- Butter

Salt -- Daughter

Black -- Thread

Third Set

Needle -- Butter

Cup -- Buggy

Shirt -- Water

Horse -- Tie

Black -- Thread

Salt -- Daughter

Soap -- Saucer

Bread -- Pepper

Table -- White

Mother -- Chair

Second Set

Horse -- Tie

Black -- Thread

Table -- White

Needle -- Butter

Salt -- Daughter

Cup -- Buggy

Mother -- Chair

Shirt -- Water

Bread -- Pepper

Soap -- Saucer

Fourth Set

Cup -- Buggy

Bread -- Pepper

Table -- White

Shirt -- Water

Mother -- Chair

Soap -- Saucer

Salt -- Daughter

Needle -- Butter

Black -- Thread

Horse -- Tie

Table B: Left--Hand Words
Order of Presentation for Recall Trials

<u>First Set</u>	<u>Second Set</u>
Needle	Cup
Cup	Bread
Shirt	Table
Horse	Shirt
Black	Mother
Salt	Soap
Soap	Salt
Bread	Needle
Table	Black
Mother	Horse
<u>Third Set</u>	<u>Fourth Set</u>
Table	Horse
Soap	Black
Bread	Table
Horse	Needle
Cup	Salt
Mother	Cup
Shirt	Mother
Needle	Shirt
Salt	Bread
Black	Soap

Table 1

Frequency Distribution of Self-Concept Scores

Class Levels	Self-Concept Scores	Number of Subjects
High	0-1	15
Med.	2-4	3
Low	5-6	1

Note. Lowest number indicates highest self-concept score.

Table 2

Frequency Distribution of Arousal Measurements -
Skin Resistance Readings

Class Levels	Skin Resistance Readings	Number of Subjects
High	16.778-35.835	6
Med.	35.836--54.894	8
Low	54.894--73.952	5

Note. Lowest resistance reading indicates
highest arousal level.

Table 3

Frequency Distribution of Performance Scores
on Verbal Learning Task

Class Levels	Performance Scores	Number of Subjects
High	3-5	8
Med.	6-8	7
Low	9-12	4

Note. Performance scores refer to number of trials required to reach criteria; lowest number indicates highest performance.

Table 4
Contingency Table of Observed and Expected Frequencies
for Self-Concept Scores and Arousal Measurements
Self-Concept Scores

Arousal Measurements	Levels	High	Med.	Low	Total
	High	4 (4.737)*	1 (.947)	1 (.316)	6 (6.000)
	Med.	6 (6.316)	2 (1.263)	0 (.421)	8 (8.000)
	Low	5 (3.947)	0 (.790)	0 (.263)	5 (5.000)
	Total	15 (15.000)	3 (3.000)	1 (1.000)	19 (19.000)

* Designates expected frequencies

** $\chi^2 (4) = 3.798, p > .05$

Table 5

Contingency Table of Observed and Expected Frequencies
for Self-Concept Scores and Performance Scores

Self-Concept Scores

Performance Scores	High	Med.	Low	Total
High	6 (6.316)*	1 (1.263)	1 (.421)	8 (8.000)
Med.	5 (5.526)	2 (1.105)	0 (.368)	7 (6.999)
Low	4 (3.158)	0 (.632)	0 (.211)	4 (4.001)
Total	15 (15.000)	3 (3.000)	1 (1.000)	19 (19.000)

* Designates expected frequencies

** $\chi^2 (4) = 3.0749, p > .05$

Table 6

Contingency Table of Observed and Expected Frequencies
for Performance Scores and Arousal Measurements

Performance Scores

Arousal Measurements	Levels	High	Med.	Low	Total
	High	4 (2.526)*	1 (2.211)	1 (1.263)	6 (6.000)
	Med.	3 (3.368)	3 (2.947)	2 (1.263)	8 (7.999)
	Low	1 (2.105)	3 (1.842)	1 (1.053)	5 (5.000)
	Total	8 (7.999)	7 (7.000)	4 (4.000)	19 (19.000)

* Designates expected frequencies

** $\chi^2 (4) = 2.9896, p > .05$

Table 7

Analysis of Variance of Unweighted Means
of Performance Scores and Arousal Measurements

Source	SS	df	MS	F
A	665.691	2	332.846	1.283
S/A	4150.780	16	259.424	

$F = 1.283, df = 2, 16, p > .05$

