

# SELF-CONCEPTS ASSOCIATED WITH TWO MEASURES OF COGNITIVE-STYLE

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*A series of insoluble pseudo-problems was used to measure the cognitive styles of two groups of first year University and Teachers College students. Cognitive styles were found to be differentially related to Ss' self-concepts. Relational thinking emerged as a preferred female approach, whilst males placed more value on abstracting. All students placed high value on a non-conformist approach to thinking.*

In two recent articles (Shouksmith, 1969 a, b) the writer has described a series of insoluble pseudo-problems devised by him for measuring a subject's approach to thinking or problem solving—his cognitive style. Each "problem" consists of a drawing of a pair of sticks which have been partially buried in the ground. The "sticks" differ in thickness, angle of inclination to the ground line and height above ground. Subjects were asked to say which of the two they thought would be longer if their full length were revealed, the whole series being presented as a test of imagination. Results from preliminary studies with these sticks drawings indicated that a regular pattern of choices emerged from subjects in a given sample. A measure of the degree to which a certain subject conforms to this pattern may be obtained by counting the number of occasions on which the subject's choice differs from the group choice, when the group choice itself differs significantly from chance. This may be regarded as a measure of individual "non-conformity" with the group approach to the problem. A second style measure may be obtained by re-presenting each pair of sticks with its left-right positions in the drawing reversed. The second score is derived by counting the number of times a subject shifts his choice on the re-presentation. Style measure 1, called "non-conformity" assesses the extent to which a subject picks an obvious stimulus, or an unusual one, in choice situations. Measure 2, isolating abstracting and relation styles, contrasts the subject who can abstract and hold in his mind certain specific features of the total and who responds to the abstracted element, with the subject who is influenced in his thinking by the whole situation.

The results from the earlier studies of these style variables indicated that people adopting a particular cognitive style vary in their personality characteristics by sex, and from group to group. The present study attempts to extend the analysis of the meaning of these cognitive style variables by comparing the "self-concepts" of high and low scorers

on the two measures. The aim of the study is to isolate any relationships which exist between the cognitive style adopted by an individual and the conception he has of himself, his self-concept.

## METHOD

**Subjects.** Two samples were used, one drawn from first year University students, the other from first year College of Education (Teachers' College) students. ....

Sample A consisted of 216 first year university students of psychology. The sample was drawn from both Arts and Science Faculties in the ratio of about 2:1. There were 104 males and 112 females in the sample.

Sample B consisted of 103 first year Teachers' College students, 29 males and 74 females. The sample was randomly selected by choosing every third name on the class lists, males and females being treated separately.

### Materials.

(a) *The "sticks" problems.* Each problem is presented in the form of a line drawing representing two sticks which have been embedded in the ground. The sticks represented schematically in these drawings are of two lengths above ground, 10cm and 5cm, two thicknesses, 2.5 cm and 1cm, and are drawn with centres 10cm apart. Sticks of the various sizes are shown in two positions, either upright or sloping to the left at an angle of 45°. The above series of eight sticks are presented in all combinations of two, forming a series of 56 drawings.

Responses to the drawings are scored in terms of the two style measures described earlier.

(b) *The semantic differential.* Self-concepts were measured through factor scores derived from the semantic differential technique (Osgood, Suci and Tannenbaum, 1957). For each factor, three bi-polar scales were used, each scored from 1 to 7. The scales used were chosen on the basis of a pilot study, in which Ss' ability to use the scales in a variety of situations was assessed. The concept to be assessed on these semantic differential scales was "Myself". Two "buffer" concepts were assessed first to give practice in the use of this technique.

**Procedure.** The non-comformity and abstracting style scores derived from the sticks measures were used as the independent variables for study. Male and female groups within each sample were treated separately. Each group was divided at the median to form "high" and "low" sub-groups for each cognitive style. The dependent variables were the three factor scores, Evaluation, Activity and Potency, which together provided a measure of a subject's self-concept. Each cognitive style was treated separately and the scores of the "high" group in that

style compared with the low, using the Median test (Siegel, 1956) to establish the significance of any obtained differences. The procedure adopted follows that described by Wallach and Kogan (1965), using the conservative median split to distinguish "high" and "low" groups.

## RESULTS

The results are summarized in Table 1 for style measure 1, non-conformity, and in Table 2 for style measure 2, abstracting vs relational thinker. It can be seen from these tables that there are certain trends or patterns in the median scores of the various sub-groups, as well as significant differences between specific pairs of medians.

These trends and differences can be seen most clearly by taking each semantic differential factor in turn and relating it to the cognitive style variables.

**Evaluative factor.** All non-conformist thinkers tend to evaluate themselves more highly than conformist thinkers, a finding particularly true of the male samples. On style measure 2, females adopting an abstracting style evaluate themselves less highly than those scoring high on this factor. The relational thinking style appears to be a more acceptable female thinking mode. The same relationship does not hold for males, however.

**Potency factor.** There is a tendency for non-conformist thinkers to rate themselves higher on 'potency' than do conformist thinkers. Further patterning emerges in relation to style measure 2. The high-scoring, abstracting thinkers regard themselves as being more potent than relational thinkers in all but one group, this being the female Teachers College sample.

**Activity factor.** Male Teachers College students are the odd ones out in relation to this factor. In the other three groups the non-conformist thinkers rate themselves higher on activity than do the conformists. The same directional trend holds for self ratings for activity and the abstracting thinking mode, but with differences in the Teachers College samples being small.

## DISCUSSION

The findings show that there are both group and sex differences in the self-concepts of people who adopt a particular cognitive style.

TABLE 1

MEDIAN FACTOR SCORES FOR SELF-CONCEPT MEASURES  
AND NON-CONFORMITY OF STYLE IN BOTH SAMPLES

Style measure 1. High group = Non-conformist style  
Low group = Conforming style

Sample and group Self-concept factor	Median Scores in self-concept for							
	University				Teachers College			
	Male		Female		Male		Female	
	High	Low	High	Low	High	Low	High	Low
Evaluation	15.8	14.5	15.5	15.0	17.2	16.0*	16.8	15.9
Potency	12.1	11.2	12.0	11.5	14.3	12.5*	11.0	11.7
Activity	16.1	14.5*	15.5	13.5*	15.3	17.8*	16.3	15.8

\* Indicates a median score which is significantly different ( $p < .05$ ) from that in the paired sub-group.

TABLE 2

MEDIAN FACTOR SCORES FOR SELF-CONCEPT MEASURES  
AND ABSTRACTING vs. RELATIONAL STYLE IN BOTH  
SAMPLES

Style measure 2. High group = Relational thinking style  
Low group = Abstracting style

Sample and group Self-concept factor	Median Scores in self-concept factor for							
	University				Teachers College			
	Male		Female		Male		Female	
	High	Low	High	Low	High	Low	High	Low
Evaluation	13.9	15.8*	15.8	14.3*	16.8	17.0	17.2	15.9*
Potency	12.1	10.8*	12.1	11.0*	14.2	12.8*	10.6	12.1*
Activity	16.1	12.3*	14.9	13.9*	16.5	17.0	15.8	15.2

\* Indicates a median score which is significantly different ( $p < .05$ ) from that in the paired sub-group.

A general finding, over-riding group differences, suggests a distinct relationship between the cognitive style adopted by an individual and his personality as reflected in his self-concept. All students adopting a non-conforming style, for example, tend to evaluate themselves more highly than the conformists and rate themselves higher on potency. On style measure 2 there are distinct sex-group differences. For the male, an abstracting style goes along with a high self-evaluation, but for the female, high self-evaluation is found in the relational thinker. Relational thinking appears to be a respected female approach, whilst males place more value on abstracting.

## CONCLUSIONS

Two specific conclusions emerge. Firstly, an abstracting approach to cognitive problems appears to be more acceptable to males than females, whose traditional preferences for relational approaches are confirmed. Secondly, in all students involved in higher education, the non-conformist approach, as a thinking mode, is valued more highly than the conformist.

The findings add further weight to the general conclusion that the old distinction between "cognitive" and "conative" aspects of behaviour should be re-assessed. Cognitive style, or thinking mode, for example, is related differentially in various groups, to an individual's self-concept.

## REFERENCES

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