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Sex Differences in the Arousal of Need For Affiliation

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ABSTRACT—This study reports that the Peltó Projective Pictures when scored by the Atkinson-Heyns-Veroff procedure is a valid instrument for measuring *n* affiliation. The hypothesis that an experimental group of junior-high-school students exposed to a stimulus would display a significantly higher mean *n* affiliation score than a control group was rejected. A sex difference was involved in the failure to reject the null hypothesis. There is strong evidence that *n* affiliation was aroused in an experimental group of females, but not in an experimental group of males. The Peltó Projective Pictures were successful in discriminating this difference. Moreover, the scoring procedure, developed for use with the TAT, appears to be applicable to other projective techniques.

The attempt to develop a generally applicable measure for assessing the need for affiliation (*n* affiliation) has been the concern of two major studies. Shipley and Veroff (1958) developed a procedure for scoring thematic apperception stories (TAT) and found that the experimental arousal of *n* affiliation increased the frequency of responses that dealt with affective concern over separation from another person. Atkinson, Heyns, and Veroff (1958) criticized aspects of the Shipley-Veroff study; they modified the experimental approach and scoring method to produce a "more general statement of what is meant by *n* affiliation or motivation to be more socially accepted." They concluded that the TAT adequately taps the aroused *n* affiliation and asserted that their scoring procedure broadened the scope of the experiment.

Present Study

The present authors wished to incorporate certain features of these two studies in the validation of another projective technique, the Peltó Projective Pictures (PPP) (Peltó, 1962). Peltó successfully employed this instrument although with a different administration and scoring procedure in another context to obtain projective material, but the test has not been validated against any other projective instrument.

It was reasoned that if the PPP do, in fact, serve as projective screens for *n* affiliation, and if the Heyns et al. (1958) scoring procedure really deals with the essential variables underlying that concept, then the Heyns et al. scoring procedure could be used with the PPP to provide a meaningful measure of *n* affiliation. Further, if the scoring procedure is valid, then junior-high-school students

could be substituted for the fraternity members used in the experimental groups of the previous studies. It was thought that fraternities may attract persons with strong affiliation needs.

The hypothesis advanced was that an experimental group exposed to a stimulus would display a significantly higher mean *n* affiliation than a control group that did not receive this stimulus.

Method

Apparatus. Four pictures from the PPP were used. They depicted, (1) a boy standing alone, gazing out a window; (2) two boys shaking hands; (3) three boys sitting around a campfire; (4) three boys and three girls standing in a line, in the order boy-boy-girl-girl-boy-girl, with their arms around each other. The pictures were outlined with a marking pencil on plastic slides and were projected on a movie screen. In the experimental groups, a sociometric procedure was employed to arouse *n* affiliation. Each student wrote down the names of three other students with whom he would like to sit. Instructions preceding the choices indicated that there was some possibility that the students would be able to sit next to someone of their choice in the near future. This procedure was executed under standard conditions.

Subjects. Four eighth-grade classes from a typical Minneapolis junior high school were chosen. Two of them were randomly assigned to the experimental group and the other two acted as a control group. The composition of the groups is shown in Table 1. The age range of the *S*'s was 12-13 years.

Table 1. Distribution of Males and Females in Control and Experimental Groups.

	Control	Experimental
Boys	24	31
Girls	44	30
Total	68	61

Procedure. The control group was simply asked to write themes explaining the event shown in the test picture, that is, how it came about and what would be its outcome. The experimental group went through the sociometric procedure described above and then were given

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the test instructions. Both groups were told to write for four minutes following a one-minute presentation of each picture.

Scoring. As stated above, protocols were scored according to Heyns, et al. scoring manual (1958).

Results

The hypothesis that the experimental group would display a significantly higher mean *n* affiliation score than the control group was not supported; see Table 2. No significant difference was found between the scores of the two groups.

Table 2. Means and Standard Deviations for Control and Experimental Groups on *n* Affiliation Scores.

	Control	Experimental
Mean	6.47	6.87
Standard Deviation	3.46	3.28

An examination of the raw data led the investigators to believe that a sex difference was involved in the failure to reject the null hypothesis. When the scores within the control and experimental groups were classified by sex, the following picture emerged (see Table 3): The

Table 3. Means and Standard Deviations for Control and Experimental Groups, Classified by Sex, on *n* Affiliation Scores.

	Control		Experimental	
	Girls (N=44)	Boys (N=24)	Girls (N=29)	Boys (N=31)
Men	6.68*	6.08	7.72	6.06**
Standard Dev.	3.59	3.25	2.97	3.39

* Smaller than experimental girls @ .10 level of confidence by t-test.

** Smaller than experimental girls @ .025 level of confidence by t-test.

mean scores of the boys in the experimental group were virtually identical with those of the boys in the control group; scores of the girls in the experimental group were slightly higher than those of the girls in the control group. The difference was significant at the .10 level of confidence. Furthermore, the girls in the experimental group averaged 1.66 points more than the boys in the experimental group, a difference that is significant at approximately the .025 level of confidence.

In an effort to isolate the variables responsible for the higher scores attained by the girls in the experimental group, an analysis of scoring subcategories was performed. The subcategories "Affiliative Imagery," "Stated Need," and "Thema" were considered to be least susceptible to misinterpretation, interpreter bias, or scoring error, and most likely to yield a high rescoring reliability. The analysis was performed according to the following format: The proportion of subjects among the experimental males, experimental females, and control females who were scored for "Affiliative Imagery" were calculated separately for each category. (Control males were not included because their scores were the same as those of the experimental males.) These proportions were

tested using a binomial expansion (Walker and Lev, 1953). There were no significant differences among the three groups in the categories of "Affiliative Imagery" or "Thema." On "Stated Need," however, experimental females were scored significantly more often than either control females or experimental males. See Table 4.

Table 4. Proportion of Subgroups Responding to a Subcategory of *n* Affiliation.

	Control Girls (N=44)	Exper. Girls (N=29)	Exper. Boys (N=31)
Affiliative imagery	.91	.96	.90
Stated need	.05*	.21	.07**
Thema	.92	1.00	.96

* Smaller than experimental girls @ .02 level of confidence.

** Smaller than experimental girls @ .05 level of confidence.

These data roughly indicate that the same number of individuals gave scorable responses from each group. Since the total affiliative score is the sum of the number of scored responses that an individual makes, it is apparent that the girls in the experimental group gave more responses in each subcategory than did members of the other group. Further, girls in the experimental group scored higher on "Stated Need" than members of the other two groups. These data are interpreted as showing that the experimental girls experienced a greater arousal of their *n* affiliation than the members of the other groups.

Discussion

The null hypothesis could not be rejected and the data were examined to determine the reasons. One explanation is that the boys in the experimental group did not have their *n* affiliation drive aroused. Support for this notion comes from two quarters: (1) The difference in the means of the control group of boys and the experimental group of boys was essentially zero; (2) the experimental girls showed, on the other hand, both a statistical and practically significant difference from the scores of the control girls. This suggests that the experimental girls were aroused in their *n* affiliation, while the introduction of the sociometric task had no effect upon the boys. This conclusion is in consonance with Witkin's (1954) finding that females are more "stimulus bound" than males. He concluded that women are generally more responsive to novel stimulus conditions than are males. In the present investigation, it appears that what was a subliminal stimulation for many of the males in the sample, reached threshold in many of the females and triggered a response.

Another clue to the interpretation of these data is supplied by Lindzey and Silverman (1959) who found that women tend to be more productive and more fluent in their verbal responses to the TAT. Since the present experimenters did not control for this contingency, it is possible that some sort of bias was introduced through the mediation of the greater verbal fluency of females.

These results lead to the final conclusion that the

PPP, when scored by the Heyns et al. procedure, is a valid instrument for measuring *n* affiliation. In the present study there appears to be strong evidence that *n* affiliation was aroused in one experimental group but not in the other, and the PPP was successful in helping discriminate the aroused state. Moreover, the scoring procedure, although developed for use with the TAT, appears to be applicable to other projective techniques. Moreover, the present authors feel that this study has demonstrated that *n* affiliation can be aroused and measured in early-adolescent girls. From this it is extrapolated that, given an adequate "press," similar results would be obtained from boys of this age group.

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the limbs and roots. The results of the test for iron, using potassium thiocyanate, indicated that iron was present in all three parts of the tree. The limbs were highest in both alcohol-benzene extractives and hot-water soluble materials. The roots had the lowest content of hot-water soluble materials. The trunk had the highest content of holocellulose and starch. Starch could not be detected in the limbs by the iodine test. The results of the Benedict's test indicated that the roots had the highest and the limbs the lowest content of reducing sugars.

The results of this study are only indicative since it was made on only one tree and the processing conditions may not have been ideal. It would be speculative, after this preliminary study, to attempt to explain the apparent anomaly that wood from the roots makes the strongest paper, whereas that from the limbs makes the strongest fiberboard (based on MOR and MOE corrected for density). The major contribution of this study is the indication that differences in the tested properties do exist, and that in the majority of these properties the limbs and roots appear to be superior to the trunk.

Conclusions

The results and discussion of this study suggest that the trunk, limbs and roots of the aspen tree can be characterized as follows:

- A. Compared to the limbs and roots, the trunk
 1. is low in alcohol-benzene extractives and ash content;
 2. is high in holocellulose content;
 3. makes the weakest fiberboard as indicated by MOR and MOE, corrected and uncorrected for density;
 4. makes the weakest fiberboard, as indicated by

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necked and perpendicular tensile determinations.

- B. Compared to the trunk and limbs, the roots
 1. are low in hot-water solubles and lignin;
 2. are superior to the trunk and limbs in bursting strength, folding endurance, and tearing resistance.
- C. Compared to the trunk and roots, the limbs
 1. are high in lignin, hot-water solubles, and alcohol benzene extractives.
 2. are consistently low in the physical tests for paper;
 3. make the strongest fiberboard as suggested by MOR and MOE, corrected for density.

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