ABSTRACT
        The "Minimood" is the synonym chosen from the adult
mood adjective checklist (MACL) to measure moods of elementary
children. Ratings were obtained on mood and Children's Manifest
Anxiety Scales (CMAS) for a 50-subject pilot and a 206-subject
developmental sample in grades 1, 3, and 5. Twelve mood factors were
identified: Aggression, Fatigue, Social Affection, Anxiety,
Elation-egotism, Clowning, and Concentration. Nine correspond to
adult MACL factors, and seven were stable across characteristics. The
CMAS loaded with two factors on the pilot but was unique on the
developmental sample, suggesting that the Minimood measures state,
not trait anxiety. (Author)

DEVELOPMENT OF THE MINIMOOD AND

SOME EVIDENCE ON ITS VALIDITY AND STABILITY

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A child's aptitudes and personality traits may markedly influence his behavior in the classroom and in other educational settings. However, variability in his day-to-day behavior may be due to alterations in labile attributes which may be characterized by mood states. The study of mood states, as with other variables categorized as aptitude--treatment interactions, is predicated on the development of measures appropriate to making assessments at the elementary grade levels. The present research was designed to: (1) develop adjective items for a mood state measure labeled the minimood; (2) provide evidence on the validity and stability of this mood state measure; and (3) evaluate the possibility that scales of the minimood may be applied as measures of state anxiety.

Background

Nowlis (1970) defined mood as a "multidimensional set of temporarily reversible dispositions." According to Nowlis, moods are "monitorings" which reflect general patterns of psycho-biological functioning and orientation. To study the factors of mood state, Nowlis and Green (1957, 1961) developed a mood adjective checklist (MACL) and obtained ratings which were subjected to repeated factor analysis. These analyses led to the identification of twelve factors of mood state: aggression, anxiety, surgency, elation, concentration, fatigue, vigor or activation, social affection, sadness, skepticism, egoism and nonchalance. Items designative of each of these factors have been identified in subsequent research (McNair and Lorr, 1964; Zuckerman and Lubin, 1965; Lubin, 1966; Thayer, 1967; and Cattell, 1963). The items used in these more

recent studies are appropriate for the assessment of adult mood
states, but due to their complexity and vocabulary level, are
not appropriate for measurements on elementary school children.

Of the factors identified by adult mood scales, anxiety
appeared to be one of the more interesting to explore at the
elementary grade levels. Two types of anxiety are usually
differentiated: (1) temporary or state anxiety, and (2) chronic
or trait anxiety (Spielberger, 1971; Cattell, 1961). There are at
least two measures of trait anxiety for children, the Children's
Manifest Anxiety Scale (CMAS) developed by Castenada et. al. (1956)
and the General Anxiety and Test Anxiety Scales developed by
Sarason et. al. (1960). No scales are currently available that
provide a measure of state anxiety in elementary school children
and such a measure should be especially useful. Hence, one focus
of the present research, was to explore the possibility that
scales representing mood state factors may provide generalized
indices of state anxiety.

Methods and Procedure

This research was conducted in two steps: (1) a pilot study
and (2) a developmental study. In both steps, the selection of
mood scales was made by graduate students in education. These
students generated items which preserved the adult mood-scale
concept of the MACL items but were appropriate to the vocabulary
level of children in grades 1 through 6. Subsequently, graduate
students rated each item in terms of its representativeness of
the concept of the corresponding MACL items and its applicability
to measurement on elementary grade level children. On the basis

of these ratings, 30 mood state items were selected for use in
the pilot study, and 60 mood state items were selected for use in
the developmental study.

In both steps, ratings were obtained on a 5 point scale in
response to the question, "How do you feel at this time?" The
scale choices were" very much, pretty much, in between, a little
bit, not at all. All tests were administered orally with testing
time ranging from 30 minutes to an hour inclusive of occasional
rest periods. Ratings were obtained on both the mood state items
and the CMAS to enable comparisons on mood item factors and anxiety.
The order of presentation of CMAS and mood items was alternated to
control for possible test-order bias.

Subjects

Fifty children in grades 1, 3 and 5 in a suburban Boston school
system were the subjects for the pilot study. In the developmental
study the subjects were 206 children, 65 in grade 1, 71 in grade 3
and 70 in grade 5, selected as a quota sampling from the metropolitan
Boston area. Of these 206 children, there were 106 girls, 100 boys;
47 upper class, 88 middle class, 48 lower class and 23 of uniden-
tified socio-economic status; and 81 were familiar to testers while
125 were strangers to the testers.

Methods of Analysis

Ratings obtained in pilot and developmental studies were each
subjected to correlation and factor analysis. The Principal
Components method of factor analysis and Varimax Rotation were used.
Factors with eigenvalues greater than 1 and with at least three

factor loadings greater than .40 were retained and interpreted.
Factorial cross validations were made on the data in the developmental study. In the cross validations, separate factor analyses
were made for subjects of each sex, grade, socio-economic status
and familiarity level. Comparisons of factor matrices between
levels on each of the characteristics were made with the Least
Squares Transform to identify similarity and stability in factors.
The criterion for stability was that there would have to be at
least three scales descriptive of each factor with rotated factor
loadings of .30 or greater on at least 7 of 11 factor analyses.

Results

Pilot Study

Four factors were extracted from the factor analysis on the
ratings for the 50 subjects in the pilot study and these were labeled
according to the items which characterized each factor. The
factors, designative items, and factor loadings were respectively
as follows: (1) Aggression: angry-.86, mean -.82, grumpy -.87,
nasty -.77 and grouchy -.69; (2) Fatigue: tired -.85, sleepy -.77
and droopy -.65; (3) Social Affection: happy -.76, loving -.75,
kind -.72 and friendly -.63; and (4) Anxiety: scared -.75, afraid
-.71 and shy -.48. These four factors were similar to factors of
mood identified by Nowlis using adult subjects. The CMAS had
loadings of .40 or greater on two factors, Anxiety and Fatigue.

Developmental Study

Thirteen identifiable factors were extracted from the factor
analysis on the ratings for the 206 subjects in the developmental
sample. Twelve factors were characterized by at least three mood

scales with rotated factor loadings of .40 or greater. Table 1
presents the rotated factor loadings for these 12 factors and a
list of characteristics where stability and instability was
shown.[1] Eight of the 12 factors were shown as stable on at least
7 of the 11 factor analyses. These were: fatigue, elation,
anxiety, concentration, aggression, sadness, activation and social
affection. Four factors, clowning, confidence, skepticism and
surgency showed evidence supporting stability on less than 5 out
of the 11 factor analyses and were considered unstable.

--Table 1 About Here--

The thirteenth factor was uniquely characterized by the CMAS
measure on all 11 factor analyses. Table 2 presents the rotated
factor loadings for the CMAS measure on the 13 factors. The
largest rotated factor loading for the CMAS, .69, was shown on the
unique factor, but this factor also showed rotated factor loadings
for the CMAS of .15 or greater on four mood state factors, anxiety,
concentration, social affection and fatigue.

--Table 2 About Here--

Discussion of Results

The factor analysis on the developmental study resulted in
the isolation of twelve factors, ten of which were similar in the
scale designation and definition to the adult factors identified
by Nowlis and Green (1957), McNair and Lorr (1964) and Thayer (1967).

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[1] The Tables for all eleven factor analyses and the Least Squares
Transforms are available upon request from the authors.

These factors were: <u>fatigue</u>, <u>elation</u>, <u>anxiety</u>, <u>concentration</u>, <u>aggression</u>, <u>sadness</u>, <u>activation</u>, <u>skepticism</u>, <u>surgency</u> and <u>social affection</u>. Two of the twelve factors were dimensions of mood state that were apparently applicable to children but not adults, <u>confidence</u> and <u>clowning</u>.

Eight of the twelve factors were shown to be stable on at least 7 of the 11 factor analyses. This evidence for stability as well as the consistency in dimensionality between mood states found in this study and in prior research with adults lend strong support to the belief that these dimensions represent a relatively general set of constructs for mood state. Further, these findings support the items which designate each factor as measures of mood state constructs for children.

In the developmental study, the CMAS measure of anxiety loaded primarily on a unique factor in all eleven factor analyses. This constrasts with findings in the pilot study that the CMAS variable split on two mood state factors. However, it would be expected that measures of state and trait anxiety should correlate when anxiety is high but not when anxiety is low. The pilot study was conducted during the school year in a school setting where test anxiety may have been high. Children in the developmental study were tested during the summer in relatively relaxed situations where test anxiety may have been low.

The CMAS had rotated factor loadings of .15 or greater on four mood state factors and such a moderate correlation perhaps is what one should expect between measures of state and trait anxiety in conditions as in the developmental study where anxiety may have been low.

At least four of the mood state factors are similar to anxiety constructs suggested in writings of Horney (1937), Sullivan (1953) and Lazarus (1961). The items which characterize anxiety, such as scared, afraid, strange and nervous, seem indicative of a generalized fear reaction, such as one would get from withdrawal from something one does not understand, a reaction which Horney (1957) has argued will be associated with anxiety. The mood state items designative of fatigue such as drowsy, tired, sleepy, lazy and worn out are those which seem to indicate a feeling of tiredness which both Sullivan (1953) and Lazarus (1961) have suggested will be associated with anxiety.

The items which characterize concentration, such as like concentrating, like listening, full of thought and like paying attention, are suggestive of focusing of attention. The "not at all" end of responses on these scales may be indicative of difficulty in focusing attention, and Horney has suggested that anxiety will accompany such a diffuseness of attention. The items such as mean, nasty, selfish, angry, grumpy and mad which are designative of aggression, may suggest an inability to release aggressive impulses. In these connection, Horney (1937) has proposed that hostility which is produced by unreleased aggressive impulses is associated with anxiety. However, the CMAS had a factor loading of only .04 on the aggression factor, and it is possible that the mood state of aggression is uncorrelated with anxiety levels.

Thus, there is literature which suggests that at least four mood state factors, aggression, concentration, fatigue and

anxiety may provide measures of state anxiety. We are presently
investigating the possibility that scales designative of these
factors will measure changes in state anxiety produced in
experimental situations. We hope to apply the scales represen-
tative of the eight stable mood state factors to assess effects
on classroom achievement of differential mood states as part of
a more general research effort on apptitude treatment interaction.

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TABLE 1

ROTATED FACTOR LOADINGS FOR THE TWELVE FACTORS AND LIST

OF CHARACTERISTICS WHERE STABILITY OR INSTABILITY WAS FOUND·

	Rotated Factor Loadings	Stability	Instability
Fatigue			
Drowsy	-.73	Males & Females	
Tired	-.68	Grades 3 & 5	Grade 1
Sleepy	-.66	Familiar & Stranger	
Lazy	-.64	Upper, Middle, and	
Worn Out	-.63	Lower SES	
% of Total Variance	12.21		
Elation			
Fantastic	.72	Males & Females	
Super	.70	Grades 1,3 & 5	
Fabulous	.62	Familiar & Stranger	None
Happy	.54	Upper, Middle and	
Lively	.46	Lower SES	
% of Total Variance	10.21		
Anxiety			
Scared	-.78	Males & Females	
Afraid	-.72	Grades 1,3 & 5	
Strange	-.66	Familiar & Stranger	None
Nervous	-.47	Upper, Middle and	
% of Total Variance	9.17	Lower SES	
Concentration			
Like Concentrating	-.72	Males & Females	
Like Listening	-.62	Grades 1,3 & 5	
Full of Thought	-.51	Familiar & Stranger	
Like Paying Attention	-.41	Upper SES	Middle and
% of Total Variance	8.62		Lower SES
Aggression			
Nasty	.77	Males & Females	
Mean	.62	Grades 1,3 & 5	
Selfish	.48	Familiar & Stranger	None
Angry	.47	Upper, Middle and	
% of Total Variance	8.05	Lower SES	
Sadness			
Upset	-.76	Males & Females	
Sorry	-.58	Grade 1	Grades 3 & 5
Sad	-.43	Familiar	Stranger
% of Total Variance	7.67	Middle & Lower SES	Upper SES
Activation			
Speedy	.78	Males & Females	
Going Fast	.70	Grades 1,3 & 5	
Strong	.58	Familiar & Stranger	
Active	.50	Upper & Middle SES	Lower SES
% of Total Variance	7.63		
Confidence			
Calm	-.56	Males & Females	
Proud	-.54	Grade 1	Grades 3 & 5
Worthy	-.69	Stranger	Familiar
Relaxed	-.41		Upper, Middle
% of Total Variance	6.60		and Lower SES
Clowning			
Silly	-.66	Males	Females
Funny	-.63	Grade 3	Grades 1 & 5
Jumpy	-.56	Familiar	Stranger
Peppy	-.40	Lower SES	Middle and
% of Total Variance	6.58		Upper SES
Skepticism			
Not Trusting	-.55	Females	Males
Not Sure	-.54		Grades 1,3 & 5
Suspicious	-.48	Stranger	Familiar
% of Total Variance	5.66	Middle SES	Upper and
			Lower SES
Surgency			
Playful	-.78		Males & Females
Excited	-.45	Grade 5	Grades 1 & 3
Happy	-.42	Stranger	Familiar
% of Total Variance	4.96	Upper SES	Middle and
			Lower SES
Social Affection			
Warm	-.63	Males	Females
Like Listening	-.62	Grades 3 & 5	Grade 1
Friendly	-.53	Familiar & Stranger	
% of Total Variance	4.30	Upper & Lower SES	Middle SES

Table 2

ROTATED FACTOR LOADINGS FOR CMAS ON THIRTEEN FACTORS

Factors	Rotated Factor Loadings for CMAS
Fatigue	-.17
Elation	-.12
Anxiety	-.20
Concentration	-.20
Aggression	.02
Sadness	.10
Activation	-.10
Confidence	.07
Clowning	-.01
Skepticism	-.06
Surgency	-.07
Social Affection	-.21
CMAS	.67