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THE PERSONALITY PATTERN OF HYPERACTIVE BOYS: ADJUSTMENTS
IN INTERNALITY, SELF-ESTEEM, AND ANXIETY

DISSERTATION

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During the past 80 years, similar descriptions of a hyperactive behavior pattern in children have appeared in medical, educational, and psychological literature. Hyperactivity has been conceptualized as a character disorder, an organic disorder, and, most recently, as a behavior disorder. In this study, hyperactivity was explained in interactional terms, using Rotter's social learning theory of personality. Little consideration has been given in research to the influence of an abnormally high activity level upon personality development during childhood. The purpose of this study was to investigate the general influence of negative interactions associated with hyperactivity upon the organization of four personality constructs: locus of control, self-esteem, trait anxiety, and state anxiety.

Principal hypotheses predicted that (a) as hyperactivity level increases, externality also increases which protects self-esteem and reduces trait and state anxiety, and (b) externality is the more significant of the personality constructs followed by self-esteem and then trait anxiety.

Subjects were 143 fourth- and fifth-grade boys from 12 regular classrooms. Classroom teachers rated each student

using the Conners Abbreviated Parent-Teacher Questionnaire. Subjects completed measures of each personality construct. Principal hypotheses were evaluated by multiple regression analysis in which teacher ratings were criterion and personality constructs were predictors.

Classroom membership explained significant variance in the hyperactivity, self-esteem, and trait anxiety variables. Increases in the average hyperactivity rating of teachers were significantly correlated with reduced internality among subjects. These results were discussed in terms of the breadth of a personality construct and the nature of teacher-student interactions.

Results indicated that externality does not support the maintenance of self-esteem and the reduction of trait and state anxiety. Locus-of-control and self-esteem constructs appear to be in psychological domains of nearly equal significance, each affected by the negative interactions associated with hyperactivity. The discussion of these results focused upon their theoretical significance and their implications for treatment of the hyperactive child.

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THE PERSONALITY PATTERN OF HYPERACTIVE BOYS: ADJUSTMENTS
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Over the past 80 years, similar descriptions of a hyperactive behavior pattern in children have appeared in the medical, educational, and psychological literature (Childers, 1935; Diagnostic and Statistical Manual of Mental Disorders, second edition (DSM-II), 1968; Hohman, 1922; Schrag & Davisky, 1975; Still, 1902; Strauss & Kephart, 1955). Hyperactive children are typically described with terms which denote overactivity, distractibility, impulsivity, inflexibility, and emotional reactivity. G. F. Still (1902), an English pediatrician, was the first to discuss childhood hyperactivity as a clinical entity. Further delineation of the behavior pattern occurred in the case descriptions of physicians who treated children recovering from encephalitis during the epidemic of 1918 (Ebaugh, 1923; Hohman, 1922). Hyperactivity is a behavioral manifestation of this disease. With the emergence of the concept of minimal brain damage as an explanation for hyperactivity (Doll, Phelps, & Melcher, 1932; Ehrenfest, 1926; Tredgold, 1908), professionals other than physicians became involved with hyperactive children, and the number of diagnostic labels describing hyperactive behaviors increased dramatically, e.g., minimal brain dysfunction (Clements & Peters, 1962), minimal brain damage

(Tredgold, 1908), and hyperkinetic impulse disorder (Levy, 1959). A psychiatric description and title for the hyperactive child was provided in DSM-II: hyperkinetic reaction of childhood (American Psychiatric Association, 1968).

During the time since hyperactive children first began to be identified as a clinical group, childhood hyperactivity has been conceptualized in three different ways. Prior to the 1950s, hyperactivity in children was generally considered a trait of character that was either inherent to the child or produced by ineffectual parenting (Ross & Ross, 1976). From the middle 1950s to the middle 1960s an organic hypothesis was dominant with most professionals in the field attributing childhood hyperactivity to some type of brain disorder (Campbell, Cheeseman, & Kilpatrick, 1950; Passmanick, Rogers, & Lilienfeld, 1956; Strauss & Kephart, 1955). By the early 1970s, the organic hypothesis had been replaced by the current view of hyperactivity as a complex behavior pattern which can have several different etiologies (Ross & Ross, 1976). An important advantage of the behavioral viewpoint over previous explanations is that situational variables may be included as possible explanations of hyperactive behavior. Hyperactivity, as a behavior pattern, can be explained as the result of an interaction between the characteristics of the child and the characteristics of the situation in which the hyperactive behavior occurs (Ross, 1980). This

interactional explanation of childhood hyperactivity provides the general theoretical model of this research.

Research in the area of childhood hyperactivity has focused almost entirely on issues of etiology, physiology, and treatment. Little consideration has been given to the effects of an abnormally high activity level upon personality development during childhood. However, concern about the long-term effects of chronic hyperactivity (Mendelson, Johnson, & Stewart, 1971; Wender, 1971), e.g., lowered self-esteem, has led to the inclusion of personality measures in several studies over the last decade (Campbell, Endman, & Bernfeld, 1977, self-esteem; Loney, 1972, 1974, self-esteem; Minde, Weiss, & Mendelson, 1972, neuroticism, psychopathy, immaturity; Paternite, Loney, & Langhorne, 1976, aggressiveness, impulsivity, self-esteem; Whaley-Klahn, & Loney, 1977, self-esteem). The general purpose of this research is to further describe the personality organization of the hyperactive child using the interactional model.

Definition of Hyperactivity

Hyperactivity is defined in this research as the outcome of an interaction between a child and his environment. Several researchers studying the behavior of children have defined activity level in interactional terms (Doubros & Daniels, 1966; Ross, 1980; Ross & Ross, 1976; Thomas, Chess, & Birch, 1968; Thomas & Chess, 1977). Ross and Ross (1976) used the term to refer to a child who "consistently exhibits

a high level of activity in situations in which it is clearly inappropriate . . ." (pp. 11-12). Thomas, Chess, and Birch (1968), Thomas and Chess (1977), and Ross (1980) stress the relationship of the hyperactive child with his parents. Because activity level was conceptualized as a continuum running from hypoactivity to hyperactivity, no attempt was made in this study to define a group of hyperactive children. The terms hyperactive, hyperkinesis, and high active were used interchangeably to refer to children who have an abnormally high activity level, who are impulsive and distractible, and who may exhibit a variety of other physiological, learning, and behavioral problems. Children with major medical, neurological, and emotional disorders were excluded.

Theoretical Foundations

The social learning theory of personality provides a general theoretical framework for this study (Bandura, 1969; Bijou & Baer, 1978; Patterson et al., 1956; Ross, 1980; Rotter, 1954, 1966). Social learning theory assumes that individuals are a product of their learning experiences. In this system, "personality development" is the result of an interaction between an individual and his social environment. Several of Rotter's (1954, 1966) concepts are helpful in understanding and predicting the possible effects of hyperactivity upon personality organization.

In Rotter's (1954) view, personality is a system of constructs which represents the interaction of the individual with his environment. A personality construct is an abstraction of some "real" pattern of learned behavior. It reflects the viewpoint and problem of the observer, and its purpose is to describe or predict behavior. The terms activity level and hyperactivity, as abstract concepts, qualify as personality constructs. They describe a pattern of behavior in the same sense as constructs such as intelligence and neuroticism; and researchers applying the postulates of learning theory have shown that a child's activity level is, to some extent, a learned response by demonstrating that the level of activity varies with situational contingencies (O'Leary, Becker, Evans, & Saudargras, 1969; O'Leary, Pelham, Rosenbaum, & Price, 1976; Patterson, Jones, Whittier, & Wright, 1965). Activity level and four other personality constructs considered in this study form a system of constructs which are logically interrelated. The relationship between activity level and one of these constructs, self-esteem, has been the focus of previous research (Campbell et al., 1977; Loney, 1972, 1974). The object of the study was to describe the nature of the mutual influence among all five constructs upon one another.

The personality constructs of social learning theory represent consistent interactions of the individual with his environment (Rotter, 1954). As a personality construct,

activity level may be viewed as a function of the interactions between child variables and situational variables. An interactional approach has some advantages for research in the area of childhood hyperactivity. It allows consideration of both the situational and organismic determinants of hyperactive behavior. Historically, organismic variables have received much more research attention (Ross & Ross, 1976). Another advantage is that activity level may be easily conceptualized as a continuum with hyperactivity on one end and hypoactivity on the other. As a continuous variable, activity level may be studied in association with other variables to investigate patterns of intercorrelation and interaction across levels of activity. The results of such correlational studies can form the basis for causal hypotheses which can be tested in more controlled research.

Rotter (1954, 1966) considered the development of a personality construct to be explained by the history of reinforcement and the experience of the individual. The reinforcement history of a personality construct consists of all past rewards and punishments which were contingent upon the behavior described by the construct. Explaining a construct using reinforcement sequences involves describing the relevant reinforcements and the conditions under which they occurred. These descriptions are objective and, for practical reasons, pertain only to the particular cross-section of time that suits the purposes of an investigator.

A personality construct may also be explained by the experiences of the individual. These experiences are the person's subjective impressions of specific interactions with his environment. Over time, related experiences coalesce into personality constructs which represent attitudes about self and beliefs about competency in situations. Thus, reinforcements and experiences are not viewed as strict causes of personality constructs, or the behavior they represent, but rather as explanations of the development of consistent patterns of behavior.

The kind of influence a particular experience with the environment will have on a relevant personality construct depends on three factors: the degree of success in meeting the demands of the situation, the nature of the reinforcement, and the amount of responsibility assumed for the outcome (Rotter, 1954, 1966). If a person succeeds in meeting situational demands, receives reward, and attributes the success to his ability and/or effort, then the associated personality construct is made more adaptive. Conversely, if the demands of the situation are not met, no reward or perhaps punishment is received, and failure is attributed to a lack of ability and/or effort, then the associated personality becomes less adaptive. However, it is possible that success or failure in a situation will have little or no effect on the nature of a related personality construct. If the individual attributes the outcome of an interaction to external causes

such as chance, task difficulty, or powerful others, then he takes no responsibility for the reinforcement and the personality construct is little affected (unless, of course, it is the construct reflecting the tendency to avoid responsibility for outcomes). Rotter (1966) refers to persons who tend to assume responsibility for the consequences of their actions as internals. Persons who tend to attribute outcomes to uncontrollable conditions or influences are called externals.

Application of Theory

The previous formulations about reinforcement history and situational factors have direct application to personality research with hyperactive children. By definition, hyperactive children fail to meet situational demands more often than their normal agemates over the course of their development. As a result, their reinforcement histories should include more punishment and less reward. This tendency for highly active children to have negative interactions with their environment is documented in several studies. Schleiffer, Weiss, Cohen, Elman, Cvejic, and Kruger (1975) had observers record the behavior of hyperactive and normal children in a nursery school classroom. Comparisons of behavioral categories for the two groups showed that the hyperactive children were significantly more disruptive and aggressive. A follow-up of the Schleiffer et al. (1975) study observed these children in elementary school and added

teacher-child interactions to the list of behaviors observed (Campbell et al., 1977). The children again were found to engage in more disruptive behavior than controls and also to elicit more negative feedback from their teachers. In addition to behavioral observations, Campbell et al. (1977) included a measure of self-esteem and found a tendency for hyperactive subjects to report lower self-esteem than controls. The authors attributed the lower self-esteem scores to the effects of the negative feedback from parents and teachers. Additional support for the belief that hyperactive children have more negative experiences comes from studies describing the development and use of various behavior rating scales used to distinguish hyperactives from normals (Conners, 1969, 1970, 1973; Goyette, Conners, & Ulrich, 1978; Spring, Blunden, Greenberg, Yellin, 1977; Kupietz, Bialer, Winsberg, 1972; Zukow, Zukow, & Bentler, 1978). Parents and teachers consistently describe hyperactive children using descriptors which denote negative interactions with adults and peers. The presence of punishment and negative outcomes in this type of interaction can easily be inferred.

The fact that hyperactive children have more negative interactions with their environment or, stated differently, experience more punishment and less success, should have a significant effect on the nature of their personality constructs and their overall personality organization. Because the effects of specific interactions are cumulative, the

predominance of punishment and failure as outcomes should markedly influence the development of constructs representing self-attitudes, emotional reactions, beliefs, and expectations. For example, the tendency of the hyperactive child to evoke more external controls from parents, teachers, and peers may shape the child into expecting more external management from significant others. Thus, the hyperactive child would develop a more external locus of control. These frequent negative experiences can also have a more general influence on the hyperactive child's personality organization. This broader influence is explained by Rotter's (1954) postulation that a person's experiences influence one another. New experiences are assimilated into a stable network of prior experiences interconnected by acquired (or learned) meanings. This means that a particular experience can affect several associated personality constructs. It also means that interactions with similar outcomes that recur frequently across a broad range of situations can eventually have a general influence on personality organization. Thus, the repeated negative experiences of hyperactive children in a wide range of situations should influence not only the nature (or content) of particular personality constructs but also groups of personality constructs. In other words, hyperactive children should develop a characteristic personality organization which reflects their adjustment to the demands of their environment.

Personality Constructs Selected

This study considers a group of five personality constructs whose content and interrelationships should be affected by the higher frequency of negative interactions experienced by hyperactive children. Four of the constructs-- locus of control (or externality), self-esteem, trait anxiety, and state anxiety--represent important areas of subjective experience. These four constructs contain many of the basic beliefs, self-perceptions, and anxieties that explain behavior tendencies in a wide range of situations. The content of each construct is described (or measured) by a personality scale. The fifth construct--activity level--describes the activity-related behaviors that make an interaction negative. This construct is measured "objectively" using behavioral ratings. Highly active and normal children should have different patterns of relationship on personality scales.

Significant correlations in the low to moderate range have been found consistently among scales which measure the personality constructs of externality, self-esteem, and trait anxiety. State anxiety has apparently not been included as a separate variable in previous research employing these constructs. Several investigators have found significant positive correlations between an internal locus of control (or internality) and positive self-esteem ranging from .28 to .40 among young males (Fitch, 1970; Gordon, 1977; Prawat, 1976; Smith, Tedeschi, Brown, & Lindskold, 1973). A

negative relationship between internality and trait anxiety has been found repeatedly among college students (Ray & Katahn, 1968, $r = .22$ to $.40$; Strassberg, 1973, $r = .41$; Watson, 1967, $r = .36$). Positive self-esteem was associated with lower anxiety in research by Coopersmith (1962, 1967) and Millen (1966) (r 's = $.59$ to $.69$) using different measures of self-esteem and anxiety with children in mid-childhood. The relationships among these variables are strong enough to expect a change in any one to be associated with changes in the other two and yet weak enough to suggest that they reflect distinct personality constructs.

Adjustment Patterns

Since activity level is a continuous variable in this research, it can be correlated with each of the personality scales. There were five different patterns of association between activity level and each of the personality scales that seemed plausible, depending upon the function of the underlying personality constructs within the personality organization of the hyperactive child. Each pattern represents a possible adjustment reaction in response to the negative experiences associated with higher activity levels, and each pattern is supported by a unique set of assumptions about the nature of interconnections among the constructs measured by each personality scale. One of these patterns (pattern B) was hypothesized to predominate in the results of this study. The five possible patterns of correlation

(patterns A through E) are summarized in Table 1. The signs in the body of the table indicate the directions of the correlations between activity level and each of the personality variables given the assumptions underlying each pattern.

Table 1

Some Possible Patterns of Correlation between Activity Level and the Personality Variables

Pattern	Correlation with Activity Level			
	Externality	Self-Esteem	Trait Anxiety	State Anxiety
A	-	-	+	+
B	+	+	-	+
C	+	-	+	+
D	+	-	-	+
E	-	+	-	-

Patterns A and B. In patterns A and B, externality is the variable with the greater theoretical significance. An assumption underlying both patterns is that externality mediates the affects of negative experiences associated with increases in activity level. More specifically, negative experiences produce variation in externality which produces variation in self-esteem and trait anxiety. Also, it is the externality variable within each pattern which determines the manner in which hyperactivity will affect the trait variables. Pattern A occurs when highly active children tend to be internal (low on externality scale). They take

responsibility for negative experiences and this lowers self-esteem and increases trait anxiety. Pattern B occurs when they tend to be external. Responsibility for negative experiences is denied, self-esteem is maintained, and trait anxiety is lowered. Thus, the presence of one of these patterns in the results will suggest that externality is the more significant of the three constructs in the personality organization of highly active children.

Pattern C. Pattern C is assumed to result from the direct influences of negative experiences upon each of its variables separately, as well as mutual influences among the three trait variables. Chronically negative experiences are assumed to directly increase externality, reduce self-esteem, and raise trait and state anxiety. Secondary sources of variation for the trait variables are the reciprocal influences among them. Increased externality lowers self-esteem because less responsibility can be taken for outcomes which could enhance self-esteem. Lowered self-esteem increases externality because negative self-perceptions reduce motivation and experimentation, thus decreasing the frequency of success experiences. Trait anxiety is elevated by both increased externality and lowered self-esteem in response to doubts about competency in situations and a generalized fear of failure, punishment, and nonreward. The role of the trait anxiety construct in this pattern is to represent the affective components of negative interactions, externality,

and low self-esteem. If pattern C occurs in the results, externality, self-esteem, and trait anxiety will be assumed to form a network of constructs having nearly equal psychological importance.

Pattern D. This pattern of relationships is similar to pattern C and is supported by some of the same assumptions. As in pattern C, negative experiences are assumed to affect externality and self-esteem independently and to produce increases in externality while decreasing self-esteem. However, different postulations are made in pattern D about the effects of variation in externality and self-esteem upon trait anxiety. Externality is the only variable of this pair assumed to have direct connections with trait anxiety. Increased externality reduces trait anxiety in pattern D rather than being associated with increased trait anxiety as in pattern C. This reduction in trait anxiety would occur because externals tend to deny personal responsibility for outcomes and thus do not internalize anxiety. Self-esteem is not seen as contributing to the anxiety reduction because there is no theoretical or empirical basis for assuming a positive correlation between the two variables. Pattern D, if found, will suggest that externality and self-esteem are the primary constructs in this configuration and that lowered trait anxiety is the concomitant of a defensive shift toward externality among highly active children.

Pattern E. The primary hypothesis underlying pattern E explains hyperactivity as a defensive behavior which reduces the trait and state anxiety associated with negative experiences. In other words, motor behavior is assumed to dispel anxiety. Anxiety reduction is associated with decreases in externality and increases in self-esteem as activity level increases. However, variation in anxiety level does not affect the externality and self-esteem variables directly. Instead, the reduction of anxiety through motor behavior is hypothesized to improve performance which in turn increases the frequency of success. It is this improved probability of success that reduces externality and raises self-esteem. The correlation coefficients of this pattern would probably be quite low because the motor behavior associated with anxiety reduction would also lead to some failure and punishment. These outcomes would raise anxiety somewhat and moderate any reduction of anxiety due to motor activity. Should this pattern appear in the results, trait and state anxiety will be seen as the more significant personality constructs.

State anxiety. This construct is assumed to be affected more directly by situational stimuli than by variations in the three trait variables of self-esteem, externality, and trait anxiety. Therefore, no hypotheses about the relationship of state anxiety to the trait variables were made in patterns A through D. Pattern E is the one exception because it is supported by an anxiety reduction hypothesis. State

anxiety should have a positive correlation with activity in situations where a high activity level leads to failure and punishment.

Situational Context of the Study

Social learning theory, by definition, explains behavior which occurs in social situations (Rotter, 1954). The personality constructs of the theory develop out of interactions between people; and the reinforcements of the theory are defined by social values and administered by people in social situations. When social learning theory is applied to children, the most important social interactions are those which occur between children and significant adults, e.g., parents and teachers. Three characteristics of these interactions are particularly relevant to an explanation of hyperactivity as a personality construct. First, the interactions between children and adults typically occur in a situation defined by the expectations of the adult; i.e., the adult is an authority figure. Second, children cannot consistently avoid interactions with adults because of their dependent status; and, finally, the adult decides whether situational demands have been met and administers the reinforcement of an interaction. These characteristics indicate that for hyperactive children (and children in general) adults are the most salient feature of a situation and are essential to any definition of hyperactivity (Ross, 1980). In fact, hyperactivity could be defined as motor behavior and

emotional reactivity that is excessive or irrelevant according to the standards of the adult in charge of the situation in which the behavior occurs.

The environmental situation selected as the laboratory for this research is the elementary school classroom. This situation is ideal for the study of hyperactive children for several reasons. It is a contained environment with definite expectancies for conformity and performance which are established and maintained by visible authority figures. Situations with these characteristics amplify, or perhaps reduce, hyperactive behavior in some children (Ross & Ross, 1976; Ross, 1980). Many hyperactive children are first identified in the schoolroom (Ross & Ross, 1976). Also, the classroom is a social environment in which practically all children must spend large portions of their lives. Thus, the experiences of the classroom should have a significant influence upon their personality constructs, as do the experiences of the home environment. The classroom provides a model for understanding the effects of similar situations upon personality organization. For example, by studying relevant aspects of the teacher-student interaction, much can be learned about how relationships with other authority figures may affect personality constructs. And, finally, the fact that the classroom is a familiar and significant real-life situation should make practical application of the results easier and more likely.

Research Questions and Hypotheses

To focus and summarize the purposes of this study the research questions which guided the investigation are stated below. The hypothesis that is expected to best explain the results associated with each research question is also given.

Research question 1: Intercorrelations. What is the pattern of intercorrelation among the scales representing the personality constructs of externality, self-esteem, trait anxiety, state anxiety, and activity level? Hypothesis 1: Significant positive correlations will occur among externality, trait anxiety, and activity level. Correlations between self-esteem and these variables will be significant and negative. State anxiety will have significant positive correlations with trait anxiety and activity level.

Research question 2: Relationships. What is the pattern of relationships between the construct representing activity level and each of the four personality constructs representing externality, self-esteem, trait anxiety, and state anxiety with the effects of the other three personality constructs removed? Hypothesis 2: Pattern B of Table 1 is predicted. Externality, self-esteem, and state anxiety will have a significant positive correlation with activity level. Trait anxiety will be negatively and significantly associated with anxiety level.

Research question 3: Relative importance. What is the relative significance of the constructs, externality,

self-esteem, and trait anxiety, within the personality organization of highly active children? Hypothesis 3: The three personality variables of externality, self-esteem, and trait anxiety will each have a significant correlation with the activity variable after the variance due to the other two personality variables is removed. Externality will explain the largest share of variance in the activity variable followed by self-esteem and then trait anxiety.

Research question 4: Interactions. Are there interactions among the personality variables at different levels of the activity variable? Hypothesis 4: Pattern B of Table 1 will be more typical of highly active subjects than more normally active subjects causing interactions among the personality variables at different levels of activity.

Method

Subjects

The population sampled by this study consisted of males ages 9 to 11 who attended regular public school classrooms of the fourth and fifth grades. The sample consisted of 143 subjects: 72 fourth graders and 71 fifth graders. Most of these students were from lower-middle- to middle-income families with four members. Over 1/2 of the subjects were living with their natural parents (60.1%), 18.2% were living with mother only, and 9.8% were living with natural mother and stepfather. Subjects attended schools with a similar ethnic mixture due to a system-wide busing program. The

ethnic proportions of the sample were consistent with those of the area: 80.4% white, 9.8% black, 4.9% American Indian, 3.5% Hispanic, and 1.4% Asian. Subjects' teachers were white and between the ages of 38 and 58; 10 were female, and 2 were male.

Females were excluded because some studies with children have found both quantitative and qualitative sex differences on the personality variables utilized in this study (Feather, 1967, externality and anxiety; Gordon, 1977, externality; Nowicki & Strickland, 1973, externality; Kokenes, 1978, self-esteem). Also, males are much more likely to be described and diagnosed as hyperactive (Goyette et al., 1978; Stone, Wilson, Spence, & Gibson, 1969; Tuddenham, Brooks, & Milkovich, 1974; Werry & Quay, 1971), which suggests that the etiology of hyperactivity in males may be different from that in females.

Instruments

Externality. Locus of control orientation was measured by the Nowicki-Strickland Locus of Control Scale for Children (Nowicki & Strickland, 1973). This is a 40-item paper-and-pencil scale with a Yes-No response format suitable for use with children in grades 3 through 12. Rotter's (1966) definition of the internal-external control of reinforcement dimension was the basis for the construction of this scale. High scores on the scale reflect externality. The authors

presented the means and standard deviations for the experimental sample by sex and grade.

Nowicki and Strickland (1973) found a split-half reliability coefficient of .63 for a sample including grades 3, 4, and 5. Test-retest reliabilities (6-week interval) of .63 and .66 occurred at grades 3 and 7, respectively. The authors described several studies which support the concurrent and construct validity of their scale.

Self-esteem. This variable was measured by the Piers-Harris Children's Self-Concept Scale (Piers & Harris, 1969). The Piers-Harris is an 80-item self-descriptive scale intended for use with children in grades 4 through 12. Scoring yields a total positive self-esteem score which may be compared with norms provided in the manual. Several reviewers considered the Piers-Harris to be appropriate for research with children (Bentler, 1971; Crandall, 1973; Shreve, 1973; Wylie, 1974).

Considerable validity data are cited in the manual (Piers & Harris, 1969) and research monograph (Piers, 1977). The monograph lists published correlations between the Piers-Harris and other self-esteem measures ranging from .40 to .85. The highest correlation cited (Schauer, 1975) occurred with the Coopersmith Self-Esteem Inventory (Coopersmith, 1967), another frequently used measure of children's self-concept. Several studies which support the construct validity of the Piers-Harris are also cited in the manual

(e.g., Millen, 1966, anxiety) and monograph (e.g., Felker & Thomas, 1971, achievement responsibility).

Anxiety. The State-Trait Anxiety Inventory for Children (STAIC) developed by Spielberger, Edwards, Lushene, Montouri, and Platzek (1973) was used to reflect subject's anxiety level. This instrument is a downward extension of the State-Trait Anxiety Inventory (Spielberger, Gorsuch, & Lushene, 1970) which is intended for use with high school and adult subjects. The 40 items of the STAIC are separated into two 20-item scales, one for A-state ("how you feel right now") and the other for A-trait ("how you usually feel"). Subjects answer self-referent statements using three response categories that reflect the prevalence of anxiety-related behaviors (A-trait) or the strength of relevant emotions (A-state). Norms for each scale are presented in the manual by sex and grade.

Internal consistency reliability coefficients for males were .82 on A-state and .78 on A-trait. Test-retest reliability coefficients for males over a 6-week interval were .65 for A-trait and .31 for A-state (Spielberger et al., 1973). Some evidence for the concurrent and construct validity of the two scales is presented in the manual. In a study by Platzek (1970), the A-trait scale correlated .75 with the Children's Manifest Anxiety Scale for Children (Sarason, Davidson, Lighthall, Waite, & Ruebush, 1960). Generally negative correlations between the A-trait scale

and measures of ability and achievement occurred in research by the developers of STAIC. The A-state scale was sensitive to subjects' estimations of their level of anxiety prior to a final examination.

Hyperactivity. The degree of hyperactivity exhibited by each subject in the classroom is estimated from teacher ratings on the Conners Abbreviated Parent-Teacher Questionnaire (Conners, 1973). Another name for this scale is the Hyperkinesis Index (see Appendix C). The scale consists of 10 items shared by the Parent Rating Scale and the Teacher Rating Scale developed by Conners (1969, 1970, 1973). These items are among those most often selected by parents and teachers to describe hyperactive children. The subjects' classroom teacher uses four rating categories to indicate the degree to which each behavior is a problem in the classroom: Not at All, Just a Little, Pretty Much, and Very Much. The scale's total score is the sum of weights assigned to these categories. Higher scores reflect higher activity levels.

Goyette et al. (1978) recently revised Conners' original parent and teacher rating scales. However, the only changes affecting the Hyperkinesis Index were slight rewordings of some items. The changes in the parent and teacher scales did not alter the original factor structure of these scales, and the latent structure of items on the abbreviated scale were assumed to be unaffected by the revision. It is the

revised version of the abbreviated scale that was used in this study.

Test-retest reliabilities of factor scores on the original teacher questionnaire ranged from .70 to .90 (Conners, 1973). Werry, Sprague, and Cohen (1975) reported that the Hyperkinesis Index correlated .94 with the hyperactivity factor and .92 with the mean of factors on the teacher questionnaire. This briefer questionnaire has also proven reliable in identifying hyperactive children and assessing the effects of drug treatments (Sprague & Sleator, 1973). The correlation between parents' and teachers' scores on the Hyperkinesis Index was .49 in the Goyette et al. (1978) study, which is higher than coefficients of congruence between assessments by different adults presented in other research (Klein & Gittleman-Klein, 1975; Rapaport, Quinn, Bradbard, Riddle, & Brooks, 1974).

Procedures

Selection procedure. Subjects were the male members of six fourth- and six fifth-grade classrooms who were in attendance when the questionnaires were administered. These 12 classrooms were from five neighborhood schools that are part of the public school system of a city (population 280,000) located in south-central Kansas. When possible, an equal number of fourth- and fifth-grade classrooms were sampled at each school.

Testing procedures. The personality questionnaires were administered to all students in a classroom even though only male students would serve as subjects. This procedure minimized the impact of data collection upon subjects' usual classroom situation and avoided "halo" effects that might have occurred if males had been removed for testing. To minimize expectancy effects, the specific purpose of the study was kept vague. Teachers and students were told that the study was being done to learn more about how fourth (fifth) graders think, feel, and act.

The students of each classroom responded to the questionnaires at their assigned seats while their teacher filled out the Hyperkinesis Index on each boy in the class. Each student was given copies of the three personality questionnaires. The tester read the instructions and items of the questionnaires aloud as the students followed along. After the reading of each item, students recorded their responses in the questionnaire booklets. Questionnaires were administered to each classroom in the following order: Locus of Control Scale, State-Trait Anxiety Inventory, and Self-Esteem Scale. Testing time per classroom averaged 45 minutes.

Care was taken by the researchers to protect the confidentiality of the students' responses. Each student was given his questionnaires inside a large envelope. On the side of this envelope was a demographic form with an identification (ID) number and a detachable name tape.

Students were told that the name tapes would be removed after the ID number had been transferred to some "work" the teacher was doing for the researcher. Actually, only the ID numbers for the male students were transferred since the purpose of this procedure was to link teacher ratings with students' responses. Other instructions also emphasized confidentiality. Students were encouraged to cover their answers, and completed questionnaires were returned to the original envelope. The purpose of the researcher's emphasis on confidentiality was explained to each group of students. They were told that these safeguards were intended to encourage them to be completely honest as they answered questionnaire items.

Statistical procedure. Hypothesis 1 was researched by computing an intercorrelational matrix for the five variables of the study: externality, self-esteem, trait anxiety, state anxiety, and hyperactivity. Hypotheses 2 and 3 were investigated by a standard multiple regression analysis with the Hyperkinesis Index as criterion and the personality scales as predictors. Hypothesis 2 predicted the direction and statistical significance of the beta weights for each personality variable after the effects of the other personality variables have been removed. Hypothesis 3 pertained to the relative sizes of beta weights for the personality variables. Hypothesis 4 was evaluated by generating interaction terms for the personality variables and entering them in a multiple regression analysis along

with the main effects variables. Significant interaction terms would indicate significant interactions with levels of activity. The computer program used to manipulate the data was the Statistical Package for the Social Sciences (second edition) by Nie, Hull, Jenkins, Steinbrenner, and Bent (1975).

Results

Scale Characteristics

Each of the personality measures (independent variables) produced score distributions which approximate the normal curve. The Hyperkinesis Index (dependent variable) produced a skewed distribution of activity-level scores because it contains no items or rating categories which allow description of hypoactive behaviors. This distribution's skewedness should have no serious confounding effects because of the statistical procedures with regard to deviations from normalcy.

The means and standard deviations obtained for the research variables are contained in Table 2. These same statistics for comparable or normative samples are also included as are the number and description of the subjects represented by the statistics. The means and standard deviations obtained for the personality scales in this research are very close to those obtained in other research for similar samples (See Table 2). This study's average teacher rating was somewhat higher than the comparable rating in the normative study. One possible cause for this elevation could be that the study was conducted during the

last month of the school year, a time when some greater hyperactivity among students would be quite normal.

Table 2

Distribution Statistics for the Personality Variables and Hyperkinesis Index with Normative Data for Comparisons

Variable	Mean	SD	N ^a	Description ^b
<u>Externality</u>				
Bolton, 1981	15.70	4.54	141	4th, 5th grd, M
(Nowicki, 1973)	(18.44)	(3.58)	(59)	(4th grd, M)
(Nowicki, 1973)	(18.32)	(4.38)	(40)	(5th grd, M)
<u>Self-Esteem</u>				
Bolton, 1981	53.52	12.97	141	4th, 5th grd, M
(Millen, 1966)	(51.84)	(13.87)	(1183)	(Grd 4-12, M & F)
<u>Trait Anxiety</u>				
Bolton, 1981	38.50	6.00	139	4th, 5th grd, M
(Spielberger, 1973)	(36.30)	(6.80)	(222)	(4th grd, M)
(Spielberger, 1973)	(36.40)	(6.21)	(286)	(5th grd, M)
<u>State Anxiety</u>				
Bolton, 1981	31.03	6.39	138	4th, 5th grd, M
(Spielberger, 1973)	(30.10)	(5.62)	(222)	(4th grd, M)
(Spielberger, 1973)	(31.00)	(5.60)	(286)	(5th grd, M)
<u>Hyperkinesis Index</u>				
Bolton, 1981	.94	.77	143	4th, 5th grd, M
(Conners, 1978)	(.67)	(.65)	(59)	(Ages 9-11, M)

Note: Parentheses enclose references to comparative research.

^aNumber of respondents.

^bM = Males; F = females; grd = grade.

Subject Variables

The effects of several subject variables upon the dependent and independent variables were investigated to determine whether they should be controlled statistically. Continuous subject variables were evaluated by entering them as first terms in multiple regression analysis with the dependent or independent variables serving as criteria. Categorical subject variables were evaluated using one-way analysis of variance or creating dummy variables and entering them as first terms in multiple regression analysis.

Activity variable. Classroom membership was a statistically significant categorical variable when associated with teacher ratings on the Hyperkinesis Index in a one-way analysis of variance, $F(11, 131) = 2.67, p < .004$. If one can assume that teachers used similar standards in their ratings, then the differences due to classroom membership may be attributed to differences in students' activity levels. Appendix A contains the means, standard deviations, and number of subjects by classroom for the Hyperkinesis Index.

Several demographic factors were entered as first terms in multiple regression analysis as either dummy or continuous variables and were found to account for nonsignificant amounts of variance in the activity variable. The variance due to these factors became part of the residual term in subsequent regression analyses.

Subject's racial membership was entered as a dummy variable, $F(4, 133) = 1.82, p > .05$. The effects of various parent combinations, e.g., natural mother/stepfather, were examined in the same manner, $F(6, 131) = 1.02, p > .05$. Family size was entered as a continuous variable, $F(1, 136) = .02, p > .05$. Subject's age was also considered as a continuous variable, $F(1, 136) = .60, p > .05$, as was subject's grade, $F(1, 136) = .66, p > .05$.

Personality variables. Because the classroom factor explained a significant portion of variance in the activity variable, the relationship between this factor and each of the personality variables was investigated. No association between classroom membership and the personality variables would be expected if students were assigned randomly to classrooms and teachers' expectancies for each child were similar. The existence of significant classroom effects would suggest that classroom dynamics such as teacher-student interactions can affect students' self-descriptions over the course of a school term.

A series of one-way analyses of variance was performed with classroom membership as the independent variable. Table 3 shows the results of these analyses. The means and standard deviations for such personality variable by classroom are contained in Appendix B. Significant classroom effects were found for the self-esteem and trait-anxiety variables.

Table 3

Results of F Tests for Analysis of Variance across
Classrooms for Each Personality Variable

Variable	<u>df</u>	<u>F</u>	<u>p</u> Level
Externality	11,129	1.02	NS ^a
Self-Esteem	11,129	1.92	.05
Trait Anxiety	11,127	1.87	.05
State Anxiety	11,127	1.13	NS ^a

Note: N of classrooms = 12.

^aNS = not significant.

Negative interactions and self-reports. The finding that classroom membership was significantly related to subjects' scores on two of the personality variables suggests that teacher-students' interactions may be significantly related to students' self-reports. To investigate this hypothesis, the classroom means for teachers' ratings on the Hyperkinesis Index were correlated with the classroom means for each of the personality variables. The rationale for this procedure was that as means for teachers on the activity variable increased, the frequency of negative interactions with the teacher in these classrooms should also have increased. An assumption of this study is that such negative experiences would, over time, have a recognizable influence upon subjects' personality constructs. Stated differently, the negative classroom experiences would affect the

self-description, and thus the scores, on the personality scales which represent the personality constructs. Thus, the average teacher ratings on the Hyperkinesis Index should be significantly correlated with the personality variables that are most sensitive to negative teacher-student interactions.

Table 4 presents the Pearson coefficients of correlation between each teacher's average rating on the Hyperkinesis Index and subjects' classroom averages on each personality scale. The correlation coefficient for the externality scale is significant at the .05 level. None of the other coefficients reaches acceptable levels of significance. However, the coefficient for the state anxiety variable occurs at a probability level which strongly suggests a nonchance relationship might exist between average teacher ratings and classroom anxiety levels.

Table 4

Pearson's r 's between the Means of Each Teacher on the Hyperkinesis Index and the Means of Each Classroom on the Personality Variables

Variable	r with Teacher Means	p Level
Externality	.59	.05
Self-Esteem	-.29	NS
Trait Anxiety	.38	NS
State Anxiety	.45	NS

Note: N of classrooms = 12.

Hypothesis Testing

The results of the intercorrelational and multiple regression analyses are organized by the hypotheses. Because classroom membership was found to account for a significant amount of variance in the hyperactivity variable, its effects were controlled in all multiple regression analyses by creating a dummy variable. Subjects with missing data ($N = 5$) on a particular variable were dropped from calculations involving that variable; i.e., the pairwise deletion option for missing data was used.

Hypothesis 1: Intercorrelations. The intercorrelation matrix for the independent and dependent variables is presented in Table 5. With one exception, the size and sign of the correlation coefficients supported the predictions of this first hypothesis. Externality was negatively correlated with self-esteem and positively correlated with trait and state anxiety. Negative correlations occurred between self-esteem and trait anxiety and between self-esteem and state anxiety. Trait anxiety and state anxiety were correlated positively. The exception was the coefficient reflecting the relationship between hyperactivity and trait anxiety ($r = .09$). This simple correlation coefficient would suggest that the two variables are uncorrelated. On the basis of theory, a moderate positive relationship was expected. Some results of the multiple regression analysis, presented later, shed more light on this apparent discrepancy.

Table 5

Intercorrelation Matrix of Pearson r 's with Number of Subjects for Independent and Dependent Variables

Variables	Externality	Self-Esteem	Trait Anxiety	State Anxiety	<u>Hyperkinesis Index</u>
Externality	..	141	139	138	141
Self-Esteem	-.44**	..	139	138	141
Trait Anxiety	.20*	-.46**	..	138	139
State Anxiety	.23**	-.37**	.42**	..	138
<u>Hyperkinesis Index</u>	.35**	-.33**	.09	.24**	..

Note: Pearson's r 's appear below the diagonal; corresponding N 's appear above the diagonal.

* $p < .05$.

** $p < .01$.

Hypothesis 2: Relationships. This hypothesis predicted the directions of correlations between the activity variable and each of the four personality variables with the effects of the other three personality variables removed. It was postulated that externality, self-esteem, and state anxiety would have significant positive correlations with activity level whereas the correlation between activity level and trait anxiety would be significant and negative (pattern B of Table 1). The hypothesis was supported only partially by the results.

Each personality variable was entered in a multiple regression analysis by the standard regression method with the activity variable as criterion. The signs of the resulting beta weights indicated the directions of correlations between activity level and each personality variable. As Table 6 indicates, the beta weights for externality, trait anxiety, and state anxiety had the expected signs. However,

Table 6

Multiple Regression Analysis with Personality Variables and Classroom Membership as Independent and Control Variables and the Hyperkinesis Index as Criterion

Independent and Control Variables	Regression with <u>Hyperkinesis Index</u> ^a			
	Beta	F	df	p Level
Classroom Membership	..	2.90	11,122	.01
Externality	.19	4.67	1,122	.05
Self-Esteem	-.27	7.28	1,122	.01
Trait Anxiety	-.17	3.54	1,122	.10
State Anxiety	.14	2.37	1,122	NS ^b

^aMultiple $R = .58$; $F(15,122) = 4.09$; $p < .01$.

^bNS = not significant.

the direction of the relationship between self-esteem and activity level was opposite to the predicted direction. With the influence of the other variables held constant, the hyperkinetic child had significantly lower self-esteem rather than positive self-esteem as had been hypothesized. Only the

beta weights for externality and self-esteem were statistically significant whereas all relationships had been predicted to be significant.

It appears that externality is not associated with significant increases in self-esteem as was hypothesized. With regard to the postulation that externality allows a lowering of trait anxiety, the negative beta weight for the relationship between activity level and trait anxiety was found to occur in the direction predicted, but did not reach an acceptable level of significance. Situational anxiety is not an important concomitant of negative interactions, judging from the weak association between state anxiety and activity level.

As mentioned previously, the simple correlation between the hyperactivity and trait anxiety variables was near zero ($r = .09$), a result which was not predicted from theory. Theoretically, anxiety is an effective component of negative experiences. Trait anxiety, if defined in terms of negative experiences, would be the effective residue of negative experiences which occur over a long period of time and across many situations. Because the frequency of negative interactions increases as hyperactivity increases, the hyperactivity variable and the trait-anxiety variable should be significantly correlated. The lack of a clear association between these variables requires explanation.

A possible explanation for the unexpectedly low correlation between hyperactivity and trait anxiety was found in the results of a multiple regression analysis in which the personality variables were entered stepwise. The beta weight for trait anxiety remained low until the self-esteem variable was entered. When the effects of self-esteem were removed, the beta weight for trait anxiety changed sign and increased markedly in size. Apparently the self-esteem variable acted as a suppressor variable for the correlation between hyperactivity and trait anxiety. Only after the variance shared by the self-esteem and trait-anxiety variables was removed did the relationship between trait anxiety and hyperactivity become statistically significant.

Hypothesis 3: Relative importance. This hypothesis pertains to the relative amounts of variance in the activity variable explained by the variables of externality, self-esteem, and trait anxiety. The hypothesis was evaluated by entering these three variables as independent variables, along with classroom membership and state anxiety as control variables, in a multiple regression analysis with the hyperactivity variable as criterion. Because the standard regression method was used, the beta weights reflect the relative amounts of variance in the criterion variable that are uniquely accounted for by the independent and control variables. The relative sizes of the beta weights for the personality variables are also assumed to reflect the

relative psychological importance of each variable. In hypothesis three, externality was postulated to be the principal construct among the personality constructs externality, self-esteem, and trait anxiety. Self-esteem was assumed to be second in importance, followed by trait anxiety. Therefore, the externality variable should have the largest beta weight, self-esteem the second largest, and trait anxiety the smallest.

The results of Table 6 give little support to the predictions of this third hypothesis. Self-esteem had the largest beta weight rather than externality. Trait anxiety did have the smallest beta weight as predicted. Both externality and self-esteem had statistically significant beta weights as had been hypothesized, but the beta weight for trait anxiety had a probability that was slightly higher than the level customarily accepted. However, the probability level of the beta weight for trait anxiety was low enough to justify discussing the relationship between trait anxiety and hyperactivity with qualifications. So, as with hypothesis two, externality does not seem to be the most influential of the constructs externality, self-esteem, and trait anxiety within the personality organization of the hyperactive child. On the contrary, the results suggested that self-esteem might be slightly more important.

Hypothesis 4: Interactions. Significant interactions among the personality variables were predicted to occur

across levels of hyperactivity. More specifically, pattern B was postulated to be more typical of highly active subjects than more normally active subjects. Interaction terms were generated and entered in a stepwise multiple regression analysis after the variance of control and main effects variables had been removed. No significant interactions were found. In fact, the largest percentage of variance left to be explained in any one variable after the main effects had been removed was 5%. These results indicated that the relationships between the hyperactivity and personality variables are linear.

Discussion

Classroom Influences

The investigation of classroom influences upon personality constructs was not the main purpose of this study. However, the presence of a significant classroom factor in the results was of special interest, because the basic assumption of this research was that situational factors play an important role in the development of children's personality constructs. The situational, or contextual, influences considered in the following discussion of classroom factors fall into two conceptual categories, general and specific.

General classroom influences that can affect personality constructs would be the direct influences of all classroom interactions and the direct influences of broader school subcultural factors. The daily interactions between teacher

and students, among students, and between class members and the physical qualities of the classroom probably have the most direct general influence upon personality constructs. School and subcultural factors would affect personality constructs indirectly by becoming incorporated into these various classroom interactions. Particular school factors would be the nature of work relationships between teachers and administrators and the general status of children in the school. Some subcultural factors would be the prevalent childrearing attitudes of the students' parents and the neighborhood norms for self-control behavior. The significant classroom factor found in this study represents the combined effects of both direct and indirect general influences. A larger number of classrooms per school, more pertinent data, and a repeated measures experimental design would be necessary to investigate adequately the separate effects of these various classroom and school variables.

The degree of influence that the total classroom environment will have upon a particular personality construct would seem to depend upon the generality of the construct. Logically, broad constructs will be more affected by the classroom environment than narrower constructs. This is because broader constructs are sensitive to the outcomes of a wider range of classroom interactions than narrower constructs.

Both types of constructs are included in this study. Self-esteem and trait anxiety may be considered as broad constructs which encompass the outcomes of many kinds of interactions that occur in the classroom situation, as well as in many other situations. These two constructs describe the collective outcomes of interactions between the child and significant adults, between the child and peers, and, as Rotter (1954) postulated, between the child and learned conceptions of himself. The externality and state-anxiety constructs, on the other hand, seem to describe a somewhat narrower band of situational outcomes; i.e., they are more situation-specific than the self-esteem and trait-anxiety constructs. The content of the externality construct is limited to beliefs about the personal control of situational outcomes; and, the state-anxiety construct reflects only the anxiety-related feelings being experienced immediately in a particular situation. In summary, the degree of association between general classroom influences and a personality construct would seem to depend upon the relative breadth of the construct.

The preceding analysis would explain why the classroom factor accounted for a significant amount of variance in the self-esteem and trait-anxiety scales. Items on the self-esteem and trait-anxiety scales sample general outcomes of a wide variety of interactions taking place within the classroom. A more specific range of classroom interactions

is described by the items of the externality and state-anxiety scales. Scales which are sensitive to the outcomes of a broad range of interactions are more likely to represent general classroom influences. Thus, salient general classroom influences should, and do, produce more variation in the self-esteem and trait-anxiety scales than in the externality and state-anxiety scales.

The only investigation of the more specific classroom influences upon personality constructs made in this study was the examination of the overall relationship between negative teacher-student interactions and each of the personality variables. Negative interactions were assumed to occur more frequently in the classrooms with the higher average teacher rating on the activity scale. As a background for the interpretation of the results of this investigation, the nature of teacher-student interactions will be discussed briefly.

A teacher's role in the classroom is that of an authority, whereas the student's role in the classroom is that of a subordinate. In many ways, the student's role is the complement of the teacher's role. The teacher sets the standard of performance for the student and expects the students to meet these standards. Each student's classwork and much of his overt and covert behavior are regularly evaluated by the teacher, and the students are expected to incorporate these evaluations. Following such evaluations,

the teacher administers reward or punishment, and students are expected to accept responsibility for these reinforcements. Teachers also serve as a student's role models for numerous attitudes, coping skills, and social behaviors. There is a subtle expectation that students will pattern many of their behaviors after those of their teacher. Because of the complementary nature of the teacher and student roles, a change in the nature of either role will affect the other.

This discussion of teacher and student roles has a direct connection to the purpose of this study. The hyperactive child often fails to meet his teacher's standards for classroom performance and behavior; e.g., he or she does not typically sit still and pay attention. As a result, both teacher and student may alter some aspects of the typical complementary relationship that would normally exist between them. When a hyperactive child does not meet some essential standard for classroom behavior the teacher has a choice. He or she can maintain the usual teacher role as the authority who evaluates the student's efforts to meet classroom standards or assume the abnormal role of the one who must control the student's behavior. In response to a teacher's attempt to control his behavior externally, the hyperactive student may also adopt an abnormal role which maintains a complementary relationship between himself and his teacher. If the teacher continually and predominantly applies external

controls, the hyperactive child may respond by giving up self-control.

It is possible that many teachers unwittingly take responsibility for control of the unacceptable behavior exhibited by a hyperactive child. The child complies by transferring the locus of control for these problem behaviors from himself to his teacher. The abnormal roles for teacher and student are maintained primarily by the teacher's continued efforts to control the child externally, and secondarily by the child's resistance to the teacher's expectation that he exercise internal control. The end result is that teacher and student are held in roles that are continually in conflict. A much different scenario might evolve if teachers reinforced self-control of hyperactive behaviors. By placing the primary responsibility for self-control upon the child, the teacher resumes his/her normal role in the classroom as the authority who sets expectations and gives reinforcement. If given reasonable demands for conformity, the hyperactive child who is reinforced appropriately for accepting or denying responsibility for his problem behaviors is much more likely to achieve the greatest possible degree of self-control.

When teacher and student adopt the abnormal roles described above, the stage is set for repetitive negative interactions between them. A major reason such teacher-student interactions contain negative feelings is that

teacher and student have one another in a double bind. The teacher expects self-control of the hyperactive student while denying him responsibility. Conversely, the hyperactive student expects responsibility from the teacher while denying him self-control. In other words, as long as the teacher tries to control the hyperactive student with external reinforcement, the student will control the teacher with disruptive behavior. The cost of this vicious circle is frequent failure, frustration, anger, and anxiety for both the student and the teacher; and, as the results of this study suggest, the negative interactions which occur as the struggle for control ensues may have a detrimental effect upon the hyperactive student's developing personality constructs. A longitudinal study would indicate whether these effects are cumulative and long lasting.

The impact that chronically negative teacher-student interactions will have on any particular personality construct depends upon two factors: the specific content of the negative interactions and the sensitivity of the personality construct to that content. In this study, the constructs of externality and state anxiety should be more affected by negative teacher-student interactions related to activity level than self-esteem and anxiety. The externality construct should be sensitive to such interactions because a student's beliefs about the control of reinforcements should be greatly influenced by how regularly the student succeeds in meeting

the teacher's expectations for performance and self-control of overt behavior. Negative teacher-student interactions should also have a strong influence upon the state-anxiety construct. This construct should reflect the situational anxiety associated with unpleasant reinforcements administered by the teacher in the classroom. The self-esteem and trait-anxiety constructs should be less sensitive to negative interactions between teacher and student because, as mentioned previously, their contents represent the outcomes of many different types of classroom interactions. These deductions are supported by the results of this study.

Teacher averages on the hyperactivity rating scale had the highest correlations with subjects' classroom means on the externality and state anxiety scales, as would be expected on the basis of the preceding discussion. However, only the relationship between average teacher ratings and externality means was statistically significant. Because correlation does not mean causality, this significant relationship between teachers' average ratings and average externality scores can be interpreted two ways. One interpretation is that the teachers with the higher rating scale means were more sensitive to hyperactive behaviors and tended to use external control techniques to maintain order in the classroom. If these teachers took responsibility for the subjects' self-control, the subjects in these classrooms might become less responsible for the outcomes of their

behavior and the classroom average on the externality scales would increase.

A second interpretation is that the classrooms with the higher means on the teacher rating scale contained subjects with above-normal activity levels. The higher externality means for subjects in these classrooms could have two explanations. First, students with higher activity levels might have been more external prior to entering these classrooms. This tendency toward externality would be the result of prolonged exposure to external controls in the past. Second, the teacher may have resorted to external control techniques in his or her struggle to manage an unusually active group of students, which led to an increase in their average externality score. In order to decide between these two interpretations of the correlation between average teacher ratings and externality scores, a study with more experimental and/or statistical controls would need to be conducted. For example, a repeated measures design would allow control of individual differences among subjects and teachers and determine whether significant changes in personality constructs can occur over one school term. A longitudinal study over several school years would indicate whether particular classroom effects are lasting.

Before leaving the topic of classroom influences upon personality constructs, the validity of this study's results pertaining to such influences should be considered. Because

this study was naturalistic in nature, subjects could not be assigned randomly to the experimental groups, i.e., the classrooms. Also, there was an absence of pretest data that would have allowed statistical control of differences among subjects and among teachers on the various research variables that might have existed at the beginning of the school year. For example, a major source of error in this study may have been different standards among teachers for their ratings of students' hyperactivity. Such error could have produced the significant classroom factor on the activity variable rather than actual differences among students. Control of individual differences is necessary in a naturalistic study if the effects of independent variables are to be isolated clearly. Such control also would have allowed some determination of the rate of effect of independent variables upon dependent variables. Also, the smaller number of subjects available in each classroom prevented the control of individual differences by the inclusion of a large number of subjects per group. For these reasons, the results of this study regarding classroom influences should be viewed as tentative.

Personality Organization

The pattern of intercorrelation among the variables of this study was almost identical to that predicted by hypothesis 1. Correlation coefficients obtained for relationships among the externality, self-esteem, and trait

anxiety variables were comparable to those found in several published studies. The similarity between the obtained and the previously published coefficients for these personality variables implied that the subjects of this study were similar in personality organization to other groups of subjects drawn from the general population. Support for the normalcy of the sample was provided by the occurrence of means and standard deviations for these three variables that were similar to those in normative studies.

A review of published research pertaining to the personality characteristics of hyperactive children produced no studies in which a continuous hyperactivity variable had been correlated with the personality variables of this study. Therefore, no existing coefficients were found with which to compare the coefficients obtained in this study for relationships between the hyperactivity and personality variables. Apparently, previous researchers have not typically conceptualized hyperactivity as a continuous personality variable. This is surprising because most definitions of hyperactivity and most rating scales used to identify hyperactive children refer to personality traits, e.g., impulsivity, as well as to pure motor behaviors. A likely reason for this lack of distinction between the personality and motoric components of definition is that, historically, hyperactivity has been viewed by researchers as a syndrome of behaviors. The usual purpose of a definition or a rating

scale was merely to isolate a group of children with hyperactive behaviors for inclusion in a treatment group rather than to describe the personal qualities of these children. Recent interest in the effects of hyperactivity upon personality should lead to the consideration of hyperactivity as a personality variable as well as a pattern of behaviors.

For this study, a definition of hyperactivity which combines personality traits and motor behaviors is ideal, because the focus was upon those personal qualities of the hyperactive child which contribute most to negative interactions with adults. The true basis of any definition of hyperactivity is whether or not the characteristics included in the definition are irritating to adults. Some negative interactions occur when the adult responds to the temperament traits of the hyperactive child; other negative interactions occur when the adult reacts to the motor movements of these children. Future research into the nature of negative interactions between hyperactive children and adults might separate the temperamental and motoric components of the child's behavior. Separating these two types of behavior would allow investigation of the relative contribution of each to negative interactions. Some adults may be more sensitive to temperament traits, others to motor behaviors. Also, situational variables may influence the relative significance of the two factors. Most of all, a more accurate analysis of the interactions between hyperactive

children and adults would guide plans for treatment or intervention within the family or classroom.

Hypothesis 2 was not supported by the results of this study. Apparently, the role of the externality construct within the personality organization of hyperactive boys is not to mediate the effects of negative experiences to the self-esteem and trait anxiety constructs. Externality did increase with hyperactivity, but this increase did not sustain a defensive elevation of self-esteem. The negative correlation between hyperactivity and trait anxiety was strong enough to provide some support for the prediction that an external control orientation allows the reduction of trait anxiety. However, because this correlation is not significant, further research is necessary to determine whether an anxiety-reduction process is actually occurring, or whether the hyperactive child's lower anxiety is perhaps due to a lack of awareness of anxiety-related stimuli.

Hypothesis 3 also was not supported by the results. This outcome was expected, even required, because Hypotheses 2 and 3 are supported by the same theoretical assumptions. Externality was not substantiated as the more influential of the three constructs--externality, self-esteem, and trait anxiety--within the personality organization of hyperactive boys. This conclusion is supported by the finding that the externality variable did not explain the larger percentage of variance due to the hyperactivity variable compared to

the percentages explained by the self-esteem and trait anxiety variables. Actually, the externality and self-esteem variables accounted for similar amounts of hyperactivity variance. An inference from this result is that the externality and self-esteem constructs are of about equal psychological significance. The trait-anxiety variable explained a nonsignificant amount of the hyperactivity variance which implies that trait anxiety is of lesser psychological importance. However, there is reason to hold judgment about how important this variable is within the personality organization of hyperactive children. The trait-anxiety scale is the shortest of the personality scales and the most vulnerable to a social desirability response set. Until additional research is done using longer and less obvious measures of trait anxiety, the finding that this variable accounts for insignificant amounts of hyperactivity variance should be viewed as equivocal.

To summarize, the results of this study suggest that hyperactive boys tend to have an external control orientation, to have low self-esteem, and to deny trait anxiety, although this last tendency is a tentative one. Externality and self-esteem apparently have about the same psychological influence within the personality organization of hyperactive boys. Trait anxiety appears to be less important psychologically than externality or self-esteem, but this is only a tentative conclusion. These results do not support the assumptions

underlying pattern B, which are the assumptions upon which hypotheses 2 and 3 were based. The assumptions of pattern D, described in the introduction, provide a more complete explanation of these findings.

Judging from the results of this study, the externality and self-esteem constructs represent two independent and equally important aspects of interactions between individuals and their environment. The locus-of-control construct may be thought of as representing a person's beliefs about competency in situations. Self-esteem represents self-labels derived by the individual or provided by others. Another way of describing the two constructs is that the internality/externality construct contains the "I-can" and "I-can't" beliefs, whereas self-esteem contains the "I-am" and "I-am-not" beliefs. These two domains of belief are almost certainly connected by a system of learned meanings. Through this system of meanings, they can influence one another and combine to influence behavior potentials. It is easy to imagine how competency beliefs and self-labels could influence one another. For example, a child who labels himself with "I am dumb" will probably not have the "I-can-make-good-grades" belief, and vice versa. In the case of the hyperactive child, these constructs or belief systems contain a high percentage of "I-can't" and "I-am-not" beliefs. When these two systems combine through the network of learned meanings, the potential for positive interactions or success

behavior is much reduced. Hence, the hyperactive child is locked into a self-defeating behavior pattern characterized by low motivation, failure, punishment, and lack of reward.

The conception that externality and self-esteem influence behavior from separate but interrelated psychological domains has implications for treatments that attempt to reduce hyperactivity by increasing self-control. Competency beliefs and self-labels are two probable components of self-control. The hyperactive child will not exercise self-control over his problem behaviors if he does not believe he has the ability to control them or does not label himself as a controller of such behaviors. Based on these conceptions, an intervention strategy that attempted to modify appropriately both competency beliefs and self-labels would improve self-control more quickly and effectively than a technique focused on only one of the two components.

The principles of social learning theory support some general suggestions about how to improve self-control of hyperactive behaviors by modifying the externality and self-esteem constructs simultaneously. First, because hyperactive behavior is part of an interaction between a child and a significant adult, effective intervention will require the participation of these adults. Second, the competency beliefs can be made more supportive of self-control if adults adopt the attitude of "You can control" and also reinforce the child's efforts to exercise

self-control. The rationale for this approach is that self-control becomes internalized when it is attributed to the internal causes of ability and effort. Third, adults can implant self-labels in the child's self-concept that contribute to self-control by the way they speak and interact with the child. The general attitude toward the child would be, "You are in control," or "You are responsible for your behavior." Over time, these influences within the child-adult interactions should affect the content of the externality and self-esteem constructs. The locus-of-control construct should eventually contain stronger beliefs that the child can control his hyperactivity, and the self-esteem construct should accumulate definite labels which designate the child himself as the one in control of such behavior. When this happens, self-control has become more internal to the child and the frequency of negative interactions involving hyperactive behaviors should be at a minimum. Most importantly, the externality and self-esteem constructs no longer support maladaptive behaviors, and personality development can proceed in a more normal fashion.

When the results of this study are viewed statistically rather than clinically, none of the personality variables have a strong association with hyperactivity. This observation suggests that the primary explanation for hyperactivity does not lie within the interactions between the hyperactive child and other people. If interactions with people do not explain

hyperactivity, then the behavior must originate, for the most part, from within the hyperactive child himself. In other words, personality traits appear to be secondary to temperament traits as explanations for hyperactivity. This conclusion is supported by the research of Thomas and associates (1968, 1977) who found that temperamental characteristics differentiated infants long before they had had time to develop personality traits per se. Thus it appears that hyperactive children are likely to remain somewhat hyperactive despite the best efforts of parents, teachers, and various professionals to reduce their hyperactivity. Given these genetic limits, the adults responsible for a hyperactive child could decide that their primary role in relation to the child should be to manage his behavior. However, another finding of Thomas and associates suggests that they have a higher calling. These researchers discovered that the most important factor in preventing the development of a behavior disorder in a child of difficult temperament is the quality of the relationship with their adult caretakers. Positive interactions with people are important in the prevention of the maladaptive personality constructs that often are associated with such temperament extremes as hyperactivity. If adults accept a child's hyperactivity to the extent that it is his nature, provide realistic limits, and reinforce self-control efforts, the negative interactions and maladaptive behavior patterns

will be minimized. The challenge for the adult who is living or working with a hyperactive child is to realize that he or she is a participant in the formation of the child's personality rather than a mere reactor to the child's overt behavior

Appendix A

Table 7

Classroom Means, Standard Deviations,
and Number of Subjects for the
Hyperkinesis Index

Classroom	Means	Standard Deviations	Number of Subjects
1	5.00	4.60	11
2	11.92	6.72	12
3	5.73	5.85	11
4	10.75	9.17	12
5	5.86	5.49	14
6	13.91	9.93	11
7	12.00	9.25	13
8	7.45	6.65	11
9	10.00	8.60	11
10	13.69	5.72	13
11	11.15	7.83	13
12	4.36	4.67	11

Appendix B

Table 8

Means, Standard Deviations, and Respondents (N)
to Personality Measures by Classroom

Classroom	Externality		Self-Esteem		Trait Anxiety		State Anxiety	
	<u>M(N)</u>	<u>SD</u>	<u>M(N)</u>	<u>SD</u>	<u>M(N)</u>	<u>SD</u>	<u>M(N)</u>	<u>SD</u>
1	14.82(11)	5.00	61.09(11)	10.11	36.09(11)	6.17	29.91(11)	4.46
2	16.58(12)	6.19	46.08(12)	10.17	39.12(12)	4.04	30.75(12)	6.34
3	15.55(11)	4.16	51.36(11)	13.87	37.55(11)	5.32	30.18(11)	6.05
4	16.25(12)	3.79	59.17(12)	15.43	36.08(12)	5.45	29.08(12)	5.57
5	15.79(14)	4.17	45.64(14)	14.28	41.29(14)	5.31	31.07(14)	6.57
6	16.27(11)	4.67	48.64(11)	15.40	39.36(11)	6.77	35.27(11)	10.90
7	16.54(13)	4.10	55.23(13)	12.39	38.69(13)	5.78	33.92(13)	7.38
8	15.60(10)	4.90	55.80(10)	14.96	40.80(10)	4.89	31.00(10)	7.10
9	17.90(10)	4.15	56.30(10)	8.18	36.87(8)	2.75	30.25(8)	2.19
10	16.31(13)	4.59	52.38(13)	12.80	39.54(13)	5.95	29.00(13)	5.15
11	14.46(13)	4.75	54.69(13)	12.00	41.23(13)	8.48	32.50(12)	6.13
12	12.36(11)	3.44	58.27(11)	5.97	33.82(11)	5.65	29.09(11)	3.42

Appendix C

Items of the Conners Abbreviated Parent-Teacher
Questionnaire (Hyperkinesis Index)

1. Temper outbursts and unpredictable behavior
2. Pouting and sulking
3. Quick and drastic mood changes
4. Restlessness in the "squirmy" sense
5. Disturbing of other children
6. Restlessness that keeps him up and "on the go"
7. Excitability, impulsiveness
8. Distractibility or attention-span problem
9. Failure to finish things that he begins
10. Frequent frustration in efforts

References

- American Psychiatric Association. Diagnostic and statistical manual of mental disorders (2nd ed.). Washington, D.C., 1968.
- Bandura, A. Principles of behavior modification. New York: Holt, Rinehart, & Winston, 1969.
- Bentler, P. M. Review article. In O. K. Buros (Ed.), Seventh mental measurements yearbook. Highland Park: Gryphon Press, 1971.
- Bijou, S. W., & Baer, D. M. Behavior analysis of child development. Englewood Cliffs, N. J.: Prentice-Hall, 1978.
- Campbell, S. B., Endman, M. W., & Bernfeld, G. A three-year follow-up of hyperactive preschoolers into elementary school. Journal of Child Psychology and Psychiatry, 1977, 18, 239-249.
- Campbell, W. A., Cheeseman, E. A., & Kilpatrick, A. W. The effects of neonatal asphyxia on physical and mental development. Archives of Diseases of Childhood, 1950, 25, 351-359.
- Childers, A. T. Hyperactivity in children having behavior disorders. American Journal of Orthopsychiatry, 1935, 5, 227-243.
- Clements, S. D., & Peters, J. Minimal brain dysfunctions in the school-age child. Archives of General Psychiatry, 1962, 6, 185-197.

- Conners, C. K. A teacher rating scale for use in drug studies with children. American Journal of Psychiatry, 1969, 126, 884-888.
- Conners, C. K. Symptom patterns in hyperactive, neurotic, and normal children. Child Development, 1970, 41, 667-682.
- Conners, C. K. Rating scales for use in drug studies with children. Psychopharmacology Bulletin (Special issue, Pharmacotherapy of children), 1973, 24-29.
- Coopersmith, S. Clinical explorations of self-esteem. In Child and Education, Proceedings of the XIV International Congress of Applied Psychology. Copenhagen: Munksgaard, 1962, 61-68.
- Coopersmith, S. The antecedents of self-esteem. San Francisco: W. H. Freeman, 1967.
- Crandall, R. Measures of self-esteem. In J. P. Robinson & P. R. Shaver (Eds.), Measures of social psychological attitudes (Rev. ed.). Ann Arbor: University of Michigan, Institute for Social Research, 1973.
- Doll, E. A., Phelps, W. M., & Melcher, R. T. Mental deficiency due to birth injuries. New York: Macmillan, 1932.
- Doubros, S. G., & Daniels, G. J. An experimental approach to the reduction of overactive behavior. Behavior Research and Therapy, 1966, 4, 251-258.
- Ebaugh, F. G. Neuropsychiatric sequelae of acute epidemic encephalitis in children. American Journal of Diseases of Children, 1923, 25, 89-97.

- Ehrenfest, H. Birth injuries of the child. Gynecological and Obstetrical Monographs. New York: Appleton, 1926.
- Feather, N. T. Some personality correlates of external control. Australian Journal of Psychology, 1967, 19, 253-260.
- Felker, D. W., & Thomas, S. B. Self-initiated verbal reinforcement and positive self-concept. Child Development, 1971, 42, 1285-1287.
- Fitch, G. Effects of self-esteem, perceived performance, and choice on causal attributions. Journal of Personality and Social Psychology, 1970, 16, 311-315.
- Gordon, D. Children's beliefs in internal-external control and self-esteem in relation to academic achievement. Journal of Personality Assessment, 1977, 41, 383-386.
- Goyette, C. H., Conners, C. K., & Ulrich, R. F. Normative data on revised Conners Parent and Teacher Rating Scales. Journal of Abnormal Child Psychology, 1978, 6, 221-236.
- Hohman, L. B. Post-encephalitic behavior disorders in children. Johns Hopkins Hospital Bulletin, 1922, 33 372-375.
- Klein, D. F., & Gittleman-Klein, R. Problems in the diagnosis of minimal brain dysfunction and the hyperkinetic syndrome. International Journal of Mental Health, 1975, 4, 45-60.

- Kokenes, B. A factor analytic study of the Coopersmith Self-Esteem Inventory. Adolescence, 1973, 13, 149-155.
- Kupietz, S., Bialer, I., & Winsberg, B. G. A behavior rating scale for assessing improvement in behaviorally deviant children: A preliminary investigation. American Journal of Psychiatry, 1972, 128, 1432-1436.
- Levy, S. M. Post-encephalitic behavior disorder--A forgotten entity. American Journal of Psychiatry, 1959, 115 1062-1067.
- Loney, J. An indirect measure of self-esteem and impulse control in elementary school children. Psychology in the Schools, 1972, 9 182-185.
- Loney, J. The relationship between impulse control and self-esteem in school children. Psychology in the Schools, 1974, 11, 462-466.
- Mendelson, W., Johnson, N., & Stewart, M. Hyperactive children as teenagers: A follow-up study. Journal of Nervous and Mental Diseases, 1971, 53, 273-279.
- Millen, L. The relationship between self-concept, social desirability and anxiety in children. Unpublished Master of Science thesis, Pennsylvania State University, 1966.
- Minde, K., Weiss, G., & Mendelson, N. A 5-year follow-up study of 91 hyperactive school children. Journal of the American Academy of Child Psychiatry, 1972, 11, 595-610.

- Nie, N. H., Hull, C. H., Jenkins, J. G., Steinbrenner, K., & Bent, D. H. SPSS: Statistical package for the social sciences (2nd ed.). New York: McGraw-Hill, 1975.
- Nowicki, S., Jr., & Strickland, B. A locus of control scale for children. Journal of Consulting and Clinical Psychology, 1973, 40, 148-154.
- O'Leary, K. D., Becker, W. C., Evans, M. B., & Saudargras, R. A. A token reinforcement program in a public school: A replication and systematic analysis. Journal of Applied Behavior Analysis, 1969, 2, 3-13.
- O'Leary, K. D., Pelham, W. E., Rosenbaum, A., & Price, G. H. Behavioral treatment of hyperkinetic children: An experimental evaluation of its usefulness. Clinical Pediatrics, 1976, 15, 510-515.
- Pasamanick, B., Rogers, M., & Lilienfeld, A. M. Pregnancy experience and the development of behavior disorder in children. American Journal of Psychiatry, 1956, 112, 613-617.
- Paternite, C. E., Loney, J., & Langhorne, J. E., Jr. Relationships between symptomatology and SES-related factors in hyperkinetic/MBD boys. American Journal of Orthopsychiatry, 1976, 46, 291-301.
- Patterson, G. R., Jones, R., Whittier, J., & Wright, M. A. A behavior modification technique for the hyperactive child. Behavior Research and Therapy, 1965, 2, 217-226.

- Piers, E. V. The Piers-Harris children's self concept scale: Research monograph #1. Nashville, Tennessee: Counselor Recordings and Tests, 1977.
- Piers, E., & Harris, D. The Piers-Harris children's self concept scale. Nashville, Tennessee: Counselor Recordings and Tests, 1969.
- Platzek, D. Anxiety in children. Unpublished manuscript, Florida State University, 1970.
- Prawat, R. S. Mapping the affective domain in young adolescents. Journal of Educational Psychology, 1976, 68, 566-572.
- Rappaport, J. L., Quinn, P. O., Bradbard, G., Riddle, K. D., & Brooks, E. Imipramine and Methyphenidate treatments of hyperactive boys. Archives of General Psychiatry, 1974, 30, 789-793.
- Ray, W. J., & Katahn, M. Relation of anxiety to locus of control. Psychological Reports, 1968, 23, 1196.
- Ross, A. O. Psychological disorders of children: A behavioral approach to theory, research, and therapy (2nd ed.). New York: McGraw-Hill, 1980.
- Ross, D. M., & Ross, S. A. Hyperactivity: Research, theory, and action. New York: John Wiley & Sons, 1976.
- Rotter, J. B. Social learning and clinical psychology. Englewood Cliffs: Prentice-Hall, 1954.

- Rotter, J. B. Generalized expectancies for internal versus external control of reinforcement. Psychological Monographs, 1966, 80 (1, Whole No. 609).
- Sarason, S. B., Davidson, K. S., Lighthall, F. F., Waite, R. R., & Ruebush, B. K. Anxiety in elementary school children. New York: Wiley, 1960.
- Schauer, G. H. An analysis of the self-report of fifth and sixth grade regular class children and gifted class children. Unpublished doctoral dissertation, Kent State University, 1975.
- Schleiffer, M., Weiss, G., Cohen, N., Elman, M., Cvejic, H., & Kruger, E. Hyperactivity in preschoolers and the effect of methylphenidate. American Journal of Orthopsychiatry, 1975, 45, 38-50.
- Schrag, P., & Divoky, D. The myth of the hyperactive child. Springfield, Illinois: Thomas, 1965.
- Shreve, E. E. A critical analysis and evaluation of evidence regarding the reliability and validity of four selected measures of self-concept. Unpublished doctoral dissertation, University of Southern California, 1973.
- Smith, R. C., III, Tedeschi, J. T., Brown, R. C., Jr., & Lindskold, S. Correlations between trust, self-esteem, sociometric choice, and internal-external control. Psychological Reports, 1973, 32, 739-743.

- Spielberger, C. D., Edwards, C. D., Lushene, R. E.,
Montuori, J., & Platzek, D. The state-trait anxiety
inventory for children. Palo Alto, California: Consulting
Psychologists Press, 1973. (Manual).
- Spielberger, C. D., Gorsuch, R. L., & Lushene, R. The
state-trait anxiety inventory. Palo Alto, California:
Consulting Psychologists Press, 1970. (Manual).
- Sprague, R. L., & Sleator, E. K. Effects of psychopharma-
cological agents on learning disorders. Pediatric
Clinics of North America, 1973, 20, 719-735.
- Spring, C., Blunden, D., Greenberg, L. M., & Yellin, A. M.
Validity and norms of a hyperactivity rating scale.
Journal of Special Education, 1977, 11, 313-321.
- Still, G. F. The Coulstonian lectures on some abnormal
physical conditions in children. Lancet, 1902, 1,
1008-1012, 1077-1082, 1163-1168.
- Stone, F. B., Wilson, M. A., Spence, M. E., & Gibson, R. C.
A survey of elementary school children's behavior problems.
Paper presented at the annual meeting of the American
Orthopsychiatric Association, New York, 1969.
- Strassberg, D. S. Relationships among locus of control,
anxiety, and valued-goal expectations. Journal of
Consulting and Clinical Psychology, 1973, 41, 319.

- Strauss, A. A., & Kephart, N. C. Psychopathology and education of the brain-injured child: Progress in theory and clinic (Vol. 2). New York: Grune & Stratton, 1955.
- Thomas, A., & Chess, S. Temperament and development. New York: Brunner/Mazel, 1977.
- Thomas A., Chess, S., & Birch, H. Temperament and behavior disorders in children. New York: New York University Press, 1968.
- Tredgold, C. H. Mental deficiency (amentia) (1st ed.). New York: Wood, 1908.
- Tuddenham, R. D., Brooks, J., & Milkovich, L. Mother's reports of behavior of ten-year-olds: Relationship with sex, ethnicity, and mother's education. Developmental Psychology, 1974, 10, 959-995.
- Watson, D. Relationship between locus of control and anxiety. Journal of Personality and Social Psychology, 1967, 6, 91-92.
- Wender, Ph. H. Minimal brain dysfunction in children. New York: Wiley-Interscience, 1971.
- Werry, J. S., & Quay, H. C. The prevalence of behavior symptoms in younger elementary school children. American Journal of Orthopsychiatry, 1971, 41, 136-143.

- Werry, J. S., Sprague, R. L., & Cohen, M. N. Conners' Teacher Rating Scale for use in drug studies with children: An empirical study. Journal of Abnormal Child Psychology, 1975, 3, 217-229.
- Whaley-Klahn, M. A., & Loney, J. A multivariate study of the relationship of parental management to self-esteem and initial drug response in hyperkinetic/MBD boys. Psychology in the Schools, 1977, 14, 485-492.
- Wylie, R. C. The self-concept (Vol. 1) (Rev. ed.). Lincoln: University of Nebraska Press, 1974.
- Zukow, P. G., Zukow, A. H., & Bentler, P. M. Rating scales for the identification and treatment of hyperkinesis. Journal of Consulting and Clinical Psychology, 1978, 46 213-222.