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### Intellectual abilities and psychological intensities in young children: Implications for the gifted

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# Testing and Identification

## Intellectual Abilities and Psychological Intensities in Young Children: Implications for the Gifted

Margie K. Kitano

*While empirical literature supports the conception of intellectually gifted children as emotionally well adjusted, such children are often described as possessing potential problem characteristics (psychological "intensities") related to their superior cognitive abilities. This preliminary study investigated relationships between parent perceived intensities of a heterogeneous sample of preschool-age children and standardized measures of intelligence and creativity. Total intensity scores as measured by a parent questionnaire correlated negatively with children's chronological age and positively with intelligence scores. Factor analysis of questionnaire items yielded seven intensity factors. Several significant correlations were found between intensity factors and chronological age and intelligence measures. Results were interpreted as lending some support to the observation that, while bright children tend to display positive self concepts, they may also tend to possess some characteristics that may bring them into conflict with their social environment.*

**T**erman's Stanford Studies of Genius dispelled the myth that intellectually gifted children are emotionally maladjusted by providing evidence of their superior character development and emotional stability compared to controls. Recent studies (Kelly & Colangelo, 1984; Lehman & Erdwins, 1981) comparing gifted and average children corroborate Terman's findings. Gifted children evidence higher scores on various measures of self-concept and adjustment. While some studies (Coleman & Fults, 1982, 1985) suggest that placement in special programs reduces gifted children's self-concepts, their scores continue to be higher than those of average children. Investigations of gifted children's emotional adjustment (Gallucci, 1988; Grossberg & Cornell, 1988) similarly indicate that the incidence of malad-

justment is comparable to the incidence in the normative population. A review of empirical literature on personality characteristics of gifted children (Olszewski-Kubilius, Kulieke, & Krasney, 1988) revealed inconsistent findings; however, where differences existed between gifted children and their same-age peers, the differences favored the gifted.

**T**he above-cited empirical literature characterizes gifted children as both intellectually and emotionally superior to nongifted peers. Yet a number of professionals who work with the gifted describe these individuals as possessing unique social and emotional characteristics which bring them into conflict with the environment. These characteristics include perfectionism, hypersensitivity to the expectations and feelings of others, nonconformity, feelings of being different, an idealistic sense of justice, emotional intensity, and social

isolation (see Clark, 1983; Kitano, 1985; LeVine, 1984; LeVine & Kitano, in press; Seagoe, 1975). Clark (1983, pp. 91-99) lists a number of characteristics that differentiate the gifted, such as advanced comprehension and unusual curiosity along with "possible concomitant problems," such as poor interpersonal relationships with same-age children and difficulty conforming, respectively.

Dabrowski's theory of developmental potential, as applied to the gifted by Piechowski (1979, 1986), suggests that these individuals possess "overexcitabilities" which render them susceptible to psychic disequilibrium. These overexcitabilities refer to extreme sensitivity and intensity in five areas: psychomotor (capacity for being active and energetic), sensual (awareness of and response to sensory stimuli), intellectual (desire for knowledge), imaginal (vividness of imagery and fantasy), and emotional (depth of feeling). Piechowski (1986) indicates that gifted adults demonstrate higher scores on an open-ended measure of overexcitabilities, the Overexcitability Questionnaire (OEQ).

**C**haracteristics such as perfectionism, nonconformity, feelings of being different, and oversensitivities are ascribed to gifted children as potentially promoting adjustment problems. These characteristics will be referred to as "intensities" to remove the negative connotation of "problem" characteristics and "overexcitabilities." Much of the literature which identifies these intensities in gifted children is based on case study illustrations (e.g., Hollingworth, 1942). One recent quantitative analysis (Loeb & Jay, 1987) found that gifted boys (ages nine to twelve) described themselves as less satisfied with themselves in some areas than nongifted boys based on differences

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between actual and ideal scores on a Q-sort. Gallagher (1985) and Schiever (1985) found some evidence of relationships between OEQ scores and measures of creativity for children ages 11 to 12 and 12 to 14, respectively. Kitano (1985, 1986) suggested that some of these characteristics can be observed in gifted children as early as the preschool years.

The purpose of the present study was to investigate whether an empirical relationship could be found between intellectual ability and psychological intensities in a heterogeneous group of young children, as would be predicted from the foregoing literature. Intensities were measured by a parent questionnaire. Specific research questions included:

1. Do relationships exist between intensities and measures of intelligence and creativity?
2. Are there gender and age differences in intensities?

## Method

### Subjects

Subjects were 67 children, ages 32 to 55 months (mean = 45.4, SD = 6.5) who were referred by their parents to a free assessment program for identification of children for a university preschool program for gifted children. The sample included 37 girls and 30 boys, 54 White, 12 Hispanic, and one Black. Table 1 provides means, standard deviations, and ranges for the children on the Stanford Binet Fourth Edition (S-B) and the Torrance Test of Creativity in Action and Movement (TCAM). Previous use of the Stanford Binet Fourth Edition for identifying gifted preschool-age children supported the Partial Composite IQ score derived from the Verbal Reasoning (VR) and Short Term Memory (STM) subtests as a more useful indicator of intellectual potential than the Test Composite IQ due to young children's misinterpretation of instructions on Abstract/Visual (A/V) and Quantitative subtests (Kitano & DeLeon, 1988). Thus, both Test Composite (TIQ) and Partial Composite IQ (PIQ) scores were used in the analysis.

**Table 1**  
Means, Standard Deviations, and Ranges for Child Measures

Measure	Mean	SD	Range	N
<i>S-B 4th Ed.</i>				
Verbal Reasoning	117.0	10.4	91-147	67
Abstract/Visual	110.9	15.8	66-145	67
Quantitative	114.6	18.8	88-184	63
Short Term Memory	109.9	11.8	73-135	67
Test Composite IQ	114.4	11.5	75-141	67
Partial Composite	114.9	11.1	80-142	67
<i>TCAM Standard Scores</i>				
Fluency	108.7	18.9	71-178	61
Flexibility	101.7	13.8	78-150	61
Originality	92.7	21.8	10-129	61
<i>Parent Questionnaire Average Item Scores</i>				
Total	3.29	0.35	2.50-3.85	22
I. Emotional Sens.	2.85	0.58	1.71-4.00	49
II. Imaginational Int.	3.28	0.88	1.00-5.00	58
III. Intell. Precocity	2.68	0.65	1.20-3.80	31
IV. Critical Attitude	2.87	0.68	1.60-4.40	54
V. Intell. Intensity	3.97	0.64	1.75-5.00	64
VI. Psychomotor Inten.	4.14	0.77	1.00-5.00	63
VII. Task Commitment	3.80	0.35	3.00-4.50	60

### Instruments

A 40-item Parent Questionnaire was designed by the researcher based on characteristics identified by Clark (1983) and Dabrowski (Piechowski, 1979) as concomitant with high intelligence and potentially problematic. Parents were asked to rate their children on each item using a 5-point Likert scale from Almost Never (1) to Almost Always (5) or "Don't Know". The total score divided by the number of items rated represents a measure of the child's level of intensity. Examples of items and their source appear in Table 2. Examination of the Teacher Temperament Questionnaire for Children 3-7 Years of Age (Thomas & Chess, 1977) suggested that some items appeared to be consonant with Dabrowski's descriptions of intellectual, sensual, and psychomotor overexcitabilities as they might be applied to young children. Four items from this measure were adapted for the Parent Questionnaire. Conceptually, temperamental characteristics are not the same as overexcitabilities and represent few of the parent questionnaire items.

### Procedures

Parents were asked to complete the Parent Questionnaire while their children were being individually administered the battery of tests used for selection for the university preschool program. Written instructions indicated that parents' responses to the questionnaire were requested as part of a research project and would have no bearing on their child's selection for the program.

## Results

To investigate possible relationships between children's intensities and their performance on intelligence and creativity measures, correlations were examined among total intensity questionnaire score, intensity factor scores, Stanford-Binet scores, and TCAM subtest scores. The question of age and gender differences was examined through analysis of correlations between chronological age and intensities and a t-test comparing intensity scores of boys and girls.

**Table 2**  
**Parent Questionnaire Sample**  
**Items and Source**

Source	Characteristic	Sample Item
Clark (1983)	verbalizes to avoid difficult tasks	When uncomfortable with a task, my child responds by asking questions or talking about something else.
Clark	objects to demanded products	My child enjoys learning but seems uninterested in demonstrating knowledge on demand.
Dabrowski (Piechowski, 1979)	psychomotor overexcitability; surplus of energy	My child is active and energetic, runs rather than walks, and is constantly on the go.*
Dabrowski	sensual overexcitability; heightened feeling and expression regarding sensory stimuli	My child quickly notices odors, colors, and noises and comments on them.*
Dabrowski	intellectual overexcitability; striving for understanding	My child vigorously pursues a problem or task (e.g., model, puzzle, or art project) until he/she completes it, even if it takes a long time.*
Dabrowski	imaginational overexcitability; mixing of truth and fiction	My child's stories mix truth and fiction.
Dabrowski	emotional overexcitability; sense of responsibility; concern for others	My child tries to comfort others who are in pain.

\*adapted from Thomas and Chess (1977)

### *Intensities, Intelligence, and Creativity*

Overall intensity, as measured by the total questionnaire average item score, correlated positively with Verbal Reasoning ( $R = .41, p < .05$ ) and Partial Composite IQ ( $R = .41, p < .05$ ) on the Stanford Binet. To investigate more specifically the types of intensity items related to test scores, a factor analysis of questionnaire items was conducted.

A number of factor solutions were examined using a principal factor model with both orthogonal and oblique rotations. Requiring factors to account for at least 5 percent of the overall variance supported a 7-factor solution which appeared to have

the best fit with the initially conceived framework. Table 1 provides means, standard deviations, and ranges for average item scores for the total questionnaire and the seven factors. Total questionnaire averages were calculated only for children whose parents rated 90 percent or more of the items. Factor scores were calculated by averaging parent ratings on individual items that had loadings greater than .40.

Table 3 lists the items and loadings for each factor. Since the orthogonal and oblique rotations produced nearly identical results, only the orthogonal loadings are presented. By examination of items with the highest loadings in each cluster, factor names were derived. Factor I, Emotional Sensitivity, con-

sists of items related to empathy, concern about the feelings of self and others, and sense of justice. Factor II, Imaginational Intensity, is composed of items describing active fantasy life, sensitivity to separation, and nonconformity. Factor III, named Intellectual Precocity, clusters items related to advanced cognitive development, independence from the group, and impatience with waiting for others.

Factor IV is composed of items that together describe a Critical Attitude, such as criticizing and questioning others and persistence in pursuing ideas. The fifth factor, Intellectual Intensity, describes a serious approach, good recall, and need for recognition of abilities. Factor VI was labeled Psychomotor Intensity based on items related to high levels of activity, energy, and sensitivity to changes. Items with highest loadings on the seventh factor, Task Commitment, included attention to detail, persistence, enthusiasm, and attention span.

Several significant Pearson product-moment correlations were found between intensity factors and children's intelligence test scores. Correlation coefficients are reported in Table 4.

Factor III, Intellectual Precocity, correlated positively with Short Term Memory, Test Composite IQ and Partial Composite IQ on the Stanford Binet. Factor V, Intellectual Intensity, correlated negatively with Abstract/Visual Reasoning and Quantitative Reasoning and positively with Short Term Memory. Factor VII, Task Commitment, correlated positively with Verbal Reasoning and Partial Composite IQ on the Stanford Binet.

None of the intensity factors correlated significantly with any creativity subtest. Factor I, Emotional Intensity, tended to increase with TCAM Originality scores ( $R = .23; p = .066$ ). Analysis also yielded no significant correlations between Factor II, Imaginational Intensity, Factor IV, Critical Attitude, and Factor VI, Psychomotor Intensity, and any ability or creativity score.

**Table 3**  
**Factor Analysis: Variables with**  
**Loadings of .4 or More**

Item	Loading
<i>Factor I: Emotional Sensitivity</i>	
39. tries to comfort others who are in pain.	.64
38. reacts (e.g., cries, withdraws) when another person is crying.	.58
18. becomes frustrated when his/her performance does not meet his/her standards.	.51
25. preoccupation with abstract ideas cause peers to tease him/her.	.46
26. expresses feelings of being different.	.45
40. questions him/herself about own behavior.	.44
22. becomes visibly upset by the unfair treatment of others.	.44
24. refuses to participate in activities in which he/she cannot be "the best."	.41
<i>Factor II: Imaginational Intensity</i>	
34. stories mix truth and fiction.	.69
33. has an active fantasy life, such as imaginary friends.	.69
36. becomes upset by separation from family members or close friends.	.59
12. enjoys learning but seems uninterested in demonstrating knowledge on demand.	.43
5. understands directions but does things his/her own way.	.42
<i>Factor III: Intellectual Precocity</i>	
4. likes to do things differently from the group.	.64
2. gets impatient waiting for others in a group to follow directions or understand concepts.	.63
23. intellectual or academic development exceeds motor and physical development.	.48
25. preoccupation with abstract ideas causes peers to tease him/her.	.47
21. chooses to play or work by self.	.44
<i>Factor IV: Critical Attitude</i>	
17. criticizes others in a humorous or sarcastic way.	.71
16. makes comments which are critical of others.	.71
11. ignores deadlines and persists in interesting tasks until completed to his/her satisfaction.	.49
13. pursues ideas which seem off the subject.	.46
10. questions the reasons for my demands.	.43
<i>Factor V: Intellectual Intensity</i>	
9. approaches questions very seriously.	.70
20. seeks recognition by others of his/her accomplishments	.49
35. can recall events or objects in vivid detail.	.49
7. when uncomfortable with a task, responds by asking questions or changing subject.	.42
<i>Factor VI: Psychomotor Intensity</i>	
27. is active and energetic, runs rather than walks, and is constantly on the go.	.69
29. approaches activities he/she likes with excited cries and bouncing energy.	.60
31. is sensitive to changes in lighting and temperature and comments on them.	.56
<i>Factor VII: Task Commitment</i>	
14. ignores or omits details when asked to perform a task.	-.68
8. if interrupted from an interesting activity, tries to return to it.	.49
28. talks about his/her activities with excitement and enthusiasm.	.49
32. vigorously pursues a problem or task (e.g., model, puzzle, art project) until completes it, even if it takes a long time.	.46

### *Intensities, Age, and Gender*

Scores for the total questionnaire, Intellectual Precocity (Factor III), Psychomotor Intensity (Factor VI), and Task Commitment (Factor VII) correlated with chronological age in a negative direction. The t-tests revealed no significant differences between girls and boys on the Parent Questionnaire total score or on any of the seven factor scores.

### Discussion

In general, analysis of correlations suggests that a moderate relationship exists between intellectual/academic abilities and some types of psychological intensities, as reported by parents. Specifically, as children's intelligence scores increase, there is a greater tendency for their parents to rate them as liking to do things differently from the group, as impatient, preoccupied with abstract ideas, preferring to work independently (intellectual precocity), persistent, enthusiastic, and vigorous in the pursuit of problem solving (task commitment). Intellectual intensity characterized by a serious approach, need for recognition, and avoidance of difficult tasks may be related to uneven performance, perhaps depending on task difficulty. Emotional, imaginational, and psychomotor intensities and critical attitude appear, for the most part, unrelated to measures of intelligence and creativity. These findings lend partial support to informally observed relationships between high levels of intellectual ability and "concomitant problems." However, the data do not support a relationship between intelligence and those intensities most similar to Dabrowski's concepts of emotional, imaginational, and psychomotor overexcitabilities.

**T**he finding of no gender differences on intensity scores suggests that boys and girls do not demonstrate systematic differences in emotional sensitivity, imaginational intensity, intellectual precocity or intensity, critical attitude, psychomotor intensity, or task commitment at the preschool level.

**Table 4**  
**Correlations between Intensity Factors and**  
**Chronological Age and Intelligence Test Scores**

Variables	Stanford Binet Scores							
	CA	VR	A/V	Quant	STM	TIQ	PIQ	
Total Questionnaire	-.38*	.41*	.07	.11	.32	.23	.41*	
I. Emotional Sensitivity	.10	-.05	-.06	.03	.10	-.01	.05	
II. Imaginational Intensity	-.18	.17	-.19	.06	-.08	-.06	.05	
III. Intellectual Precocity	-.37*	.16	.22	-.10	.41*	.29*	.34*	
IV. Critical Attitude	-.04	.09	-.03	.08	-.03	-.02	.06	
V. Intellectual Intensity	-.19	.16	-.26*	-.33*	.22*	-.03	.19	
VI. Psychomotor Intensity	-.31*	-.07	-.13	-.11	-.09	-.15	-.12	
VII. Task Commitment	-.23*	.28*	.13	-.05	.19	.19	.24*	

\*p<.05

Negative relationships between children's chronological age and total questionnaire score, Intellectual Precocity, Psychomotor Intensity, and Task Commitment suggest that, for preschool-age children, the characteristics under investigation may reflect these children's developmental level, i.e., their expected social and physical immaturity. While overall intensity, Intellectual Precocity, and Task Commitment varied negatively with age, their positive correlations with intellectual measures support the concept of precocity. That is, intellectual astuteness in very young children may be defined by high abilities at a young age. The Intellectual Precocity factor, for example, seems to describe children who at very young ages demonstrate exceptional memory and verbal reasoning. Children who evidence Task Commitment would be persistent and vigorous in pursuing tasks at a young age.

The absence of any significant relationships between children's Emotional Sensitivity and intellectual abilities raises questions about observations that brighter children are more sensitive to their own and others' feelings. The data suggested a trend for greater emotional sensitivity to be associated with higher levels of originality. Lack of significant correlations between psychological intensities and measures of creativity is consistent with previous findings (Gallagher, 1985). Creativity measures assess creative production within the task situation; character-

istics such as imaginational intensity suggest covert rather than overt creative behavior. Moreover, measures of creativity require divergent thinking applied to solving of specific problems rather than open-ended imagining.

Failure to find clear relationships between cognitive abilities and several factors suggests the possibility that bright children, like unselected children, constitute a psychologically heterogeneous group. This notion is consistent with recent conceptualizations of "types" of gifted individuals (Betts & Neihart, 1988; Roeper, 1982) and types of intelligence (Gardner, 1983). Moreover, some factors identified in this study may be more related to specific types of giftedness (e.g., visual arts) not measured by the intelligence and creativity tests used. Adult artists have been found to exhibit higher imaginational and emotional overexcitabilities compared to the intellectually gifted (Piechowski, 1986).

Several limitations of the study render interpretation difficult. Since all children were referred by their parents for assessment for a program specifically for gifted children, the results may be conceived as describing children identified as gifted by their parents. The median IQ of 115 on the conservative Stanford-Binet Fourth Edition (see Kitano & DeLeon, 1988) supports this possibility. Second, the Questionnaire does not directly measure children's

characteristics, but parents' perceptions of characteristics. Nevertheless, parents' perceptions on the questionnaire seem to generate constellations consistent with the literature. Finally, additional research is needed to support the validity of the Parent Questionnaire as a measure of intensities.

### Summary

Results of this study suggest that a relationship exists between intellectual academic abilities and some types of psychological intensities in preschool-age children. This preliminary investigation lends support to the observation that, while intellectually able children tend to display good self concepts and socio-emotional adjustment, some also tend to possess characteristics that may lead to intra- and interpersonal conflict. These "intensities" include nonconformity, impatience with peers, persistence, serious demeanor, need for recognition, and preoccupation with abstract ideas.

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# Selecting Instruments for Identifying Gifted and Talented Students

Jan B. Hansen  
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*Proponents of the American educational system deliberately and frequently seek to evaluate the aptitudes and traits of students in an effort to provide educational opportunities consistent with the identified traits and aptitudes. As a result of these evaluations, the tests administered in schools have great impact upon the lives of students. Linden and Linden (1968) suggested that the students' concepts of self and their motivations, as well as others' perceptions of students, are affected by test results.*

Critics of testing programs have maintained that the effects of testing on students tend to be negative. It has been argued that, while many criticisms appear to have basis in fact, "the bulk of the charges can be attributed to the misuse of tests by uninformed and ill-prepared test consumers" (Linden & Linden, 1968, p. 2). Tests are useful for certain purposes. However, even the best tests may have damaging consequences if used inappropriately. Test consumers must know when the situation calls for testing, must know how to evaluate tests, must be able to interpret test data accurately, and, moreover, must be able to communicate test results effectively and appropriately. These suggestions provide general principles for all educators, and particularly for those education involved in identifying giftedness.

Feldhusen, Asher, and Hoover (1984) have suggested that gifted program directors are principally concerned with finding an identification system that is sufficiently precise and will ward off the complaints of parents who challenge the system. A "sufficiently precise" identification system should be replaced by or expanded into a sound, valid identification process. The

purpose of this article is to offer theoretically sound and valid guidelines that will assist thoughtful program directors select instruments that help to identify gifted and talented students.

A checklist for selection of an instrument to identify gifted and talented students (Figure 1) offers program directors useful guidelines in selecting appropriate tests. Both technical and practical considerations are included. Decisions regarding the tests and scales are important for the identification of gifted students. Many schools presently administer standardized tests that may or may not be appropriate for use in identifying students for a gifted program. Casually or carelessly selected instruments rarely match the goals of the identification process of the gifted program that is intended to follow. Hastily selected tests may provide inadequate, irrelevant, inappropriate or invalid information on which to base educational decisions (Gronlund, 1985).

## *Defining the Goals of the Identification Process*

Many gifted programs have grown so rapidly that their pre-

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- of creativity and school achievement in sixth-grade students. *Roeper Review*, 8, 115-119.
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