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An Instrument for the Measure of Dabrowskian Overexcitabilities to Identify Gifted Elementary Students

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ABSTRACT

The ElemenOE is a Likert-scaled observation checklist developed in this study to measure 5 personality characteristics in elementary school children, with predictive validity for identifying giftedness. The characteristics, named “overexcitabilities,” are described within the context of Dabrowski’s Theory of Positive Disintegration. Five scholars of Dabrowski’s theory rated an initial 100 items for content validity. The 61 strongest items comprised the pilot instrument, which teachers used to describe 373 students. Exploratory factor analysis using varimax rotation found factors that related to the 5 OEs. Items with loadings of less than .5 were eliminated, thus creating the 30-item ElemenOE. Teachers used the ElemenOE to describe 171 gifted and nonidentified children. A discriminant analysis yielded one function that significantly discriminated between groups. The ElemenOE classified 76% of gifted students and 42% of nonidentified students as having similar OE profiles. These results indicate that, with revisions, the ElemenOE may be useful in identifying gifted students who are missed by traditional identification measures.

Any discussion of identifying gifted children comes around to the question: What is giftedness and why bother attempting to identify it? If we choose to define giftedness as the ability to master academic subjects, then an identification measure that includes a measure of achievement is going to have high predictive validity. If, on the other hand, we choose to define giftedness in a broader way that looks at the ramifications of high intelligence on potential achievement, not only in terms of academic aptitude, but also in terms of “insight and innovation, creative behavior, leadership, personal and/or

interpersonal skill, or visual and performing arts” (Clark, 1997, p. 26), then we must accept the possibility that a gifted person may not express giftedness through academic aptitude. Therefore, it is not only possible, but also highly probable that many gifted children are not identified by traditional measures of giftedness. If they do not

PUTTING THE RESEARCH TO USE

The use of the ElemenOE shows potential as an alternative assessment for identifying gifted students. It was not surprising that 76% of students a priori identified as gifted by traditional means shared personality characteristics of higher Intellectual overexcitability. The fact that 42.7% of the students who had not been identified as gifted also shared higher Intellectual overexcitability inspires questions about why those students were not participating in gifted programs. The 76% of gifted students with higher Intellectual overexcitability also shared the trait of lower Psychomotor overexcitability, a result that was surprising because prior research has found that gifted people tend to have higher overexcitability than nonidentified people. Is it possible that the more physically demonstrative or active students are overlooked for gifted programs? The research also points out the distinction between the innate characteristics of overexcitabilities that overlap and yet are distinct from the behaviors and achievements that tend to identify children as gifted. Further research needs to be done to refine the identification of Sensual, Imaginational, and Emotional overexcitabilities at the elementary school level. Until then, we can only theorize as to what extent those characteristics contribute—or detract from—identification as gifted.

demonstrate academic achievement either on the achievement tests or on the ability test items that require academic achievement, then they may not be identified as gifted.

Because it is generally accepted that an IQ test alone is not an adequate means for identifying individuals (Clark, 1997), most programs for educating the gifted rely on multiple instruments to screen and identify gifted students (Clark; Gallagher & Gallagher, 1994; Tuttle, Becker, & Sousa, 1988). The multiple instruments assess a combination of aptitude and achievement as evidenced by behaviors and products. Recommendation forms and checklists scrutinize personality characteristics and student behavior to find evidence of abilities and accomplishments that standardized tests do not measure.

This study describes the creation and testing of an instrument for the identification of gifted children that is not tied to academic achievement. Instead, the instrument is tied to the roots of giftedness, to behaviors that are indicative of "an advanced and accelerated development of functions within the brain [that] may express itself in high levels of cognitive, affective, physical sensing, and/or intuitive abilities" (Clark, 1997, p. 26). The abilities mentioned by Clark overlap completely with the Dabrowskian personality characteristics known as *overexcitabilities*.

Although numerous recommendation forms and checklists exist and are in use today to aid in the identification of gifted students, none exist that are grounded in Dabrowski's (1964) Theory of Positive Disintegration, which has proven helpful in illuminating the nature of, and needs associated with, giftedness (Gallagher, 1986; Lind & Daniels, 1998; Mendaglio & Pyryt, 1996; Piechowski, 1997; Piechowski & Colangelo, 1984; Piechowski & Cunningham, 1985; Silverman, 1993). Therefore, it is justifiable to include specific constructs of the theory among a constellation of characteristics to be used when identifying gifted students. The thrust of this research is to create such an instrument for the identification and measurement of the Dabrowskian constructs known as overexcitabilities (OEs) in order to enhance the identification of giftedness in elementary-aged students.

The Dabrowskian Perspective

The construct of giftedness examined in this study is based on the theory of the Polish psychiatrist and psychologist Kazimierz Dabrowski. Developed from extensive clinical and biographical studies of artists, writers,

saints, and gifted students, Dabrowski's Theory of Positive Disintegration offers a promising framework for examining the components and developmental dynamics of giftedness (Nelson, 1989; Piechowski & Cunningham, 1985; Silverman, 1993). The theory considers the genetic and biological roots of giftedness, as does Clark's (1997) definition of giftedness used in this study:

Giftedness is a biologically rooted concept that serves as a label for a high level of intelligence and indicates an advanced and accelerated development of functions within the brain. Such development may express itself in high levels of cognitive, affective, physical sensing, and/or intuitive abilities, such as academic aptitude, insight and innovation, creative behavior, leadership, personal and/or interpersonal skill, or visual and performing arts. (p. 26)

The theory has strong implications for teaching and counseling because it puts personality characteristics into the perspective of the person's lifespan. Other perspectives of giftedness tend to dwell on childhood and the education of bright children. Dabrowski, on the other hand, wanted to understand why some very bright and creative people attained higher levels of emotional development and self-actualization than others, and so he looked at the lifespans of gifted individuals. His theory explores the personal characteristics and events that are indicators of the potential for higher levels of development.

One important element of Dabrowski's theory that is especially relevant to the identification and assessment of giftedness from this new perspective is the construct of *overexcitabilities*. The term, translated from the Polish *napobudliwosc*, means to be superstimulated (Falk, Piechowski, & Lind, 1994). Overexcitability refers to an innate supersensitivity to stimuli in any of five different areas: Psychomotor, Sensual, Imaginational, Intellectual, and Emotional. The term *overexcitabilities*, unfortunately, is sometimes misconstrued to mean hyperactivity; it also carries with it the negative connotation of meaning "too much." It denotes a strong psychic reaction that appears to exceed the stimuli or is stronger than is normally expected. An individual with strong overexcitabilities will experience life more richly and process it more complexly than others with less or no overexcitability and who are exposed to the same life experiences. However, Dabrowskian theory explains that, although strong psychic reactions can be potentially negative, resulting in neuroses and existential crises, they are part of the neces-

sary conditions that can lead to *positive disintegration*, which is the developmental process of moving from lower to higher levels of emotional and moral development.

There are several good reasons for looking at giftedness from the perspective of overexcitabilities. Intelligence is one facet of a personality, while overexcitabilities include five innate characteristics that, to a large degree, describe the nature of the person's gifts and talents. Giftedness, after all, is more than an unusually high score on a test of intellectual ability. Gifted individuals are also renowned for their highly sensitive and emotional nature, their imaginations, and their high energy levels (Piechowski, 1997; Torrance, 1965; Webb, Meckstroth, & Tolan, 1982). Because giftedness is composed of a constellation of characteristics, rather than a single factor of generalized intelligence (Guilford, 1979), a Dabrowskian perspective on identification and assessment can be helpful to a field that has been challenged to develop an instrument capable of capturing the multifaceted characteristics of the gifted individual (Silverman, 1993).

Care must be taken, however, so that OEs are not equated with related abilities; that is, Intellectual OE must not be equated with intelligence, and Imaginational OE must not be equated with creativity. Overexcitabilities are not abilities; rather, they are modes of experiencing the world (Piechowski & Colangelo, 1984). Overexcitabilities have been likened to filters, in that a person with a strong OE captures more of the stimulation in that area than would a person who does not have that OE and, thus, is not exceptionally sensitive to that type of stimulation (Piechowski & Cunningham, 1985). As a less abstract example, two people who observe an identical stimulus, such as an encounter between two classmates, will experience the stimulus differently. The person with Imaginational OE may experience the stimulus as fodder for new directions of thought. For example, the student may be redirecting the classmates as if they were characters in a theater in that student's mind, or the student may be considering a poem or humorous monologue describing the encounter or seeing the possibilities of a painting or sketch of the scene. Those flights of fancy cannot be helped; they are innately characteristic. A less excitable person can still imagine, but an overexcitable person cannot help it.

In the same way, a person with high intelligence may do well in intellectual endeavors, but a person with Intellectual OE cannot help but experience and analyze stimuli in an intellectual fashion. Intellectual OE is a construct related to a proclivity or propensity toward thinking as may be demonstrated through frequent, persistent, or

intense intellectualizing of experiences. Intelligence tests will count correct answers and time how quickly they are given, but they do not measure the strength of the person's need to know, nor do they measure how much thought was generated by the stimulation of the question. The latter, unmeasured qualities are those that, when found in exceptional quantity or intensity, are illustrative of Intellectual OE. The practice of the continuous intellectualization of experiences is more likely to culminate in intelligent understanding than is the infrequent analysis of experience. In this way, there is a logical relation between the constructs of Intellectual OE and intelligence.

In the same manner, creativity and Imaginational OE are related, but are not equivalent. Creativity is the quality in a person that spurs the production of ideas and products through imaginative or artistic effort. Creativity is a talent that can be developed through skill building and effort (Torrance, 1972). Imaginational OE, on the other hand, is an innate characteristic, "a physiological experience of sensory stimuli" (Tillier, 1998, p. 2). Imaginational OE cannot be helped; a person either has it or does not. It is an imaginative perception and responsiveness teeming with imagery and inventiveness. Imaginational OE provides the perception and perspective that can fuel creative production, although it is possible that a person with strong Imaginational OE does not express those thoughts in creative products. Conversely, a person may be considered creative, and yet that person's imagination may seldom get involved with the process because he or she is merely reproducing that which others have conceived.

This overlap between overexcitability and components of giftedness (i.e., between Intellectual OE and intelligence and between Imaginational OE and creativity) illustrates the strong theoretical relation between overexcitabilities and giftedness. This research attempts to measure the strength of that relation by quantifying how well OEs predict whether a child is identified as gifted. Along that line of thinking, Ackerman (1997) conducted a secondary analysis of the data from previous studies that measured OEs in gifted and nonidentified groups. Her analysis showed that Intellectual, Imaginational, and Psychomotor OEs most consistently made meaningful contributions to differentiating between the two groups. Her results indicate promise for the use of OEs to identify gifted students.

Need for the Study

Recognition of OEs as the roots of giftedness provides a more holistic understanding of the nature and

needs of those who are gifted. By using OEs as an indicator of giftedness, rather than using achievement-oriented identification procedures, educators are likely to identify students who would otherwise be overlooked. Students with OEs may not always be the same students who achieve academically, yet the justification for identifying these children is based on the idea that systematic identification of OEs would allow educators to consider not only cognitive variables, but also important behavioral and affective components in developing strength-based school programs. Viewing the whole child through the student's OEs facilitates an educational approach that is responsive to the nature of the student's gifts and individual style. Previous studies have conclusively determined that individualized programming is critical to the development of gifted and talented students (Silverman, 1993; Sisk, 1998; VanTassel-Baska, 1997). "When the needs of the gifted are considered and the educational program is designed to meet these needs, these students make significant gains in achievement, and their sense of competence and well-being return" (Clark, 1997, p. 8). Because gifted learners are a diverse group, individual strengths and weaknesses need to be recognized and appropriate educational interventions developed to meet their diverse needs (Sisk, 1998).

Another good reason for viewing giftedness from the perspective of overexcitabilities is that one looks holistically at the lifespan of the gifted person, not simply at his or her early life as a learner. Gifted children do not stop being gifted upon graduation. Dabrowski's theory describes the overexcitabilities as indicators of the potential for higher levels of development. These levels provide an alternate definition of greatness that does not emphasize either financial accumulation or professional eminence "at the expense of qualities such as empathy, sensitivity, altruism, and integrity" (Nelson, 1989, p. 12). Instead, according to Nelson, the theory holds "particular promise for a non-sexist or gender-fair understanding of advanced potential" (p.12). The overexcitabilities fit into Dabrowskian theory as indicators of potential for reaching high levels of personality development in which the person's behavior is congruent with his or her higher, more altruistic ideals.

Statement of the Problem

Numerous instruments exist for the identification of giftedness in elementary-aged children, but none exist that are grounded in Dabrowski's theory; specifically,

that are designed to measure overexcitabilities. Moreover, those that do exist for measuring overexcitabilities are not designed for use with elementary-aged children. Prior instruments for measuring OEs relied on self-reporting and thus demanded a level of self-awareness and abstract thinking that is generally not found in people younger than 12 (Piechowski & Miller, 1995). The instrument resulting from this research, the ElemenOE, may be employed by teachers, parents, or other significant adults to understand and address children's personality differences. The problem, then, is to measure overexcitabilities accurately in elementary-aged children.

Once we are able to facilitate the measurement of overexcitabilities in children, we will be able to enhance our understanding of the nature of the relationship between overexcitabilities and giftedness. What is the relation between current measures that determine whether a student is gifted and will participate in a program for gifted children and a measure of his or her overexcitabilities? A second problem, then, is to measure and describe the relation between overexcitabilities and the current method of identifying giftedness.

Procedures for the Study

Using the research on the existing overexcitability questionnaires, checklists for identifying gifted behaviors, and analysis of the overexcitabilities as described in Dabrowski's writing, the researcher created an initial list of 100 instrument items, with approximately 20 items describing each OE. The collection of items was assembled bearing in mind three important criteria: (a) each of the five overexcitabilities is fully expressed with items that represent the various expressions of each OE by children; (b) each item is interpretable by teachers who may not be familiar with Dabrowskian theory; and (c) each item is reflective of behavior that is found in children younger than age 13.

A content jury of five scholars with expertise in Dabrowski's work assessed the construct and content validity of the items. Of the five scholars, all have presented papers and workshops on Dabrowski's theory at the annual Dabrowski Symposiums, and four of the scholars have published books and articles that are included in this paper's reference section. The scholars were asked to accomplish two tasks for every item. First, they were asked to name the OE with which each item is aligned. Next, they were asked, "To what degree is that behavior in elementary-aged children indicative of that

Table 1

Demographic Characteristics of the 324 Students Described by Participants in the Pilot Instrument Sample

	Gifted (N = 180)				Nonidentified (N = 144)			
	<i>n</i>	4–6	7–9	10–12	<i>n</i>	4–6	7–9	10–12
Ages								
Boys (N = 181)	93	13	35	45	88	25	26	37
% of boys	100	(14)	(38)	(48)	100	(28)	(30)	(42)
% of group		(7)	(19)	(25)		(17)	(18)	(26)
Girls (N = 143)	87	9	33	45	56	13	24	19
% of girls	100	(10)	(38)	(52)	100	(23)	(43)	(34)
% of group		(5)	(18)	(25)		(9)	(17)	(13)

OE?" In response, they rated each item on a 3-point scale (1 = the behavior shows very little evidence of that OE, 2 = the behavior can be an indicator of the OE, and 3 = the behavior is a very strong indicator the OE).

The extent of rater agreement determined which of the 100 items were kept for the pilot instrument. Individual items were considered and eliminated for the following reasons: (a) failure to earn a 66% or better rater agreement with respect to which OE was represented by the item; (b) assessment by the scholars that the item could be indicative of more than one OE; or (c) failure to be a strong indicator of presence of OE, as determined by averaging the strength ratings assigned by the scholars (items with averages of less than 1.66 were eliminated).

Of the original 100 items, 61 were retained and became the IDOE Pilot Instrument, which is included in the Appendix. The 61 items were then formatted to be rated by teachers using a Likert scale response to the question, "How frequently, or strongly, does the student engage in the following behaviors?" Each item could be rated on a 5-point scale, from a low of 1, indicating that the behavior was not observed, to a high of 5, indicating that the student engaged in the behavior much more so than other children.

Pilot Instrument Data Collection

The IDOE Pilot Instrument was given to more than 300 classroom teachers who work with children of varying abilities and in varying settings. The wide variety of teachers was selected to reflect the diversity of urban and suburban teachers who would use the instrument as a

potential part of the process of identifying students for gifted education. Teachers who contributed data were solicited at the following places: teacher in-service meetings in public schools in the Houston, TX, and Boston, MA, areas; private schools in the Houston, TX, area; graduate teacher classes at the University of Houston and the University of Wisconsin; and the Texas state convention for educators of gifted children. While most teachers completed one questionnaire apiece to describe one student apiece, numerous teachers offered to complete multiple questionnaires to describe multiple students. The total number collected was 373, of which 324 included demographic information. Students were classified into the gifted sample if the teachers answered "yes" to the question, "Has the student been identified for participation in a program for gifted learners *or* has the student been identified as gifted?" Teachers took 10–20 minutes to complete each questionnaire. The demographic characteristics of the students assessed by the teachers in this sample are reported in Table 1.

Next, the items of the IDOE were analyzed to see what factors would emerge from the data. An exploratory factor analysis using a varimax rotation was conducted to answer this question. This type of factor analysis, compared to a confirmatory factor analysis, is more likely to deduce additional aspects of a construct like overexcitability, thereby revealing the overexcitability as more complex than can be captured as one mathematical factor. It is theoretically sound that a person may exhibit an overexcitability in one way, but not in another; it is unlikely that a person would exhibit every possible expression of an OE.

Both the factor analysis results and the evaluations by the five Dabrowski scholars were considered in develop-

ing the final instrument. First, those items with factor loadings of less than .5 on the varimax were eliminated. Second, the remaining items were reviewed in light of the additional data received from the Dabrowski scholars. While the initial 61 items of the IDOE were chosen with input from three scholars, the final items for the ElemenOE were considered with the combined input of all five. Items were eliminated that did not receive a strength rating of 2.00 or above from those five scholars. In addition, two items, 32 and 54, were eliminated because the scholars disagreed about which OE the item illustrated. Third, alpha internal consistency estimates were calculated for each factor to determine reliability. Two items were eliminated because doing so raised the alpha internal consistency for that factor. By eliminating items to improve alpha internal consistency as well as those items that did not have sufficient theoretical support, the original 61 items were reduced to 30 items.

Those 30 items were then factor analyzed in order to see what factors emerged from the smaller set of items and whether those factors were consistent with the five overexcitability factors. The varimax used Kaiser normalization. The Kaiser-Meyer-Olkin Measure of Sampling Adequacy was 0.890, and Bartlett's Test of Sphericity yielded a chi-square of 5518.077 at a significance of .000. Cronbach's alpha for the reliability of the scale in its entirety was .883. Seven factors emerged in seven iterations. The seven factors were easily interpreted as the five OEs of interest. Two factors were combined to represent two different facets of Sensual OE and another two factors were combined to represent two different manifestations of Emotional OE. Table 2 presents the factor analysis of the items from the pilot instrument that comprise the ElemenOE.

The internal consistency of the instrument was determined by calculating Cronbach's alpha for each of the five OE scales and for individual items to measure the consistency of each scale if individual items were deleted. The results are reported in Table 2. The scale for Intellectual OE had excellent consistency with an alpha of .9046; the least consistent scale was Sensual OE, with a fair consistency of .5512. The figures show that no items were included that diminish the reliability of the scales.

Discriminant Analysis Using the ElemenOE

The revised instrument was used to assess two groups in order to measure the relation between the stu-

dents' identification as gifted or nonidentified, on the one hand, and their profiles using the ElemenOE, on the other. One group of 96 children was reported by teachers as participating in a program for gifted students or having been identified as gifted, and the other group of 75 children consisted of those who have not been identified as gifted. The researcher recruited teachers who had completed the IDOE Pilot Instrument and who had indicated on the consent form that they would be willing to participate in the second phase of the study. In addition, teachers were recruited to complete the instruments at a public school staff meeting and at an in-service workshop for teachers. The teachers can be described as representative of both urban and suburban teachers, predominantly from the greater Houston, TX, area. Teachers completed each instrument in 5–10 minutes. Descriptive statistics for the rated students are presented in Table 3. Girls outnumbered boys in the gifted sample, and boys outnumbered girls in the nonidentified sample.

The mean OE scores for each scale were compared across the two groups with *t*-tests; the results indicate that only the mean OE scores for Intellectual and Psychomotor significantly differed between groups (see Table 4). Next, the sample was analyzed using a discriminant analysis; this further analysis gives greater detail than the *t*-test in order to explain to what extent each of the OE factors contributes to predicting group membership as either gifted or nonidentified. The summed scores for the items comprising each OE were entered as the five independent variables, with giftedness classification entered as the target variable. The results are shown in Table 5. The analysis resulted in one discriminant function that significantly discriminated between the gifted and nonidentified group (Wilk's Lambda [$df = 5$] = .808, $p < .0000$). The standard cutoff for the correlation of predictor variables when determining which variables contribute to the discriminant function in a meaningful way is typically .4; even though four of the five OEs had correlations greater than .4, only two of them were significant. The results indicated that two of the five OEs contributed meaningfully to discriminating between the gifted and nonidentified samples. The optimal prediction equation based on the standardized discriminant function coefficients was

$$\text{Function 1 } D = .66511z - .74138z + .451862z - .41294z + .37048z$$

Intellectual Psychomotor Emotional Sensual Imaginational

As the results in Table 6 show, if the student had been identified as gifted, that student's Intellectual and

Table 2
Factor Analysis of the ElemenOE

	Cronbach Alpha	Factor Loading	Alpha if Item Deleted
<i>Full Scale</i>	.8828		
<i>Intellectual OE</i>	.9046		
Tries to discover the how and why of things		.790	.8922
Shows strong curiosity, asking many questions, or a few questions with depth		.777	.8924
Strong interest in finding solutions to problems		.788	.8921
Asks questions that are open-ended or philosophical		.763	.8924
Wonders about the meaning of life. Asks existential questions about purpose		.712	.8948
Fascinated by a topic and driven to know more about it.			
May be an expert in a topic		.709	.8950
Can take random or disorganized ideas from a group and suggest a solution or consensus		.727	.8952
Can comprehend, with almost nonverbal cues, implications that other children need to have "spelled out" for them		.706	.8961
Attracted to strategies to solve problems or to win at games. May be fond of chess		.535	.9029
Can become so absorbed in a topic that he/she does not want to move to other topics		.562	.9028
Looks for similarities or differences in events, people, and things		.591	.8997
<i>Psychomotor OE</i>	.8492		
Seems always to be in motion or "on the go"		.841	.8151
Talks a lot or chatters		.768	.8318
Excitement over ideas leads to movements like leaping to ones feet or dramatic gesturing		.672	.8324
Has a hard time not touching everything		.722	.8286
Paces or walks around when upset or distraught		.636	.8285
Has nervous habits, e.g., chews pencil, bites nails, drills hole in desk with pencil		.630	.8305
May throw tantrums or overreact to frustration*		.524	.8319
<i>Emotional OE</i>	.7817		
Self-centered			
Judgmental about right and wrong, fair and unfair		.647	.7583
Takes criticism of work personally		.703	.7530
May throw tantrums or overreact to frustration*		.561	.7376
Displays a wide range of emotion, from exuberance and joy to depression and grief		.686	.7274
May find it difficult to work because of strong feelings.		.656	.7270
Other-centered			
Shows empathy for others or offers sincere sympathy		.608	—
<i>Sensual OE</i>			
Aural sensitivity	.6877		
Responds to sounds that others tune out or do not hear		.778	—
One of the first to complain when things are too loud or is fearful of loud noises		.757	—
Oral sensitivity	.5512		
Excessive eating, especially sweets		.791	—
Strong preferential tastes or pleasure in food or drinks		.757	—
<i>Imaginational OE</i>	.6617		
Doodling reflects imagination and fantasy		.691	.5919
Believes or imagines that animals or inanimate things can talk		.721	.5630
Enjoys imaginational and fantasy play with toys or other children, inventing situations and characters		.681	.5427

Note. *This item cross-loads on Emotional and Psychomotor OE

Table 3*Demographic Characteristics of the Students Described by Participants in the Discriminant Analysis*

	Gifted (N = 96)				Nonidentified (N = 75)			
	4-6	7-9	10-12	Total	4-6	7-9	10-12	Total
Boys	9	19	15	43	18	19	12	49
% of boys	21	44	35	100	37	39	24	100
% of group	9	20	16	45	24	25	16	65
Girls	19	16	18	53	10	10	6	26
% of girls	36	30	34	100	38	38	23	99
% of group	20	17	19	56	13	13	8	34

Table 4*Mean ElemenOE Scores of Non-Identified and Gifted Students*

OE	Nonidentified (N = 75)		Gifted (N = 96)		<i>t</i>	<i>p</i>
	Mean	SD	Mean	SD		
Psychomotor	23.03	6.35	20.34	7.24	2.54	.012
Sensual	10.83	3.91	10.15	3.72	1.16	.247
Imaginational	7.83	2.83	8.43	2.77	-1.39	.165
Intellectual	35.57	9.75	42.27	8.54	-4.78	.000
Emotional	19.37	5.45	19.86	5.13	-.60	.546
2-tailed significance						

Psychomotor OE scores accurately predicted his or her membership in the gifted subsample 76% of the time. However, the other 24% of identified gifted students did not have OE profiles that were like those of the other identified gifted students. The students had been previously identified as gifted, but they did not demonstrate a combination of higher Intellectual OE and lower Psychomotor OE. Of students who had not been identified as gifted, 42.7% of them had higher Intellectual OE and lower Psychomotor OE scores, which resembled the OE profiles of identified gifted students.

In order to assess the interrater reliability of the instrument, another set of data was collected using the ElemenOE. Two teachers who work as a teaching team each evaluated their 23 students. All of the students in that sample had been identified as gifted.

The interrater reliability of the ElemenOE was calculated in two steps: First, the bivariate correlations between the scores given by the two raters were calcu-

lated for each item. Correlations for individual items ranged from a low of .210 for Items 9 and 29, to a high of .748 for Item 17. Next, the individual OE scale reliabilities were calculated using the Spearman-Brown formula. It was deemed inappropriate, according to the theory, to aggregate the separate OEs for the purpose of deriving a total scale reliability. Results ranged from a low of $r = .594$ for Imaginational OE, to $r = .912$ for Intellectual OE.

Discussion

Surprisingly, it was Psychomotor (Wilks' Lambda = .963, $p = .012$) that made the greatest contribution to discriminating between the gifted and the nonidentified groups, with gifted students earning significantly lower Psychomotor OE scores. Ackerman (1997) also found that Psychomotor was the strongest discriminator between gifted and nonidentified adolescents, except in

Table 5

Discriminant Analysis of OE Data Using the ElemenOE

Predictor Variable	Correlations of Predictor Variables with Discriminant Function 1	Univariate F	Wilks' Lambda	Sig.
Psychomotor	-.741	6.43	.963	.012
Sensual	-.413	1.35	.992	.247
Imaginational	.370	1.94	.989	.165
Intellectual	.665	22.83	.881	.000
Emotional	.452	.37	.998	.546
Canonical R	.438			
Eigenvalue	.237			

Note. $N = 171$

her study, the gifted students had higher Psychomotor OE scores. In a study by Breard (1994), Psychomotor was not one of the three OEs that discriminated between gifted and nonidentified groups, but lower Psychomotor OE was found in females than in males, and higher Psychomotor OE was found in students from an advantaged background than in students who were disadvantaged. The results of this study are consistent with some of those in the Breard study, in that she found lower Psychomotor OE in females, and this study found lower Psychomotor OE in the gifted group, which was composed of 65% females. In addition, in this study, the mean Psychomotor OE was higher for the nonidentified group, which was composed of only 35% females.

It is a logical expectation that Intellectual OE would discriminate between the groups (Wilks' Lambda = .881, $p = .000$), which it did. Gifted students had higher Intellectual OE scores. The difference in the mean OE scores was 2.69, which was statistically significant. The finding that higher Intellectual OE scores differentiate between gifted and nonidentified children is consistent with several studies in the literature (Breard, 1994; Buerschen, 1995; Gallagher, 1986).

While the ElemenOE has proven reliable for measuring Intellectual and Psychomotor OEs, its reliability on Emotional OE is weak and the reliability of the Sensual and Imaginational scales are unsatisfactory. The latter scales could conceivably obtain more reliable results if parents, as well as teachers, could complete the observation checklist. Two of the four items on the Sensual OE scale call for the observation of eating behaviors that are more easily observed by parents. Parents, again, may have better insights about the three items that comprise the Imaginational OE scale.

Table 6

Classification Table for the Total Sample

Actual Group	Predicted Group		Sum
	Nonidentified as Gifted	Identified as Gifted	
Nonidentified as Gifted	43* (57.3%)	32 (42.7%)	75
Identified as Gifted	23 (24.0%)	73* (76.0%)	96
Sum	66	105	171

Note. *Students correctly classified and considered hits. 67.84% of cases were correctly classified.

If the ElemenOE is to be developed as a tool for identifying gifted children like those who are identified by more traditional measures, one could eliminate all the Sensual, Imaginational, and Emotional items due to their lack of significance. The abbreviated tool could serve as a prescreening device to identify students who are not identified by standardized testing.

If, on the other hand, the purpose of developing the instrument is to identify overexcitabilities in children, it is recommended that the Sensual and Imaginational items from the IDOE pilot instrument that received the highest ratings be added back to the instrument. This would enable the identification of overexcitabilities through expressions that are less frequently observed, yet significant. The additional items would also create a more bal-

anced instrument with 7 items apiece for four of the OEs and 11 items for Intellectual OE. The items suggested, as they are numbered on the IDOE pilot instrument in the Appendix, are 15, 16, and 19 on the Sensual scale; 23, 30, 32, and 33 on the Imaginational scale; and 50 on the Emotional scale. Again, parent input is recommended.

Implications for Future Research

Perhaps students in gifted programs are likely to be those whose psychomotor orientation is less pronounced; they may be content with a "life of the mind," and their likelihood of finding suitable stimulation intellectually diminishes their need to seek stimulation physically. Could it be that the lower Psychomotor OE scores among the 76% who were previously identified as gifted is due to the possibility that teachers are less likely to recommend physically demonstrative students?

Another research question inspired by this study centers around understanding the 42.7% of students who had not previously been identified as gifted, but who shared a similar OE profile with those who had been identified as gifted. Why have those students not been identified as gifted? Would post hoc intelligence testing describe them as gifted? If not, what qualities or skills are they lacking? How is it possible to have intellectual OE, but not be gifted?

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Appendix IDOE Pilot Instrument Items

How frequently, or how strongly, does the student engage in the following behaviors?

A 1 = Not observed

B 2 = Less than other children

C 3 = As often/much as other children

D 4 = More so than other children

E 5 = Much more so than other children

1. Paces or walks around when upset or distraught.
2. Explosive temper hurts others physically when angry.
3. Talks a lot or chatters.
4. Tends to act impulsively.
5. Seems always to be in motion or "on the go."
6. Has nervous habits, e.g., chews pencil, bites nails, drills holes in desk with pencil
7. Excitement over ideas leads to movements like leaping to ones feet or dramatic gesturing.
8. Shows need to put ideas into action or is discontent to merely think or talk about ideas.
9. Doodles appear to relieve tension or boredom rather than serve as decoration or imaginative expression.
10. Always needs to be doing something.
11. Excessive eating, especially sweets.
12. Engages in excessive kissing, hugging, or caressing.
13. Very strong opinions about choices in clothing.
14. Responds to sounds that others tune out or do not hear.
15. Comments on changes in lighting and temperature.
16. Has an appreciation for beauty, spatial arrangements, bulletin boards, etc.
17. Has a hard time not touching everything
18. Strong preferential tastes or pleasure in food or drinks.
19. Either loves or hates messy activities like playing with finger-paint, mud, sand, or clay.
20. One of the first to complain when things are too loud, or is fearful of loud noises.
21. Responds easily to guided visualization, or when asked to imagine being in a different place, or to being someone different.
22. Interested in magic or witchcraft
23. Daydreams frequently.
24. Has a facility for mixing truth and fiction, or for stretching the truth.
25. Doodling reflects imagination and fantasy.
26. Believes or imagines that animals or inanimate things can talk.
27. Engages in visionary thinking, such as "Wouldn't it be great if . . . ?"
28. Enjoys imaginal and fantasy play with toys or other children, inventing situations and characters.
29. Does not like to do things the usual or expected way. Strongly motivated to be original.
30. Has wild or impractical ideas.
31. Easily changes lyrics to create new songs or verses.
32. Writes poetry, stories, or plays in free time.
33. Strong interest in science fiction or fantasy stories.
34. Can take the random or disorganized ideas from a group and suggest a solution or consensus.
35. Strong interest to finding solutions to problems.
36. Has difficulty with multiple choice tests because several items are equally "correct" if seen from a different perspective.
37. Can comprehend, with almost nonverbal cues, implications that other children need to have "spelled out" for them.
38. Tries to discover the how and why of things.
39. Wonders about the meaning of things or of life. Asks existential questions about purpose.
40. Asks questions that are open-ended or philosophical
41. Shows strong curiosity, asking many questions, or a few questions with depth.
42. Can become so absorbed in a topic that he/she does not want to move to other topics.
43. Requires or responds best to logical, reasoned explanations
44. Judgmental about right and wrong, fair and unfair.
45. Questions authority, reasons for requirements, or religious practices. May play devil's advocate.
46. Fascinated by a topic and driven to know more about it. May be an expert in a topic.
47. Looks for similarities or differences in events, people, and things.
48. Attracted to strategies to solve problems or to win at games. May be fond of chess.
49. Attracted to mental puzzles, brain teasers, or riddles.
50. Shows hurt or cringes when others are criticized, hurt, or punished.
51. Tries to comfort others who are in pain.
52. May find it difficult to work because of strong feelings.
53. In acting or playing, can easily recall and enact expressive emotions.
54. Invests writing or art with strong emotions.
55. Shows empathy for others or offers sincere sympathy.

56. Has a strong fear or phobia of something.
57. Displays a wide range of emotion, from exuberance and joy to depression and grief.
58. Argues passionately and with conviction.
59. May throw tantrums or overreact to frustration.
60. Takes criticism of work personally.
61. Reads aloud with expressiveness.

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