Gifted, Spatial Students, Rebecca Mann
Children from Poverty, Marcia Gentry
ADHD / Gifted, Jillian Gates
Young, Gifted Children, Yang Yang
Nurturing Highly Gifted Children, Rachelle Miller
Gifted English Language Learners, Nielsen Pereira
Gifted Spatial Learners: Under-identified and Underserved

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Co-Director, GERI
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Who are they?

- Lego maniacs – the builders
- Problem finders
- Creative problem solvers
- Puzzle and maze doers
- Technological geniuses

None of my toys work because I took them all apart to see what makes them work.
They:

- Pull things apart

They enjoy:

- Blocks and Boxes
- Construx & Legos
- Computers
- Daydreaming
- Gears
- Tinker Toys
- Movies
<table>
<thead>
<tr>
<th>Sequential</th>
<th>Spatial</th>
</tr>
</thead>
<tbody>
<tr>
<td>Profoundly influenced by time</td>
<td>Preoccupied with space</td>
</tr>
<tr>
<td>Rapid processor</td>
<td>Slow processor</td>
</tr>
<tr>
<td>Step by step</td>
<td>Whole to part</td>
</tr>
<tr>
<td>Learn by trial and error</td>
<td>Learns concept all at once</td>
</tr>
<tr>
<td>Good organization</td>
<td>Organizationally impaired</td>
</tr>
<tr>
<td>Progresses from easy to difficult</td>
<td>Gets difficult concepts, struggles with easy</td>
</tr>
</tbody>
</table>
Report card of a visual spatial learner

### Concepts
- Grade: A
- Semester: Second
- Days Absent: 2.5, 6, 3.5
- Times Tardy: 0, 0, 0
- Teacher:

### Computation

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<th>PERIODS</th>
<th>1</th>
<th>2</th>
<th>3</th>
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<td>Times Tardy</td>
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<td>1</td>
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<td>Public Speaking</td>
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<td>Com’l Arithmetic</td>
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<td>Trigonometry</td>
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<td>Practical Math</td>
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</tbody>
</table>
Individuals gifted in spatial ability undereducated and underemployed (Gohm, 1998)

Schools emphasize verbal, not spatial skills

Traditional assessments (SAT, GRE) do not assess spatial skills (Gohm, Humphreys, and Yao)

Undergraduate majors in 2000:

Only 5.6 majored in engineering

A mere 0.8 majored in mathematics

Doctorates earned in U.S. by non-citizens?

Engineering = 51%

Mathematics = 43% (NSF)

Selecting top 3% based on verbal or mathematical ability results in loss of more than half of students representing top 1% of spatial ability (Shea, Lubinski, & Benbow)
STEM Disciplines & Spatial Ability

- Land Surveyor
- Geo-spatial Technician
- Satellite Operations
- Surgeon
- Cartographer
- GIS (Geographic Information Systems)
- Computer Programmer
- Architect
- Inventor

- Engineer
  - Electrical
  - Mechanical
  - Aeronautical
  - Environmental
  - Materials

- Physicist
- Chemist
- Geophysicist
How do they learn?

- Visualization
- Whole to part
- The why...then the how
- Difficult is easy
- Aha!
- Intuition
- Discovery
- On the job
Visualize

Need to “see” everything

Visualize lists, patterns, situations

Make a picture of what the topic represents

Ask yourself, “How would I teach this concept to a deaf child?”
Often perceived as “slow processors”
Perceive relationships between parts and whole
Don’t understand if learning is doled out in small chunks

Can’t grasp isolated facts until the big picture is in view
Difficulty attending to details
Spatial Learners are reflective:

They need extra thinking time therefore, they can appear to be lazy or to be daydreaming.
Difficult is Easy

Concepts vs. computation
Detest routine, repetitive tasks and does not learn by rote memorization

How many times do I have to tell you, don’t read ahead!
Often cannot explain the steps of thinking

Understand all or nothing

Once the “Aha” occurs, learning is relatively permanent
On the Job Training

• Mentorships
• Opportunities to act like a practicing professional
• Problem Based Learning
• Simulations
How do we find them?

Ravens, Cogat Nonverbal

WISC-IV

- VCI  104
- PRI  133
- WMI  97
- PSI  112
- FSIQ 117
Encourage the child’s strengths, don’t dwell on his weaknesses. This can be difficult as their strengths are outside of the traditional educational system.
Identifying Students from Low-Income Families for Gifted and Talented Programs

Scott J. Peters
Marcia Gentry
Family income remains highly correlated with academic achievement

- Despite 40% of all students coming from low-income families, only 28% of students in the top achievement quartile come from such families

- For the last 25 years, children from African American, Native American, Hispanic, and low-income families have all been underrepresented in GT programs
Students from Low-income families

- Have yet to receive as much attention as racially / ethnically underrepresented students
- Often do not have enriched experiences outside of school and
- Often do not gain access to top educational programs, perpetuating the cycle of underrepresentation
The inappropriate application of national over local / specific normative groups for comparison has contributed to this problem.

Many standardized tests at the state and national levels compare ALL students of a given grade level to ALL other students – What might be the problem with this?
• When using national norms, we are inappropriately measuring an aspect of income, race, ethnicity, and personal experience in which we are not interested.

• Comparing each student to more-specific and local normative groups can help addresses this issue and yield more valid information regarding student aptitude, ability, or achievement.
Take, for example, the Mark Twain story of the Prince and the Pauper where two twins are born but separated at birth. One was raised in wealth while the other in extreme poverty. Because of the extreme differences in their upbringing, it is highly unlikely that the child raised in poverty will perform at the same level as his or her sibling, despite identical parentage. If, instead, the child raised in poverty was compared to other children raised in poverty, educators would be able to see how well each student performs or achieves given the same background, opportunities, or income status. Such a practice will yield a more accurate view of actual ability that is not as obstructed by income or past experiences.
• Once different normative groups are put into practice, the GT program will need to be expanded to include multiple levels and a continuum of services

• Students from low-income families may need support to succeed in a traditional g/t program, levels of services may help these students gain confidence and skills so that they can succeed
Can Giftedness be Misdiagnosed as Attention Deficit Hyperactive Disorder? Empirical Evidence

Jillian C. Gates
Marcia Gentry
Purdue University
Identification and understanding of learning difficulties and capabilities are important to help teachers address students’ learning needs.

- A variety of available instruments provides flexibility for customizing identification procedures to the needs of students and to programs offered.
- Variety also provides opportunities for errors in diagnoses, identification, and interpretation of results.
A study investigating the overlap of items in the Conners’ Rating Scale (CRS: Conners, 1997) and the Overexcitabilities Questionnaire – Two (OEQII: Falk, Lind, Miller, Piechowski, & Silverman, 1999) was done prior to this study.
## Conners Teacher (S)

<table>
<thead>
<tr>
<th></th>
<th>I am a competitive person</th>
<th>If an activity is physically exhausting I find it satisfying</th>
<th>I am more energetic than most people my age</th>
<th>The longer I have to sit still the more restless I get</th>
<th>I thrive on intense physical activity, e.g. fast games and sports</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inattentive, easily distracted</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
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<tr>
<td>Defiant</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
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<tr>
<td>Restless in the &quot;squirm&quot; sense</td>
<td></td>
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<tr>
<td>Forgets things he/she has already learned</td>
<td></td>
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</tr>
<tr>
<td>Disturbs other children</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Actively defies or refuses to comply with adults’ requests</td>
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<tr>
<td>Is always “on the go” or acts as if driven by a motor</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
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</tr>
<tr>
<td>Poor in spelling</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Spiteful or vindictive</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
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<tr>
<td>Leaves seat in classroom or in other situations in which remaining seated is expected</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
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<tr>
<td>Fidgets with hands or feet or squirms in seat</td>
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<tr>
<td>Not reading up to par</td>
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<tr>
<td>Short attention span</td>
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<tr>
<td>Argues with adults</td>
<td></td>
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<tr>
<td>Only pays attention to things he/she is really interested in</td>
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<tr>
<td>Has difficulty waiting his/her turn</td>
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<tr>
<td>Lacks interest in school work</td>
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<tr>
<td>Distractibility or attention span a problem</td>
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<tr>
<td>Temper outbursts; explosive, unpredictable behavior</td>
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<tr>
<td>Runs about or climbs excessively in situations where it is inappropriate</td>
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<tr>
<td>Poor in arithmetic</td>
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<tr>
<td>Interrupts or intrudes on others (e.g. butts into others’ conversations or games)</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Has difficulty playing or engaging in leisure activities quietly</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Fails to finish things he/she starts</td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>Does not follow through on instructions and fails to finish schoolwork</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Excitable, impulsive</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Restless, always up and on the go</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>
1. How are gifted and ADHD behaviors of gifted students related to those of general students as measured by the CADS-A (Conners, 1997) and OEQII (Falk et al., 1999)?

2. What is the nature and extent of the correlations among subscales of the OEQII and the CADS-A on a sample of gifted fifth through twelfth grade students?

3. How might educators and clinicians use both the CADS-A (Conners, 1997) and the OEQII (Falk et al., 1999) to better understand the etiology of students’ behaviors?
Purposive sample of 5th through 12th grade students ranging in age from 10 to 18 years \( (n=71) \)

- Participants in a university residential summer program for gifted students.
- Identified as gifted, but not diagnosed with ADHD by parent report.
- Forty-three students were male.
- Ethnic backgrounds: 51% white, non-Hispanic, 27% Asian, 8% African American, 5% Hispanic, 2% Native American, and 7% other.
• Conners’ ADHD/DSM-IV Short Form – Adolescent (CADS-A)

• Overexcitabilities Questionnaire – Two (OEQII)
scores were obtained for the three subscales on the CADS-A (ADHD-Inattentive, ADHD-Hyperactive, and ADHD-Combined) (Conners, 1997).

- Alpha reliabilities were calculated for both instruments for the study sample in order to ascertain the reliability of results:
  - CADS-A: Inattentive = 0.84, Hyperactive = 0.87, Combined = 0.91
  - OEQII: Psychomotor= 0.88, Sensual= 0.88, Imaginational= 0.90, Intellectual= 0.85, Emotional=0.83.
Table 2. *Comparison of Means and Standard Deviations Across Samples and Sub-Sample*

<table>
<thead>
<tr>
<th>OEQII Overexcitability</th>
<th>Study Sample $n=71$</th>
<th>Sample scoring $\geq 6$ on Hyperactive Subscale $n=39$</th>
<th>Normative Sample $n=872-879^*$</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean Score</td>
<td>Standard Deviation</td>
<td>Mean Score</td>
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<tr>
<td>Psychomotor</td>
<td>3.04</td>
<td>0.95</td>
<td>3.43</td>
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<tr>
<td>Sensual</td>
<td>2.77</td>
<td>0.98</td>
<td>2.92</td>
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<tr>
<td>Imaginational</td>
<td>2.61</td>
<td>1.01</td>
<td>2.88</td>
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<tr>
<td>Intellectual</td>
<td>3.55</td>
<td>0.80</td>
<td>3.72</td>
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<tr>
<td>Emotional</td>
<td>2.87</td>
<td>0.83</td>
<td>2.92</td>
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Table 3. *Skewness and Kurtosis of Sample*

<table>
<thead>
<tr>
<th>Statistic</th>
<th>Psychomotor</th>
<th>Sensual</th>
<th>Imaginational</th>
<th>Intellectual</th>
<th>Emotional</th>
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</thead>
<tbody>
<tr>
<td>Mean</td>
<td>3.039</td>
<td>2.775</td>
<td>2.610</td>
<td>3.551</td>
<td>2.873</td>
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<tr>
<td>Median</td>
<td>3.1</td>
<td>2.8</td>
<td>2.5</td>
<td>3.6</td>
<td>2.8</td>
</tr>
<tr>
<td>Standard Deviation</td>
<td>0.954</td>
<td>0.984</td>
<td>1.005</td>
<td>0.803</td>
<td>0.835</td>
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<tr>
<td>Kurtosis</td>
<td>-0.533</td>
<td>0.108</td>
<td>-0.317</td>
<td>-0.345</td>
<td>0.086</td>
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<tr>
<td>Standard Error of Kurtosis</td>
<td>2.848</td>
<td>2.848</td>
<td>2.848</td>
<td>2.848</td>
<td>2.848</td>
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<tr>
<td>Skewness</td>
<td>-0.050</td>
<td>-0.200</td>
<td>0.503</td>
<td>-0.366</td>
<td>-0.218</td>
</tr>
<tr>
<td>Standard Error of Skewness</td>
<td>0.712</td>
<td>0.712</td>
<td>0.712</td>
<td>0.712</td>
<td>0.712</td>
</tr>
</tbody>
</table>
Table 4. Percentages of Study Sample Participants Scoring Above Study Sample Mean

<table>
<thead>
<tr>
<th>OEQII Overexcitability</th>
<th>Study Sample</th>
<th>Mean Score</th>
<th>Standard Deviation</th>
<th>% $x^- - 1SD$</th>
<th>% $1SD - 2SD$</th>
<th>% $&gt; 2SD$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Psychomotor</td>
<td></td>
<td>3.04</td>
<td>0.95</td>
<td>41</td>
<td>12</td>
<td>3</td>
</tr>
<tr>
<td>Sensual</td>
<td></td>
<td>2.77</td>
<td>0.98</td>
<td>37</td>
<td>11</td>
<td>4</td>
</tr>
<tr>
<td>Imaginational</td>
<td></td>
<td>2.61</td>
<td>1.01</td>
<td>28</td>
<td>13</td>
<td>6</td>
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<tr>
<td>Intellectual</td>
<td></td>
<td>3.55</td>
<td>0.80</td>
<td>49</td>
<td>13</td>
<td>0</td>
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<tr>
<td>Emotional</td>
<td></td>
<td>2.87</td>
<td>0.83</td>
<td>41</td>
<td>10</td>
<td>3</td>
</tr>
</tbody>
</table>
Results

Table 5. Percentages of Study Sample Participants Scoring Above Normative Sample Mean

<table>
<thead>
<tr>
<th>OEQII Overexcitability</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>Study Sample (n=71)</th>
<th>% x̄ - 1SD</th>
<th>% 1SD - 2SD</th>
<th>% &gt; 2SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Psychomotor</td>
<td>3.35</td>
<td>0.79</td>
<td></td>
<td>30</td>
<td>13</td>
<td>3</td>
</tr>
<tr>
<td>Sensual</td>
<td>3.28</td>
<td>0.87</td>
<td></td>
<td>30</td>
<td>7</td>
<td>0</td>
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<tr>
<td>Imaginational</td>
<td>2.86</td>
<td>0.83</td>
<td></td>
<td>15</td>
<td>13</td>
<td>4</td>
</tr>
<tr>
<td>Intellectual</td>
<td>3.50</td>
<td>0.79</td>
<td></td>
<td>42</td>
<td>20</td>
<td>0</td>
</tr>
<tr>
<td>Emotional</td>
<td>3.72</td>
<td>0.77</td>
<td></td>
<td>14</td>
<td>3</td>
<td>0</td>
</tr>
</tbody>
</table>
Table 6. Simple and Bivariate Spearman Correlations of CADS-A Subscales and OEQII Overexcitabilities

<table>
<thead>
<tr>
<th>OEQII</th>
<th>CADS-A Simple Spearman Correlations</th>
<th>CADS-A Bivariate Spearman Correlations</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Inattentive</td>
<td>Hyperactive</td>
</tr>
<tr>
<td>Psychomotor</td>
<td>.340*</td>
<td>.516**</td>
</tr>
<tr>
<td>Sensual</td>
<td>.059</td>
<td>.189</td>
</tr>
<tr>
<td>Imaginational</td>
<td>.294*</td>
<td>.365*</td>
</tr>
<tr>
<td>Intellectual</td>
<td>.244*</td>
<td>.267*</td>
</tr>
<tr>
<td>Emotional</td>
<td>.072</td>
<td>.139</td>
</tr>
</tbody>
</table>
Results

<table>
<thead>
<tr>
<th>Item</th>
<th>OEQII - Psychomotor OE Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q2 I am a competitive person</td>
<td></td>
</tr>
<tr>
<td>Q7 If an activity is physically</td>
<td></td>
</tr>
<tr>
<td>exhausting, I find it</td>
<td></td>
</tr>
<tr>
<td>Q10 I have to be in motion</td>
<td></td>
</tr>
<tr>
<td>Q15 When I have a lot of energy, I</td>
<td></td>
</tr>
<tr>
<td>want to do something really physical</td>
<td></td>
</tr>
<tr>
<td>Q18 I am more energetic than most</td>
<td></td>
</tr>
<tr>
<td>people my age</td>
<td></td>
</tr>
<tr>
<td>Q21 The longer that I have to sit</td>
<td></td>
</tr>
<tr>
<td>still, the more restless I get</td>
<td></td>
</tr>
<tr>
<td>Q29 I feel my body is constantly in</td>
<td></td>
</tr>
<tr>
<td>motion</td>
<td></td>
</tr>
<tr>
<td>Q39 When I am nervous, I need to</td>
<td></td>
</tr>
<tr>
<td>do something physical</td>
<td></td>
</tr>
<tr>
<td>Q42 I am the type of person who</td>
<td></td>
</tr>
<tr>
<td>has to be active - walking, cleaning,</td>
<td></td>
</tr>
<tr>
<td>organizing, doing something</td>
<td></td>
</tr>
<tr>
<td>Q50 I thrive on intense physical</td>
<td></td>
</tr>
<tr>
<td>activity, e.g. fast games and sports</td>
<td></td>
</tr>
<tr>
<td>B10 I fidget (with hands or feet) or</td>
<td></td>
</tr>
<tr>
<td>squirm in my seat</td>
<td></td>
</tr>
<tr>
<td>B11 I leave my seat when I am not</td>
<td></td>
</tr>
<tr>
<td>supposed to (e.g. in school)</td>
<td></td>
</tr>
<tr>
<td>B12 I am restless or overactive</td>
<td></td>
</tr>
<tr>
<td>B13 I have trouble playing or doing</td>
<td></td>
</tr>
<tr>
<td>leisure activities quietly</td>
<td></td>
</tr>
<tr>
<td>B14 I am always on the go</td>
<td></td>
</tr>
<tr>
<td>B15 I talk too much</td>
<td></td>
</tr>
<tr>
<td>B16 I give answers to questions</td>
<td></td>
</tr>
<tr>
<td>before the questions have been</td>
<td></td>
</tr>
<tr>
<td>completed</td>
<td></td>
</tr>
<tr>
<td>B17 I have trouble waiting in line</td>
<td></td>
</tr>
<tr>
<td>or taking turns with others</td>
<td></td>
</tr>
<tr>
<td>B18 I interrupt others when they</td>
<td></td>
</tr>
<tr>
<td>are working or playing</td>
<td></td>
</tr>
</tbody>
</table>

Figure 1. Item-level correlations for the CADS-A hyperactive subscale and the psychomotor OE.

\[ p < .0001 \quad \text{or} \quad p < .001 \quad \text{or} \quad p < .05 \]
A relationship existed between scores on the CADS-A subscales and the OEs for an academically gifted sample.

- Although both the CADS-A and OEQII are psychometrically sound instruments the results they yield are open to interpretation.
- We found similar behaviors associated with both ADHD and giftedness.
  - Clustered in the ADHD-Hyperactive and Psychomotor OE indicators.
The subsample of students who scored high on the CADS-A Hyperactive subscale scored similarly high on the Intellectual, Psychomotor, Sensual, and Emotional OEs.

- Overall, the gifted sample scored high on the Intellectual, Psychomotor, and Emotional OEs regardless of their score on the CADS-A Hyperactive subscale.

- However, those who did score highest on the CADS-A Hyperactive subscale had overall greater mean scores on these three OEs.
Implications

• Scores for the Intellectual and Psychomotor OEs that exceed the mean scores of the normative sample or the sample should give educators and psychologists pause to consider whether a possible misdiagnosis or dual diagnosis should be investigated.

• ADHD symptoms as measured by the CADS-A are congruent and common with behaviors of students who are identified as gifted and who are busy and active.
Identification of young, gifted children: An analysis of instruments and recommendations for practice

Presenter: Yang Yang
Advisor: Dr. Marcia Gentry
Purdue University
August 3, 2009
Why early identification Important?

Provide optimal education
(Sankar-Deleeuw, 2004; Wortham, 2008)

Prevent boredom and development of negative attitudes toward school
(Gridley, 1987; Puckett & Black, 2008)

Children from low-income and minority background less likely to be recognized and nurtured later if not earlier
(Moon & Brighton, 2008)
Identification

- Individually-administered intelligence tests
- Group-administered intelligence/aptitude tests
- Teacher rating scales

Children from 4 to 8 years
Individually-administered tests

- Stanford-Binet Intelligence Scales, Fifth Edition (SB5; Roid, 2003b)
- Wechsler Preschool and Primary Scale of Intelligence-Third Edition (WPPSI-III; Wechsler, 2002)
- Slosson Full-Range Intelligence Test (S-FRIT; Algozzine, Eaves, Mann, & Vance, 1993a)
- Kaufman Brief Intelligence Test (K-BIT; Kaufman & Kaufman, 1993)
- Woodcock-Johnson III Tests of Cognitive Abilities (WJ III COG; Woodcock, McGrew, & Mather, 2001)
### Individually-administered tests (cont.)

<table>
<thead>
<tr>
<th>Strengths</th>
<th>Weaknesses</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Strong psychometric properties</td>
<td>• Inconsistent rank order of the SB5 and WISC-III among same participants (Minton &amp; Pratt, 2006)</td>
</tr>
<tr>
<td>• Materials appealing to children</td>
<td>• Emphasis or requirement for verbal ability (Bell, Rucker, &amp; Finch, 2002), putting twice-exceptional children, children from low-income or culturally diverse background in a disadvantaged position (Puckett &amp; Black, 2008).</td>
</tr>
<tr>
<td>• Applicable to children as early as two years (Bracken &amp; Nagle, 2007)</td>
<td>• Brief tests such as K-BIT can only roughly estimate students’ performance (Prewett, 1995; Horn, 2006)</td>
</tr>
<tr>
<td>• Single set of ability tests reduces errors of measurement (Ruf, 2003)</td>
<td>• Expensive, time-consuming, requiring well-trained personnel to administer</td>
</tr>
<tr>
<td>• Comprehensive subtests help find out children’s developmental stages in both verbal and nonverbal domains (Ford &amp; Dahinten, 2005)</td>
<td>• Lack of longitudinal studies</td>
</tr>
</tbody>
</table>
# Group-administered tests

<table>
<thead>
<tr>
<th>Test Features</th>
<th>Cognitive Abilities Test (CogAT, Form 6; Lohman &amp; Hagen, 2001)</th>
<th>Otis–Lennon School Abilities Test, Seventh Edition (OLSAT-7; Otis &amp; Lennon, 1996)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Standardization</strong></td>
<td>More than 18,000 students from public, Catholic and private non-catholic schools, not broken down to ethnic groups</td>
<td>10,000 students from schools randomly selected, representing national population of 1994</td>
</tr>
<tr>
<td><strong>Reliability</strong></td>
<td>Subtest reliabilities high, with a median value of 0.90 in Primary Battery</td>
<td>Estimates for reliability within each level. Separate estimates available for 3-month age groups. Estimates of reliability for Verbal in Level A and B is 0.68</td>
</tr>
<tr>
<td><strong>Validity</strong></td>
<td>Supportive of criterion-related validity. No correlation with other tests reported.</td>
<td>Correlational data are presented regarding correlations between 6th and 7th editions, the OLSAT and the Stanford Achievement Test (9th edition), and Verbal components of Level A and B.</td>
</tr>
</tbody>
</table>
Cognitive Abilities Test, Form 6
Composite

Verbal
Quantitative
Nonverbal

K level – administered in six 30-minute sessions
Cognitive OLSAT
Five Clusters

Verbal Reasoning

Verbal Comprehension

Figural Reasoning

Pictorial Reasoning

Quantitative Reasoning

Level A for kindergarteners:
– Quantitative reasoning not included
Group-administered tests (cont.)

Strengths:

- Less costly, easier to administer
- Based on extensive norming procedures
- Adequate technical characteristics

Concerns:

- Time-consuming for young children, may exhaust them
- Validity studies in using it to students with disabilities, ELLs and minority groups need to be explored
- Children’s performance may be influenced by environment, emotional status when taking group-administered tests
### Table 1. Characteristics of four rating scales for identifying young, gifted children

<table>
<thead>
<tr>
<th>Instrument</th>
<th>Factors and Reliability Estimates</th>
<th>Technical Reports</th>
<th>Scale Items</th>
<th>Norm Sample</th>
<th>Sample Demographics</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gifted and Talented Evaluation Scale (GATES; Gilliam, Carpenter &amp; Christensen, 1996)</td>
<td>Intellectual ability (.88), academic skills (.84), creativity (.87), leadership (.89), artistic talent (.88)</td>
<td>Content, criterion-related, and construct validity</td>
<td>50 nine-point response items</td>
<td>1,083 students aged 5 through 18 identified as gifted in 1995</td>
<td>32 states and Canada</td>
<td>68 out of 250 teachers returned checklists; test-retest reliability lower (r = .70 to .87) rating GT students than those with handicaps (r = .93 to .98) Caution for use among minority groups</td>
</tr>
<tr>
<td>Gifted Rating Scales – Preschool/Kindergarten Form (GRS-P; Pfeiffer &amp; Jarosewic, 2003)</td>
<td>Intellectual ability, academic ability, creativity, artistic talent, motivation (r ranges .97 to .99) Social and academic abilities</td>
<td>Convergent and divergent validity</td>
<td>Total of 60 items with 12 items for each domain on a nine-point scale</td>
<td>375 students ages 4 through 6 yrs 11 months</td>
<td>About 78% Caucasian (62% Caucasian in national population 2000 census)</td>
<td>Caution for use among minority groups</td>
</tr>
<tr>
<td>HOPE Scale (Peters &amp; Gentry, 2009)</td>
<td>General intellectual ability, language arts, mathematics, science, social studies, creativity, leadership (r average above .90)</td>
<td>Rigorous model fit procedures including EFA, CFA, MCFA, and invariance analyses on gender, race, and income Convergent, discriminant, item functioning, and predictive validity</td>
<td>Total of 84 items with 12 items for each domain on a five-point scale</td>
<td>500 random samples out of 7,000 K-5 students in original scale; 1,700 K-5 students rated by 71 teachers with revised scale</td>
<td>Diverse ethnic groups, local norm sample in Indiana</td>
<td>Identifying students from low-income families and minority backgrounds</td>
</tr>
<tr>
<td>Scales for Identifying Gifted Students (SIGS; Ryser &amp; McConnell, 2004)</td>
<td></td>
<td></td>
<td>Race presented as White, African American, or other. 2% in General sample as “other”, 4.7% in Gifted sample</td>
<td>Incomplete test-retest reliability report; Low interrater reliability; Small sample size for validity tests</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Nonverbal intelligence instruments

- Do nonverbal tests measure intelligence nonverbally, or nonverbal intelligence?
- Assumption: equal opportunities for students with different cultural backgrounds
- Little is known about whether students from different language backgrounds will perform differently on nonverbal tests of intelligence (Braden & Athanasiou, 2005)
- Yoon & Gentry (2009) found overrepresentation among Asian and underrepresentation of other ethnic groups such as American Indian or Alaska Native, Hispanic, and African American in gifted education across the country from 2002 to 2006.
Implications

• Comparisons should be made among children who are from similar backgrounds by using tests with similar normative samples (Lohman, 2006; Peters, 2009).

• In using multiple measures, the measures should be considered separately, not cumulatively with any high score considered as a potential score for inclusion, rather than requiring multiple high scores on multiple instruments.

• Dynamic evaluation (Gentry & Mann, 2009).
References


Nurturing Giftedness Among Highly Gifted Youth

Rachelle Miller
Doctoral Student
• What does our society admire?
• Who receives tremendous praise and recognition?
• Are educators praising students for having extraordinary intellectual abilities?
• What changes to pace and curriculum are needed to challenge and support the academic and affective growth of highly, exceptionally, or profoundly gifted students?
Levels of Giftedness (Gross, 2000)

<table>
<thead>
<tr>
<th>Levels</th>
<th>IQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mildly</td>
<td>115-129</td>
</tr>
<tr>
<td>Moderately</td>
<td>130-144</td>
</tr>
<tr>
<td>Highly</td>
<td>145-159</td>
</tr>
<tr>
<td>Exceptionally</td>
<td>160-179</td>
</tr>
<tr>
<td>Profoundly</td>
<td>180+</td>
</tr>
</tbody>
</table>

- Mildly and moderately gifted are much more likely to be part of a classroom.
- Exceptionally gifted occur 1:10,000 to 1: 1,000,000.
- Profoundly gifted occur less than 1:1,000,000.
- Mental and affective characteristics of a profoundly gifted child differ from those of a moderately or mildly gifted child.
- This significant discrepancy could lead to problems with social skills or social isolation.
Early Entry to Kindergarten

• Little empirical evidence exists indicating that a child who enters Kindergarten will suffer challenges later in his educational career (Butterworth & Constable, 1982; Gross, 1993a, 2003)

• Principals’ attitudes toward schools’ early entry program (Vialle, Aston, Carlon, & Rankin, 2001)

• Wichita Public Schools in Kansas – Early Childhood Accelerated Program (Gould, Thorpe, & Weeks, 2001)
  – According to Gould et al., “During the two years of the pilot program, approximately 40 percent of the children in the program were from culturally diverse groups, a figure that is significantly higher than the percentages in most programs for gifted students” (p.50).
Various four-year and two-year universities offer residential programs for early entrants
- Students sometimes move a great distance for these programs (Booth, Sethna, Stanley, & Colgate, 1999).

Early Entrance Program (EEP) – Halbert and Nancy Robinson Center for Young Scholars at UW (Noble, Vaughan, Chan, Childers, Chow, Federow, & Hughes, 2007)
- Transition School – provides support in content, study skills, and time management

Essays from students who participated in early entrance programs (Olszewski-Kubilius, 1998)
- Before acceptance, they experienced similar frustrations in school – lack of challenge, slow paced curriculum, and boredom
- Lack of support from peers, teachers, and administrators
- Challenges with early entrance – underdeveloped study skills or some academic failures
Radical Acceleration

• Gifted students with IQs of 160-200
  – According to Gross (1992), “They suffered severe intellectual frustration, boredom, lack of motivation, and social rejection by age-peers and displayed significantly lowered levels of social self-esteem” (p. 98)

• Gross (1992) evaluated self-esteem with Coopersmith Self-Esteem Inventory (Coopersmith, 1981)
  – Before radical acceleration – experienced underachievement
  – After acceleration – no evidence of social and emotional problems, they all experienced intellectual satisfaction

• Australia, China, Taiawan, and Poland have also incorporated radical acceleration (Gross & van Vliet, 2005)
  – Satisfaction with academic and affective experiences, early career successes, significant academic gains, large number of accelerants
Asynchronous Development

- Asynchrony – discrepancy between intellectual ability and physical ability (Silverman, 2007)
  - Intellectual ability of a 14-year old and physical maturity of an 8-year old – could lead to social and emotional difficulties (Gross, 1993b)
- Child’s beliefs about herself and her self-efficacy can be influenced by how her classmates view her (Silverman, 1997)
- Difficult for a profoundly gifted child to find same aged classmates with similar mental interests (Hollingworth, 1930)
  - Child with IQ of 180 may like to play bridge, but may not be able to find any classmates who know how to play or who are even interested in learning
Dabrowski (1972) believed that gifted children displayed one or more psychic overexcitabilities:

- Psychomotor – excess of energy (love for movement, rapid speech, impulsiveness, or restlessness)
- Sensual – heightened sensory awareness (constant desire for comfort)
- Emotional – deep concern for others, deep relationships, or feelings of compassion and security
- Imaginational – vivid imagery, inventiveness, or a love of fantasy
- Intellectual – extreme love of knowledge, discovery, or independence of thought
Various researchers have reported that accelerants experience positive esteem, satisfying social relationships, advanced social maturity, and no significant effects of acceleration (Gross, 1993; Noble, et al., Tsai, 2007).

Administrators and teachers with backgrounds in gifted education did not have negative attitudes toward acceleration (Hoogeveen, van Hell, & Verhoeven, 2005).

Providing teachers with information or training on acceleration may positively influence their opinions.
References


Gifted, English Language Learners

Nielsen Pereira
Doctoral Candidate
Purdue University
“A student's language background is in a language other than English, and the student's proficiency in English is such that the probability of the student's academic success in an English-only classroom is below that of an academically successful peer with an English language background.” (Iowa Department of Education)
Students who speak a language other than English at home comprise 19.2% of the entire population of the United States (U.S. Census Bureau, 2005).

Between 1993 and 2004, Indiana had the fourth largest rate of growth in the number of Limited English Proficient children in the entire U.S. (a 438% increase) (U.S. Census Bureau, 2005).
Underrepresentation in gifted programs in 2006

- Hispanic students: underrepresented in 43 out of 50 states
- African American students: underrepresented in 42 out of 50 states
- Asian and Pacific Islander students: overrepresented in 41 out of 50 states
- White students: moderately overrepresented in 26 out of 50 states

(Yoon & Gentry, 2009)
Characteristics of Gifted ELLs

- Highly curious
- Unusual ways to solve problems
- Independent and self-sufficient
- Highly verbal
- Understanding the importance of family/culture
- Preference for older playmates
- Engaging in abstract reasoning
- Absorbed in self-selected tasks
- Demonstrating social maturity at home and community

(Gallagher, 2007)
Basic Interpersonal Communication Skills (BICS): everyday language needed in social situations. Children can acquire social English in 6-18 months.

Cognitive Academic Language Proficiency (CALP): used in academic learning. Includes speaking, reading, and writing about materials in different content areas. Acquisition may take 5-7 years or 3-5 years for gifted individuals. (Cummins, 1979; Gallagher, 2007)
Identification for G/T Programs

- Intelligence and General Aptitude tests
- Achievement tests
- Teacher rating scales
Scores on verbal or nonverbal tests of intelligence are the traditional criteria for identification and placement in G/T programs (Harris et al., 2007)

Advanced language cannot be one of the main selection criteria if students have limited English proficiency!
Suggestions for Identification

• **Multiple Measures:**
  Achievement, Aptitude, and Ability
  Rapidity of English Language Acquisition
  Checklists
  Portfolios
  Recommendation (parent, teacher, peers, student)
  Student interests, motivation, and persistence

(Laing, 2007)
1.0E The school district should provide information annually, in a variety of languages, regarding the process for nominating students for gifted education programming services.

1.2E Nomination procedures and forms should be available in a variety of languages.
2.0E Assessment instruments must measure the capabilities of students with provision for the language in which the student is most fluent, when available.

2.1M Assessments must be culturally fair
Challenges of Teachers of ELLs

- Getting students to understand directions and idiomatic expressions
- Teaching the subject matter
- Assessing students work
- Meeting the needs of different students
- Lack of opportunity for one-on-one instruction
- Lack of knowledge of the best practices and methodologies for teaching ELLs

(de Oliveira & Pereira, 2008)
Needs of Teachers of ELLs

- Hands-on experiences implementing techniques and strategies learned
- Need for information (e.g. guidelines for dealing with ELLs)
- Crucial vocabulary in the students’ first language
- Interpreters and aides in the classroom

(de Oliveira & Pereira, 2008)
Culturally Responsive Teachers

- Socioculturally conscious: Multiple ways of perceiving reality
- Affirming views of students from diverse backgrounds: Resources for learning
- See themselves as both responsible and capable of bringing about educational change

(Villegas & Lucas, 2002)
Culturally Responsive Teachers

- Understand how learners construct knowledge and promote learners’ knowledge construction
- Know about the lives’ of their students
- Use that knowledge to design lessons that build on what students already know

(Villegas & Lucas, 2002)
Gifted ELLs: Strategies

- Flexible grouping
- Promoting first and second language development
- Fostering questioning strategies
- Promoting home/school partnerships
- Differentiated instruction
- Focus on advanced literacy

(Gallagher, 2007; Schleppegrel, 2004)
Gifted ELLs: Strategies

- Assess and incorporate interests and background knowledge
- Model reading and thinking strategies
- Strategies promoting higher level and creative thinking
- Show rather than tell (graphic organizers, field trips, videos)
- Direct instruction for basic skills and developing automaticity

(Kitano, 2007)
Myths about Second-Language Learning

- The younger the child, the easier he or she will learn a second language
- Children have acquired a second language once they can speak it
- Children learn second languages quickly and easily
- All children learn an L2 the same way
  - Many immigrant children have learning disabilities, not language problems
  - Students will learn faster if material is adapted to their ability level
Questions/Discussion?