Developing Exemplary Gifted Programs: What does the research say?

Tamra Stambaugh, Ph.D.
Vanderbilt University
Research Assistant Professor
Director, Programs for Talented Youth
http://pty.vanderbilt.edu
Program Components for Gifted Learners: Pieces of the Puzzle

Identification

Program & Service Provisions

Program Evaluation

Personnel Preparation
When the state mandated the top 5% as gifted, did they say what they meant by "top"?
What do we know about giftedness that matters in identification?

- Uneven development
- Genetic & environmental components
- Manifested in one area or several
- Degrees of giftedness within & across areas
- Optimal match
- Focus on evidence of advanced behavior
- Non-intellective factors matter in predicting program success (motivation, persistence)
Best Practices in Identification

- Use of multiple criteria (3 or more)
- Use of a two-stage process of screening and identification
- Use of measures that are relevant to program emphasis
- Equitable processes for selection, validation, and placement
- Placement of students based on individual profile data considerations
- Use of varied assessments at varied times
## District-identified vs. Athena-identified as Gifted

<table>
<thead>
<tr>
<th></th>
<th>IQ &gt;=120</th>
<th></th>
<th>IQ &gt;=130</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Frequency</td>
<td>Percent</td>
<td>Frequency</td>
<td>Percent</td>
</tr>
<tr>
<td>District Identified Gifted</td>
<td>94</td>
<td>37.2%</td>
<td>29</td>
<td>45.4%</td>
</tr>
<tr>
<td>Athena Identified Gifted</td>
<td>159</td>
<td>62.8%</td>
<td>35</td>
<td>54.6%</td>
</tr>
<tr>
<td>Total</td>
<td>253</td>
<td>100%</td>
<td>64</td>
<td>100%</td>
</tr>
</tbody>
</table>
Best Practices in Identification (cont.)

- Consideration of instruments and other approaches sensitive to the inclusion of minority, low SES, and disabled students
- Different identification procedures for secondary level
- Out-of-level assessments
- Ongoing identification procedures
- Identification of students in multiple talent areas
I have a sinking feeling about this IQ test. I don't see a single question on gear ratios or carburetors.
How the individually paced curriculum might work...

When you finish these dittoes you may graduate and go home.
Necessary Components for Programming and Services

- Philosophy
- Goals
- Curriculum Alignment and Adaptation to Standards
  - Scope and Sequence
  - Research-Based Curriculum
  - Instructional Management and Process
    - Acceleration & Grouping
    - Differentiation
- Student Assessment
Philosophy

- Communicates beliefs
- Provides a platform for achieving consensus
- Creates a launching pad for policy formulation
- Promotes program affirmation (commitment to excellence)
- Promotes good decision-making
Key Features of Goals for Gifted Programs

- Timeless – All Years of Schooling
- Visionary
- General/Abstract
- Broad
- Representative of all areas of development
- Linked to Conceptual Framework
Sample Gifted Program

Goals

- To provide mastery of basic content at a pace and depth appropriate to the capacity of able learners.
- To promote critical thinking and reasoning abilities
- To develop research skills and methods
- To develop self-understanding
- To enhance opportunities for future planning and development
- To develop creative and divergent thinking skills
- To develop problem-solving skills
- To develop metacognitive skills that foster independent and self-directed learning
<table>
<thead>
<tr>
<th>Curriculum Goal</th>
<th>Teaching Strategy</th>
</tr>
</thead>
<tbody>
<tr>
<td>To develop critical thinking</td>
<td>✓ Paul model of reasoning</td>
</tr>
<tr>
<td>✓ Questioning model</td>
<td></td>
</tr>
<tr>
<td>To develop creative thinking</td>
<td>✓ Torrance creative problem solving model</td>
</tr>
<tr>
<td>To develop research skills</td>
<td>✓ W&amp;M research model</td>
</tr>
<tr>
<td>✓ Problem-based learning</td>
<td></td>
</tr>
<tr>
<td>To understand broad overarching interdisciplinary concepts</td>
<td>✓ TABA model for concept development &amp; deductive reasoning</td>
</tr>
</tbody>
</table>
Sample curriculum goal:
To develop critical thinking

Sample outcomes and objectives
• Analyze different points of view on a given issue

• Draw appropriate inferences, given a set of data

• Forecast consequences and implications of a given decision or action
Sample Assessment

Outcome:
- Analyze different points of view on a given issue or topic

Assessment:
- Given the issue of human cloning, identify three different stakeholders in society who would have different perspectives on this issue. Debate the key points of each of their perspectives in an essay.
Gifted Learner Needs

What is taught

Curriculum

Assessment

Instruction

What is learned

How it is delivered
Key Curriculum Questions

- Has the curriculum shown effectiveness with gifted learners through experimental design studies?
- Is the curriculum accelerated with depth and complexity?
- Are pre and post assessments included, matched to the curriculum?
- Does the curriculum teach content, process, and concepts?
- Does the curriculum include opportunities for metacognition and reflection?
Differentiation Features

• Acceleration
• Complexity
• Depth
• Challenge
• Creativity
Differentiation Examples

- Conduct an experiment on plant growth by measuring weekly progress of two sets of seeds, one in artificial light indoors and one outside in shade.

- Design an experiment on one of the following questions and share your results in an oral and written presentation:
  - Are bees attracted to diet cola?
  - Are earthworms attracted to light?
  - Are boys more interested in computers than girls?
  - Your own question
Differentiation Examples

- Discuss plot, setting, and characters in the short story “A Rose for Emily.”
- Compare and contrast the plot, setting, characters, motivation, theme, and climax of “A Rose for Emily” and “The Bear.”
Differentiation Examples

- Choose one of the following topics and prepare an oral presentation using at least four library sources:
  - Shakespeare’s World
  - The American Dream
  - The Role of Science Fiction in Literature

- Debate one of the following resolutions.
  - Mankind is on a path toward human progress
  - Studying our past will help us cope with the future.

Use multiple sources including surveys, interview, and library sources in your preparation.

Center for Gifted Education
The College of William and Mary
Differentiation Example

Joe invested $1,000 in stock in January. When he sold it in December, the price was up 12% from his purchase price. What was his profit on this stock?

Which would you rather choose?
- a) 80% profit in year 1 and 50% loss in year 2.
- b) 5% profit in year 1 and 5% profit in year 2.

Explain your reasoning.
GROUPING IS ONLY AS GOOD AS WHAT IS DONE IN THE GROUP

- Full-time ability grouping
- Special schools
- Full-time gifted classes (school-within-a-school)
- Cluster grouping
- Pull-out grouping
- Regrouping for instruction or ability grouping for instruction
- Cross-grade grouping
- Cooperative groups (based upon interest, ability, strengths)
- Consultative model
- Extracurricular enrichment options (OM, MathOlympiad..)
Grouping

- Mixed Ability Groupings
  - 0 effect

- Pull-Out
  - .65 (content)
  - .33 (critical thinking)

- Self-Contained
  - .49 – elementary
  - .33 - secondary
  - 0 effect

- Regrouping for Instruction
  - .79 with differentiation for High Ability
  - .22 with differentiation for Average Ability
  - .15 with differentiation for Low Ability
  - 0 effect without differentiation for all groups—tracking

Cluster Grouping (Inclusion)
- .62 if modifications are made
- 0 if no modifications are made

--Meta-analysis by Rogers, 1998
Considerations for Grouping

- Timeframes for grouping
- Subject Areas
- Teacher qualifications
- Documentation of student growth
- Tailoring instruction
- Flexibility
- Type of grouping most beneficial for student & district
- What will be done?
Meta-Analytic Findings

- Bright students almost always benefit from accelerated programs based on achievement test scores.
- When compared to same-age, intellectual peers, those students who were accelerated performed almost one grade level higher academically.
- When compared to older, non-accelerated students, the accelerated student performance was indistinguishable from that of bright, older non-accelerated students.
Acceleration: Meta-Analytic Findings (cont.)

- Acceleration has the highest overall academic effects when compared to other provisions.
- Acceleration positively affects student’s long-term educational plans and accelerated students earn more advanced degrees.
- Self-esteem may temporarily drop when accelerated.
- There are too few studies to make inferences about student attitudes when accelerated and social-emotional well-being. However, most studies do suggest that acceleration does not prohibit students from participating in extra-curricular activities as desired.
  - Colangelo, Assouline, & Gross, 2004
Instructional Management and Acceleration Research

- Grade Skipping (ES = .49)
- Early Entrance to School (ES = .49)
- Subject Acceleration (ES = .57)
- Grade Telescoping (ES = .40)
  - Three years in two
- Concurrent Enrollment (ES = .22)
  - High school and college
- AP Courses (ES = .27)
- Early Admission to College (ES = .30)
- Credit by Examination (ES = .59)
  - Rogers, 1998
I've mapped out the concepts I've already grasped to save you time.
What Acceleration is Not...

- Moving through rote activities at a faster rate
- Always using the next grade level activities
- Skipping major concepts without pre-assessment
- A fix-it-all solution (still need to adjust and differentiate)
Key Features of an Exemplary Services for Gifted

- Teachers as ambassadors, advocates, and artists
- Well-articulated student goals and outcomes
- Differentiated task demands and products in a coherent curriculum
- Use of arsenal of instructional strategies
- Emphasis on critical/creative thinking, problem-solving and metacognition
- Differentiation within the program for special needs
- Ongoing learning and growth, K-12
Key Features of an Exemplary Services for Gifted (cont.)

- Assessment of student work
- Curriculum work linked to regular classroom work in some respect
- Homework policy in tandem with regular classroom expectations
- Communication system with regular classroom teachers
- Communication system with parents
- Coupled with school initiatives
- Annual review of accomplishments and problems to be solved

(VanTassel-Baska, 2002)
The Role of Pre-assessment in Teaching and Learning

- To determine knowledge and skills in an area (functional level)
- To determine range of differences among learners (differentiation)
- To determine appropriate interventions for whole and subgroups
- To revise/refine instructional plans
- To rethink classroom management strategies
Appropriate Learning Assessments for Gifted Students

- Performance-based
- Portfolio
- Off-level achievement tests
- Diagnostic assessments
- Informal assessments (discussion, observation)
Pre-test Response

First, I would put some earthworms in a container. There would be lights and some dirt. I would put several different earthworms in it. If more earthworms like the light than that would be right. If more didn’t like the light than that would be right. I would try this with about seven groups and decide if they like the light.
Post-Test Response

Materials:
- Diet Cola, 3 large containers, 3 small containers, 6 bees.

Hypothesis:
- If you give bees diet cola then they will be attracted to it.

1. Gather 6 bees, diet cola, 3 large containers, 3 small containers.
2. Put 2 bees in each large container.
3. Pour 5 ml of diet cola in each small container.
4. Set the small container of diet cola in each large container that has bees in it.
5. Watch and observe to see if the bees are attached to the diet cola.
6. You should record if the bees like diet cola on a chart like below.

<table>
<thead>
<tr>
<th>Bees</th>
<th>If they are attracted to Diet Cola</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td></td>
</tr>
</tbody>
</table>

CFGE, 3rd Grade
Pre-Assessment

Persuasive Writing Pre-Assessment
Student A, Grade 3

Yes, I think the story The Wolf and the Lion should be required reading for all the students. Why? It’s a great story with a very interesting topic. They could also learn from the story. Also they could get lots of interesting questions. That’s why I think 3rd grade students should read The Wolf and the Lion.
Yes, I think all the students in 3rd grade should read this book. It’s such an excellent moral.

One reason I think everyone in third grade should read The Miser is because it does teach a good lesson. It could help them learn that things they never use are worthless.

Another reason I think all the students in third grade should read this story is they use great, funny words. It basically is a funny story. One of the parts I likes was “He pulled his hair out (not really). It would make our writing better.

Also, the students should read this because it’s similar to a true story. If you have a good, healthy body and you never use it, the muscles will be very weak, and you’ll miss out on a lot of things.

As you see, it’s a good moral for all the students in third grade. They could learn great details for their own stories, and they can compare it with a true happening like this story. It’s a great story.
No, this one should fit my curriculum. It's forty minutes long.
NCATE Guiding Principles of Teacher Competencies

- Ten Categories
  - Foundations
  - Development & Characteristics
  - Individual Learning Differences
  - Instructional Strategies
  - Learning Environment and Social Interactions
  - Language
  - Instructional Planning
  - Assessment
  - Professional and Ethical Practice
  - Collaboration
NCATE Standard #4: Instructional Strategies

K1 Identify school and community resources, including content specialists that support differentiation.

K2 Describe a variety of curricular, instructional, and management strategies effective for learners with gifts and talents.

S1 Apply relevant pedagogical content knowledge to instructing learners with gifts and talents.

S2 Apply higher-level thinking and metacognitive models to relevant content areas to meet the needs of learners with gifts and talents.

S3 Provide opportunities for learners with gifts and talents to explore, develop, or research their areas of interest or talent.

S4 Preassess the learning needs of individuals with gifts and talents in various domains and adjust instruction based on continual assessment.

S5 Pace the delivery of curriculum and instruction consistent with the needs of learners with gifts and talents.

S6 Engage learners with gifts and talents from all backgrounds in challenging, multicultural curricula.

S7 Use information and/or assistive technologies to meet the needs of learners with gifts and talents.
NCATE Standard #7: Instructional Planning

K1 Compare theories and research models that form the basis of curriculum development and instructional practice for learners with gifts and talents.

K2 Distinguish general from differentiated curricula for learners with gifts and talents.

K3 Articulate curriculum emphases for learners with gifts and talents within cognitive, affective, aesthetic, and social domains.

S1 Align national, state/provincial, and/or local curricular standards with differentiated instructional plans.

S2 Design differentiated learning plans for learners with gifts and talents.

S3 Develop scope and sequence plans for learners with gifts and talents.

S4 Select curriculum resources, strategies, and product options that respond to cultural, linguistic, and intellectual differences among learners with gifts and talents.

S5 Select and adapt a variety of differentiated curricula that incorporate advanced, conceptually challenging, in-depth, distinctive, and complex content.

S6 Integrate academic and career guidance experiences into the learning plan for learners with gifts and talents, including those from diverse backgrounds.
NCATE Standard #8: Assessment

K1 Critique the processes and procedures for the identification of learners with gifts and talents, including referral, screening, identification, placement, and follow-up.

K2 Examine the uses, limitations, and interpretation of multiple assessments in different domains for identifying learners with gifts and talents, including those from diverse backgrounds.

K3 Analyze the uses and limitations of assessments documenting academic growth of learners with gifts and talents.

S1 Use non-biased and equitable approaches for identifying learners with gifts and talents, including those from diverse backgrounds.

S2 Use technically adequate qualitative and quantitative assessments for identification and placement of learners with gifts and talents.

S3 Develop differentiated curriculum-based assessments for use in instructional planning and delivery for learners with gifts and talents.

S4 Use alternative assessments and technologies such as performances, portfolios, and computer simulations to evaluate the learning of individuals with gifts and talents.
A Model of Teacher Change

Professional Development → Change in CLASSROOM PRACTICES → Change in STUDENT LEARNING → Change in TEACHERS’ ATTITUDES & BELIEFS

Professional Development Plan

- Needs Assessment
- Targeted Audiences
- Objectives
- Activities
- Modes for Training
- Timeline – OVER TIME/ONGOING
- Persons Responsible
- Mechanisms for Assessment and Follow-Up
Oh, we had a great program last year but she moved.
Data Sources

Avoid: Do you love us? Yes or no

- Survey of students, parents, teachers, and administrators
- Focus groups of students, parents, teachers, administrators
- Interviews with key administrators
- Classroom observations
- Student impact data
- Review of written documents (curriculum, policies, program brochures…)
Key Questions for Evaluating Service Effectiveness

- To what extent are we meeting our goals?
  - What evidence do we have?
- What are the perceptions of stakeholders about their preparation, communication and services provided?
- How do curriculum and instruction relate to best practices?
  - Grouping, acceleration, research-based curriculum
  - Classroom observations
- How does the program impact student achievement? What data are collected?
Data Sources for Assessing Student Impact

- **Descriptive**
  - Advanced Placement Scores
  - Contest Participation
  - Dual Enrollment
  - SAT and ACT Scores
  - Talent Searches
  - National Merit Scholars
  - State Assessment Advanced Pass Rates

- **Comparative**
  - Achievement Tests Between Years
  - Value Added Approaches Over Time
  - Contest Comparisons with Like Schools
  - State Assessment Sub-group Comparisons or Pass/Fail for Served v. Not Served
In Summary

- Identify early and often – use multiple and fair assessments
- Determine what type(s) of grouping and acceleration are feasible for your population and district context
- Collect data on progress (short and long term)
- Use research-based curriculum
- Match program services to the child
- Provide systemic options for services (K-12)
- Provide professional development with follow-up, assessment, and evaluation
- Link gifted emphases to district goals and processes
- Evaluate progress continually

COMMUNICATE, COMMUNICATE, COMMUNICATE
“Change is the law of life. And those who look only to the past or present are certain to miss the future.” ---JFK