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Simplicity in complex times: Six principles for teaching the gifted

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The world has become increasingly complex. Curriculum methods for the gifted are likewise. Extracted from these seminal and ongoing curriculum approaches are six rules based on best practices and research from our field, which can be grasped easily and applied by teachers anywhere. When teachers work from a set of principles they can adapt to needs of students and support growth, regardless of context. Using principles strengthens teaching and supports gifted students, and perhaps all students. The six principles include: a) focus on unique pattern of strengths, b) group students by interests or abilities at least part of the time, c) move as far and as fast in the basic skills as possible, d) enrich individual interests, e) offer mediation, counseling, mentoring and facilitation, and f) provide the tools for life-long learning.
Keywords: Gifted, talented, curriculum methods.

Simplicidad en tiempos complejos: seis principios para enseñar a los talentosos
El mundo es cada vez más complejo y los métodos curriculares para los talentosos siguen la misma línea. El presente estudio propone seis reglas extraídas de las aproximaciones curriculares que revelan las mejores practicas e investigaciones en el área y que además pueden ser fácilmente comprendidas y aplicadas en todo lugar. Cuando los profesores trabajan desde un grupo de principios que sustenta su actividad, pueden adaptarlos a las necesidades de sus estudiantes y apoyar su desarrollo, independientemente del contexto. Utilizando estos principios se fortalece la enseñanza y apoya a los estudiantes talentosos, así como a todos los estudiantes. Los seis principios incluyen: a) focalizarse en un patrón único de fortalezas, b) agrupar a los estudiantes por intereses o capacidades por lo menos parte del tiempo, c) ir tan rápido y lejos como se pueda a nivel de destrezas básicas, d) enriquecer los intereses individuales, e) ofrecer mediación, consejería, *mentoring* y facilitación, y f) brindar herramientas para el aprendizaje a lo largo de la vida.
Palabras clave: talentosos, métodos curriculares.

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The world has become increasingly complex. Threats and terrorism, difficult economic times, lack of sufficient school funding, the standards movement, assessment mania (particularly through No Child Left Behind —NCLB— in USA), teacher preparation issues, diverse student populations and lack of diversity among teachers are some of the problems facing the provision of appropriate support to our gifted students.

While there have been excellent curriculum approaches (see Table 1), a problem is that often these approaches are complex and require extensive specific training, difficult when budgets are stretched thin. I am proposing six principles, simple rules based on best practices and research from our field, which can be grasped easily and applied by teachers anywhere, including those without a lot of background in teaching the gifted. The important idea is that capable students should not just be given more of the same—not ten more math problems, not extra spelling words, not more reading in the basal reader! Bright children's characteristics need to be taken into account—their high level cognitive functioning and the affective aspects. Instruction needs to accommodate their unique learning styles, patterns, and interests, with a range of flexible options in and out of school, with curriculum focusing on enduring approaches that generate further development, as described in seminal works (Maker, 1982; Renzulli, 1977; Ward, 1961).

Table 1

Developers of curriculum for the gifted

Author	Date	Key features
Betts	1985+	Autonomous learner model involving 5 dimensions of instruction: Orientation, individual development, enrichment, seminars, and in-depth study.
Clark	1979+; 1986	Integrative education model based on brain/mind research for optimizing learning.
Daniel & Cox	1985/1988	Flexible pacing based on moving ahead on the basis of mastery.
Gallagher	1964+	School adaptations for gifted including content modification, skills adaptation, administrative approaches, and personnel preparation.
Kanevsky	In progress	Tool kit for curriculum differentiation: Addresses 13 brilliant behaviors, links curriculum strategies based on these strengths, offers choice and individualized plans to help learners become self-directed.
Kaplan	1979; 1986	Learning experiences via differentiation of content, processes, research skills, and products that can be gridded.
Maker	1982	Curriculum development based on content, process, product, and environment modifications focusing on individual student.
Piirto	1994+	Differentiation based on relevant learner talents and strengths, using rigorous academics, pacing, depth, student interests, questioning strategies, and creativity.
Renzulli & Reis	1977; 1985; 1997	Enrichment Triad Model: 3 types of enrichment: General exploratory, group training, and individual and small group investigations of real problems. Also school-wide enrichment model involving school structures, organizational components, and service delivery components.

Author	Date	Key features
VanTassel-Baska	2003+	Integrated Curriculum Model based on 3 interrelated dimensions: Advanced content knowledge that frames disciplines of study; higher order thinking and processing; and learning experiences around major issues, themes, and ideas.
Tomlinson et al.	1999+; 2001+	Differentiation instruction through respectful tasks, flexible grouping and "teaching up". Parallel Curriculum: 4 parallels: Core curriculum, connections, practice, and identity.
Ward	1961	An axiomatic approach for differential approaches for the gifted based on principles or axioms. He was the "father" of differentiation.

Note. + reflects earliest publication date. In many cases, multiple editions have been published.

When teachers work from a set of principles or rules, they can adapt to needs of students in a given context, whatever their social class, race, or diverse language backgrounds. Having principles in mind strengthens teaching and supports gifted and talented students. Knowing these simple principles may also support all students in a class. Here is an overview of these six principles, followed by a closer look at each:

1. *Focus on unique pattern of strengths*. The abilities, competencies, talents, and interests of each individual child to empower excellence, develop confidence and self-esteem, and build community.
2. *Group students by interests or abilities at least part of the time* to promote healthy social and emotional development.
3. Encourage students to *move as far and as fast in the basic skills as possible*. Offer flexible pacing to avoid boredom and to address learning needs.
4. *Enrich individual interests*. Provide opportunities for students to explore, in depth, areas of great interest and to purposefully investigate real problems. Doing so encourages autonomous learning and develops competence and expertise.

5. Offer *mediation, counseling, mentoring and facilitation* from caring adults to optimize potential and develop ethical citizens.
6. Provide the *tools for life-long learning*: Research skills for accessing information; higher order thinking skills for processing information; creativity skills for modifying, adapting, improving, or transforming information; communication skills for sharing information and ideas; study skills for organizing study and managing time; and metacognitive skills for awareness and control of one's learning strategies and processes.

Principle 1. Focus on the strengths, talents, and competencies

Every child is a gift, a precious potential. Each child also has gifts—abilities and characteristics that make him or her unique, special, and valuable to the world. Gruber (1985) noted that we use very short shopping lists to look for giftedness in schools, so we come up with very short shopping bags of gifted children. We need to extend our notions of giftedness to include children from every racial and ethnic group, children of poverty, and those with disabilities. The spectrum of giftedness must be expanded to include the peace maker, the child with extraordinary awareness of the environment, the gentle child, the comic, and so many other capacities needed by our complex and fragile planet.

Providing opportunity is often the key. When a child from an impoverished inner city environment is offered a violin and lessons, the music she makes may be extraordinary. Likewise, a child with cerebral palsy who has difficulty communicating may be found to be a brilliant thinker when provided with a specially adapted computer. Helping students to value each others' strengths and abilities supports development of a community of caring learners where all can grow and bloom. Here are ways to focus on strengths and talents:

1. View each child as a precious gift, an individual with a unique pattern of abilities. Look for the magic in each child!

2. Assess and enhance individual strengths, talents, and interests.
3. Value the child's culture as a strength, including languages, customs, and values.
4. Provide an education commensurate with each child's needs—opportunity and a differentiated education.
5. Nurture the affective, physical, and intuitive as well as the cognitive.
6. Acknowledge varied learning styles so education is meaningful and relevant and the child's ways of working and thinking are respected.
7. Provide a chance to discover and utilize curiosity, inventiveness, and creativity.
8. Help students to value each others' strengths, interests, and abilities, building a community in the classroom that supports growth of everyone.

Principle 2. Group by interests or abilities at least part of the time

The biggest complaint of gifted students is that their social needs are not addressed in school. Galbraith (1985) called these the "eight great gripes," half of which focused on social aspects. Providing opportunities for able learners to work with others like themselves by interests or abilities is a solution, using flexible groupings that change with the activity. "Big Bang" teaching (designing curriculum with exciting culminating activities wherein all students have important roles to play based on their interests and the products are shared with interested others) is a way of developing community and providing grouping opportunities. Preparing for a science fair or invention convention, creating a colonial festival, writing and producing a musical on chemistry, taking the class camping, having a poetry slam, holding a Renaissance day, or planning a "Night of the Notables" (Betts, 1985) are examples.

1. Group by interests or abilities to help avoid feelings of differentness, weirdness, isolation that can lead to social/emotional difficulties.

2. Use flexible grouping that changes depending on the activity. This helps students to learn to work and share with others, cooperate, feel empathy, and become active listeners. Students might be grouped for high level math, move to a different group on cooking in the colonial period, and research interest in horses with like-minded peers.

3. Help able students to learn to accept differences, enjoy diversity, value and appreciate all the varied strengths and interests that others offer. This supports the building of a classroom community (see Principle 1).

4. Use "Big Bang Teaching" to provide opportunities for purposeful work towards exciting culminating activities in groups, based on interests and abilities.

5. Explicitly teach students how to work with others and play varied roles within a group.

Principle 3. Flexible pacing: Move as far and fast in basic skills as possible

Moving at their own rate of learning is important, as it avoids boredom, allows the child to feel in charge of his or her education, and prevents potential problems, such as becoming passive and dropping out as a learner, or demonstrating negative behaviors (Cox, Daniel & Boston, 1985). One well-researched beneficial strategy is acceleration but it is underused, typically because of fear of social concerns (Benbow, Perkins & Stanley, 1983; Brody, 2001; Colangelo, Assouline & Gross, 2004; Colangelo et al., 2010; Kulik, 2004; Kulik & Kulik, 1984; Neihart, 2007; Robinson, 1996; Rogers, 2004; Stanley & Benbow, 1983).

1. Encourage learning as far and fast as the student wants it to avoid boredom with unchallenging work that causes frustration and may lead to at-risk or passive behaviors.

2. Practice child stretching without stressing. Check with the child using the "Goldilocks principle": Tasks should be "just right," not too hard or too easy.
3. Expect leaps and lags, as learning is not smooth but proceeds in leaps and slow periods. Some things are harder or easier to learn than others for a given individual.
4. Avoid rigid time lines and timed tests. Bright children may need a little longer to process deeply or to do what they consider a really good job. It's difficult to predict exactly how long a task might take.
5. Use interdisciplinary approaches, connecting one skill and subject to another. Growth in one area can trigger growth in others.
6. Accelerate learners in academic subjects if appropriate, but allow the child's inner fire and passion to guide natural acceleration, often out of school (Cohen, in press).

Principle 4. Enrich individual interests

Rather than meaningless, isolated exercises, skills can be developed through the interests and passions of the child. The preschooler who is avid about dinosaurs learns to read if she can glean information about them from books, trading cards, games, or the internet. A kindergartner learns to read to accomplish his goal of figuring out relationships among the baseball players on several teams in order to arrange stickers in a book. A child who wants to make a model colonial kitchen develops the research strategies to learn how such a kitchen looked, skills in working to scale, and techniques for constructing miniatures. A high school student concerned about pollution in the nearby creek needs to develop research methods to determine whether the creek is polluted and with what substances. She must come to understand the network of industrial, governmental, environmental, and social institutions that affect and are affected by any such findings and develop strategies for communicating her findings. Much more attention should be paid to

the long-term interests of children, as these are the means by which youngsters regulate themselves. To enrich individual interests:

- Provide opportunities to deeply explore areas of great interests and do original, creative work for autonomous development.
- Encourage students to become passionately interested in and fall in love with a topic.
- Support investigation of problems real to the child and help with the heuristics in such inquiries.
- Champion development of passionate interests. This encourages working in a purposeful way, putting forth great effort to learn, mastering a domain, and developing competence and expertise.
- Help students to become producers rather than consumers of information through pursuit of interests and investigations.
- Share interests with peers. For example, for primary age students, mount a photo of the child in the center on large construction paper and using three sizes of cut circles, surround the photo with drawings of their most important interests on the largest circles, and so forth, writing a sentence about each.
- Focus on long-term interests. These are the seeds of adult creativity. Learning skills through interests makes learning deeper and richer (Cohen & Gelbrich, 1999; Cohen, in press).

Importance of interests

The personality characteristics that most consistently differentiate young gifted children from average peers are early, intense interests and the perseverance, energy, and enthusiasm to pursue them (Janos & Robinson, 1985; Terman, 1925; Thorndike, 1939).

- Interests integrate experiences and resolve unconscious conflicts. They are based on deep disequilibria among the various systems.
- Interest patterns form around "center of action" where a question or problem arising among and between internal and external systems propels a quest. The internal systems include the universal

cognitive, non-universal cognitive, affective, purpose, perception, physical, intuitive, and spiritual. The external systems include the social, physical-environmental, cultural all influenced by chance (Cohen, 1998).

- There are six major interest themes, with most children having three as dominant. These are power/control, putting it all together, people/relationships, nature/nurture, aesthetic/expressive, and symbols and symbol systems (Cohen, 1998; Cohen & Gelbrich, 1999).

- Teaching to these interest themes by including a few outcome options that address one or more and allowing student choice is a way of ensuring motivation.

- According to Piaget (1970), all learning rests on interests. Interests are engaging because they help to restore equilibrium and energize activity. Interests control intellectual functioning, helping students build structures and wholes.

- When gifted students lose interest they may have too many constraints and adult influences; are trying to satisfy external requirements and find right answers rather than pursuing own questions; or they may have emotional or social issues that prevent autonomy and control or shut down the child.

Principle 5. Mediation, counseling, mentoring, facilitation from caring adults

Mediation is needed for learning, that is, support from more knowledgeable others who recognize where the learner is in a learning experience and what it takes to get to the next level. Mediators know how to help the child move to a higher plane, what Vygotsky (1978) described in his Zone of Proximal Development. Highly gifted and prodigious learners have teachers, parents, or mentors who encourage, coach, provide appropriate instruction and support, and introduce new topics and ideas. They get support for their emotional and social lives, their heightened sensitivity and overexciteabilities, and for coping

with issues and concerns (Cohen & Frydenberg, 1994; Cross, 2000; Peterson, 2008; Piechowski, 2006; Silverman, 1993; VanTassel-Baska, Cross & Olenchak, 2009). To this end:

1. Provide a classroom climate for optimizing potential that is safe for exploring and learning from mistakes.
2. Empower children to develop autonomy, a sense of independence, self-sufficiency, and control over their world.
3. Help students to deal with overexciteabilities and supersensitivity that often accompanies their abilities by talking about these qualities (see Piechowski, 2006; Silverman, 1993).
4. Model a growth mindset, rather than entity beliefs, helping learners to focus on working hard to accomplish their goals and praising effort and the learning process, rather than their products (Dweck, 1996).
5. Provide help to deal with peers and to prevent bullying or being bullied.
6. Teach coping skills and expand vocabulary and strategies for coping (Cohen & Frydenberg, 1996).
7. Encourage helping others through service learning.
8. Model ethical behavior and insist on it, ensuring justice for all. Support engendering of others' growth and development to help learners become socially sensitive, ethical human beings (Ambrose & Cross, 2009; Miller & Cohen, in press).

Principle 6. Tools for life-long learning

Students need to learn skills and heuristics that help them access, process, modify or transform and then share information, as well as skills that support use of time, organization, and self monitoring. Below are the tools for life-long learning that help in becoming adults who contribute to society through creative and productive efforts (Cohen, in press):

1. *Research skills:* For accessing information.
2. *Higher order thinking skills:* For processing information.
3. *Creativity skills:* For adapting, modifying, improving, or transforming information.
4. *Communication skills:* For sharing information.
5. *Study skills:* For organizing study and managing time.
6. *Metacognition skills:* For monitoring and controlling thinking and learning.
    Each of these tools will be briefly outlined below**.**

Research skills for accessing information

Students need to develop research skills to get at information and to interpret it. To locate and interpret data and to select useful and accurate sources from the multiple items that come up on internet searches is essential in this age of technology. They also need to develop research skills for scientific inquiry including those listed below, which apply to science and other subjects as well.

Table 2

Research skills for accessing information

Advanced library skills: computer searches use of data bases referencing systems	Scientific inquiry: observing inferring comparing classifying measuring predicting hypothesizing using heuristics controlling variables experimenting	Data interpretation skills: charts graphs maps simple statistics
Information technology: computer use, cameras and video, new technologies as they arise		An *attitude of inquiry*: openness and curiosity about the world

Higher order thinking skills for processing information

Too often, spilling back the facts has been the focus of education**.** To develop thinkers and problem solvers, students need to develop higher order thinking skills to process information, required for our rapidly changing, challenging world. These skills are described in Bloom's Taxonomy of Cognitive Domains (Bloom, 1956), its revisions (Anderson et al., 2001) and Guilford's Structure of Intellect (Guilford, 1967; Meeker, 1991). Other skills are included relative to reading instruction.

Table 3

Higher order thinking skills for processing information

Bloom/Anderson et al.	Guilford/Meeker	Reading
Knowledge (knowing, remembering) Understanding (comprehension) Applying Analyzing Evaluating/making decisions Creating (synthesizing)	*Operations:* Cognition, memory, convergent production, divergent production, evaluation. *Products*: Units, classes, relations, systems, transformations, implications. *Contents*: Visual, auditory, symbolic, semantic, behavioral.	Making inferences Getting the main idea Summarizing Making generalizations Finding themes

Creativity skills for adapting, modifying, transforming, or generating new ideas or products

Climate is crucial for creative work, where creative ideas are encouraged and the creator feels safe and supported by peers, teachers, and mentors. The skills below are derived from Guilford's (1967) divergent thinking, often cited characteristics of creative persons, and Gruber's (1988) findings on the eminent creators he studied (Darwin, Piaget).

Table 4

Creativity skills for modifying, transforming or generating new products/ideas

Divergent thinking	Characteristics	Gruber's findings
Fluency (number of ideas generated)	Curiosity	Working with purpose and passion
Flexibility (use of multiple categories)	Daring and taking risks	Use of metaphor
Originality (degree from the standard answer)	Imagining	Networks of enterprise
Elaboration (modification for improvement)	Cultural sensitivity Finding problems	Transformation of self and world

Communication skills for sharing information

Sharing in the present, bringing in ideas from the past, and linking these to the future are part of communication skills. The crafted world (Feldman & Goldsmith, 1990), things already known and available are brought to understandings in communicating from the past. Learning and working with others is central in communicating.

The communication skills for sharing information are:
- Listening and speaking;
- Reading;
- Writing;
- Reporting;
- Presenting;
- Other: Photography, radio & TV production, new media;
            Theater, visual arts, dance, body language;
            Foreign languages;
            Animal communication;
            Codes.

Study skills for organization and time management

To manage time and establish effective work habits, study skills need to be developed:

- Planning,
- effective use of time,
- understanding one's style(s) of learning,
- establishing habits,
- organizing,
- keeping notebooks and journals,
- becoming responsible.

Metacognitive skills to monitor and control thinking and learning

Becoming aware of one's thinking and becoming able to monitor and control it helps in becoming strategic as a learner, for example, monitoring time on a test and selecting effective answering strategies.

The metacognitive skills needed to monitor and control thinking are:
- To monitor what one knows and doesn't know;
- To recognize and use time and space considerations;
- To control thinking processes by:
    Planning and using a variety of strategies;
    Selecting appropriate strategies;
    Mode switching;
    Anticipating possibilities.

Conclusions

Teaching using the six simple rules or principles benefits gifted and talented students and can also benefit typically developing or low performing students, as instruction is tailored to the learner. It helps teachers to have these principles in mind, a big-picture perspective, when curriculum is ever increasing and nothing ever gets taken out.

A question is whether these principles imply a gifted education for all students. Currently, we look for only a very limited number of gifted students, typically only those with high intellectual abilities or high achievers in school subjects. We need to look for children of disadvantage and should make school so exciting and wonderful that the poorest child decides to become a doctor, chemist, or historian (Kozol, 1991). By starting with strengths, we can find gifts in all students. Imagine how much more productive children feel when their strengths are discovered as opposed to looking at them as needing a dose of medicine to cure their weaknesses. Let us switch to a strength-based model rather than a medicinal model! Using these six principles helps.

At issue is whether education should be the gift. I am not advocating cutting programs for the gifted; far from it, under current circumstances. But I do advocate using the many strategies and these six curriculum principles from our field for teaching all children. This requires investment in our nations' futures by focusing on our greatest natural resource: our children, and the type of education they receive in schools. Perhaps by simplifying instruction based on these six principles, we can provide better opportunities for all the able learners in these complex times.

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