

Wisconsin Association ★

WATG

★ for Talented & Gifted

Creativity Guide 2010






Wisconsin Association for Talented and Gifted
Creativity Resource Guide

A first step in understanding the skill and capacity to see something new.

This guide is a working document and should be considered an emerging resource for the conversation and actions necessary to nurture creativity. Your perspective is welcome to keep this initiative moving forward. We invite your feedback, suggestions, additions, and especially your sharing of the resources that have worked for you in providing services to foster creativity in our youth.

Please send your ideas and submissions to watg@watg.org
Updates will be posted on the WATG web site as they become available.
http://www.watg.org

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Chapter 1: Creativity and 21st Century Skills

"Education is meant to take us into a future we cannot grasp." - Sir Ken Robinson

To prepare young people for work and life in the 21st century, educators must cultivate students' creativity. Creativity, ingenuity, and innovation are the keys to success in the evolving global economy. Many of the fastest-growing jobs and emerging industries rely on workers' creative capacity – the ability to think unconventionally, question the herd, imagine new scenarios, and produce astonishing work.

Daniel Pink, in his book "A Whole New Mind," writes "I argue that routine, rule-based, "left brain" abilities, such as simple accounting, basic computer programming, and so forth, have become easy to outsource and easy to automate. That makes abilities that are hard to send overseas or reduce to software. That is, you can't reduce life and work to script, a formula, an algorithm or a series of steps that lead to a correct answer. It's multi-disciplinary. It involves elements of design, empathy, and symphonic thinking. It's self-directed rather than 'managed.' And it's animated by a sense of purpose. Creativity is threaded through the entire fabric. If you look at the work and the abilities that are disappearing, or at least becoming less important, they're the antithesis of creativity – routine, rule-based, single discipline, and managed. The defining work of the 21st century is conceptual, empathic, and big picture."

Therefore, students must learn how to imagine the unimaginable and hone their creative skills. Educators can effectively implement strategies in their daily teaching to help students tap into their creativity. Creativity is at the heart of problem-solving; by giving young people permission to explore and make mistakes, they can develop the power to establish these creative habits. Creative exercises should not be confined to disciplines such as music and art. When actively engaging students in challenging tasks, they can produce impressive work. Excellent teaching is creative teaching, but creative in a special way: responsive, opportunistic, and improvised. Good teachers improvise *with* their students, guiding their students and yet being guided by them.

"The 21st century isn't coming; it's already here.... Public schools must prepare our young people to understand and address global issues, and educators must re-examine their teaching strategies and curriculum so that all students can thrive in this global and interdependent society." - Dennis Van Roekel, president, **National Education Association**, April 2010

There are a spectrum of templates that have been developed by education experts and curriculum designers through the International Society for Technology in Education (ISTE). They include the National Education Technology Standards for Students (NETS-S), and those for Teachers (NETS-T). These standards are a top-line entrée into the realm of 21st-century skills.

The Partnership for 21st Century Skills offers the Framework for 21st Century Learning as a model for developing the skills students will need for our future. Included are the following skills for Creativity and Innovation:

Think Creatively

- Use a wide range of idea creation techniques (such as brainstorming)
- Create new and worthwhile ideas (both incremental and radical concepts)
- Elaborate, refine, analyze, and evaluate their own ideas in order to improve and maximize creative efforts

Work Creatively with Others

- Develop, implement, and communicate new ideas to others effectively
- Be open and responsive to new and diverse perspectives; incorporate group input and feedback into the work
- Demonstrate originality and inventiveness in work and understand the real world limits to adopting new ideas
- View failure as an opportunity to learn; understand that creativity and innovation is a long-term, cyclical process of small successes and frequent mistakes

Implement Innovations

- Act on creative ideas to make a tangible and useful contribution to the field in which the innovation will occur

"There is always one moment in childhood when the door opens and lets the future in." - Graham Greene

A 2010 article in *Newsweek*, "The Creativity Crisis," points out the urgent need to address creativity throughout the curriculum. An excerpt from the article:

> Like intelligence tests, Torrance's test – a 90-minute series of discrete tasks, administered by a psychologist – has been taken by millions worldwide in 50 languages. Yet there is one crucial difference between IQ and CQ scores. With intelligence, there is a phenomenon called the Flynn effect – each generation, scores go up about 10 points. Enriched environments are making kids smarter. With creativity, a reverse trend has just been identified and is being reported for the first time here: American creativity scores are falling.
>
> Kyung Hee Kim at the College of William & Mary discovered this in May, after analyzing almost 300,000 Torrance scores of children and adults. Kim found creativity scores had been steadily rising, just like IQ scores, until 1990. Since then, creativity scores have consistently inched downward. "It's very clear, and the

Creativity is our birthright. It is an integral part of being human.

> decrease is very significant," Kim says. It is the scores of younger children in America – from kindergarten through sixth grade – for whom the decline is "most serious."
>
> The potential consequences are sweeping. The necessity of human ingenuity is undisputed. A recent IBM poll of 1,500 CEOs identified creativity as the No. 1 "leadership competency" of the future. Yet it's not just about sustaining our nation's economic growth. All around us are matters of national and international importance that are crying out for creative solutions, from saving the Gulf of Mexico to bringing peace to Afghanistan to delivering health care. Such solutions emerge from a healthy marketplace of ideas, sustained by a populace constantly contributing original ideas and receptive to the ideas of others.

In the article, Po Bronson and Ashley Merryman site the importance of project-based learning through applications such as the Creative Problem Solving model. "The good news is that creativity training that aligns with the new science works surprisingly well. The University of Oklahoma, the University of Georgia, and Taiwan's National Chengchi University each independently conducted a large-scale analysis of such programs. All three teams of scholars concluded that creativity training can have a strong effect. 'Creativity can be taught,' says James C. Kaufman, professor at California State University, San Bernardino."

John Loori eloquently summarizes the importance of creativity. "Creativity is our birthright. It is an integral part of being human, as basic as walking, talking, and thinking. Throughout our evolution as a species, it has sparked innovations in science, beauty in the arts, and revelation in religion. Every human life contains it seeds and is constantly manifesting it, whether we're building a sand castle, preparing Sunday dinner, painting a canvas, walking through the woods, or programming a computer. The creative process, like a spiritual journey, is intuitive, non-linear, and experiential. It points toward our essential nature, which is a reflection of the boundless creativity of the universe."

Sir Ken Robinson notes "Creativity is as important to education as literacy, and we should treat it with the same status."

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Chapter 2: Characteristics of the Creatively Gifted Child

"A creative person entertains unexpected ideas and is able to see multiple sides of complicated issues without becoming paralyzed" - Nancy Robinson

The National Association for Gifted Children defines creativity as the "process of developing new, uncommon, or unique ideas." Creativity is identified as a specific component of giftedness in the federal definition of giftedness.

Creativity may be somewhat challenging to define and measure, as – like intelligence – there are many ways in which it can be viewed. Some definitions of the creative stretch to those who invoke a paradigm shift in a given area; other definitions see everyone as creative. While creatively gifted and talented youth may excel in the visual or performing arts, creativity manifests itself in far broader realms such as science, history, language, engineering, and more.

Barbara Clark noted that a creatively gifted child may demonstrate certain traits during classroom instruction, such as being self-disciplined, having a zany sense of humor, being able to resist group pressure, and exhibiting adaptability. Creative children are likely to have a flexible thought process and are able to delay closure. The child who is adventurous, has a tolerance for ambiguity, a preference for complexity, asymmetry, open-endedness, divergent thinking, and attention to detail is likely to be creative. Creative children highly value time to reflect, interpret, and create.

Gary Davis developed 12 characteristic categories as representative of creative individuals: original, independent, risk taking, aware of creativeness, energetic, curious, has a sense of humor, attracted to complexity, artistic, open-minded, needs time alone, and intuitive.

It is said that the only constant is change, and that certainly plays out in creative pursuits. Mervin Lynch and Carol Harris state, "Creativity is change because it reflects originality, and originality, by definition, is always new. Like the children in our charge who grow day by day, reaching for new things, discovering new powers, creativity shifts and changes. A mysterious source present in all human beings, creativity in the growing child attains new depths and reaches greater heights with each nurturing touch."

James Moran notes that although different children may have differing levels of creativity, all children "exhibit behaviors which evidence the potential for creativity. Creativity is essentially a form of problem-solving. But it is a special type of problem solving – one that involves problems for which there are no easy answers: that is, problems for which popular or conventional responses do not work. Creativity involves adaptability and flexibility of thought."

Researcher Paul Torrance uses multiple characteristics in his Torrance Tests of Creativity, which concentrate on originality, fluency, elaboration, resistance to closure, imagination, synthesis, and divergent thinking.

Moran notes, "Creativity goes beyond possession and use of artistic or musical talent. In this context, talent refers to the possession of a high degree of technical skill in a specialized area. Thus an artist may have wonderful technical skills, but may not succeed in evoking the emotional response that makes the viewer feel that a painting, for example, is unique. It is important to keep in mind that creativity is evidenced not only in music, art, or writing, but throughout the curriculum, in science, social studies, and other areas. Most measures of children's creativity have focused on ideational fluency. Ideational fluency tasks require children to generate as many responses as they can to a particular stimulus, as is done in brainstorming. Ideational fluency is generally considered to be a critical feature of the creative process. Children's responses may be either popular or original, with the latter considered evidence of creative potential. Thus when we ask four-year-olds to tell us 'all the things they can think of that are red,' we find that children not only list wagons, apples and cardinals, but also chicken pox and cold hands."

The research of Mervin Lynch and Carol Harris reveal interesting characteristics associated with creatively gifted children. "The creative child may operate under higher levels of anxiety and self-esteem than other children." Thus, while anxiety may hinder performance, self-esteem may help compensate for this to achieve balance. Creative children "may also demand a greater freedom of choice and openness to encounter." More so than for other children, a greater reliance on his or her own ideas may exist for the creative child, along with being "more motivated toward and preoccupied with communicating his or her ideas with others." Citing the work of Barron, "whereas the creative person challenges others in a rebellious fashion, he or she will still be motivated by social acceptance of his or her products." Sternberg's work finds that the creative person may have "a strong desire and willingness to work for recognition."

In reference to perceived rebelliousness and risk-taking associated with creativity, Lynch and Harris found that "Creative children likely exhibit similar forms of rebellion in the educational setting and this behavior brings the creative child into direct conflict with the authoritarian and more regimented teachers and school administrators." It is likely that highly creative children will "exhibit this tendency toward thrill-seeking or risk-taking behavior." This risk-taking behavior "was especially prevalent among successful scientists." Based on Sternberg's work, Lynch and Harris found that "Creative persons will have higher levels of risk-taking behavior but that they will have a sense of acceptable levels of risk."

Creative children highly value time to reflect, interpret, and create.

Creative children may set unique goals and definitions of success, according to Levin & Greenwald. "Creative students tend to be intensely inner-directed and unconventional. They are much more likely to comply to the idiosyncratic standards they have internalized than to any social construction. Creative children generally refuse to be pushed around by what other people think."

Alexinia Baldwin's research on creativity in African American students reveals some common characteristics and indicators that reflect creative traits, such as:

1. Language rich in imagery, humor, symbolism, and persuasion.
2. Logical reasoning, planning ability, and pragmatic problem-solving ability.
3. Sensitivity and alertness to movement.
4. Resiliency to hardships encountered in the environment.

Using these traits, Baldwin suggests building on "appropriate classroom activities that can (1) develop new ideas through many mediums, (2) become a catalyst for enhancing academic weaknesses, (3) be a means for developing leadership skills, and (4) promote a positive self-concept." Baldwin notes the research of Starko, who outlined traits in African American students that may include strengths in metaphoric thinking, visualization, and finding order in complexity.

Torrance's work on creativity has led to working with a variety of minority students, and Baldwin reports the following positives outlined by Torrance:

1. Ability to express feelings and emotions
2. Ability to improvise with commonplace materials
3. Articulateness in role playing and story telling
4. Enjoyment and ability in visual art; drawing, painting, sculpture, etc.
5. Enjoyment of and ability in creative movement, dance, dramatics, etc.
6. Enjoyment of and ability in music, rhythm, etc.
7. Expressive speech
8. Fluency and flexibility in non-verbal media
9. Enjoyment of and skills in group activities, problem solving, etc.
10. Responsiveness to the concrete
11. Responsiveness to the kinesthetic
12. Expressiveness of gesture, "body language," etc.
13. Humor
14. Richness in imagery in informal language
15. Originality of ideas in problem solving
16. Problem-centeredness
17. Emotional responsiveness
18. Quickness of warm-up

Baldwin also referenced the work of Runco, who suggests the following guidelines for use with under-represented populations of gifted students:

- Avoid relying on verbal materials; use a variety of materials; tap various domains (e.g. music, crafts, mathematics, language arts, physical education).
- Avoid relying on verbal rewards. Concrete reinforcement may be best.
- Avoid over-emphasizing structure.
- Ask questions that allow students to follow their own potentially divergent logic and thinking, even if unpredictable.
- Plan to follow students' interests part of each day.
- Avoid prejudging students who are nonconforming and students who find their

own way of doing things.
- Avoid suggesting (even implicitly) that your own way of doing something is the best or only way.
- Avoid going overboard-strive for a balance between structured and unstructured tasks, between independence and working in small groups, between rich and open stimulus environments, and between convergent and divergent tasks.
- Allow independent work, and not just where it is easy.
- Discuss creativity with students: tell them why it is valuable. Be explicit about how and when to be original, flexible, and independent.
- Monitor your expectations.
- Recognize the multifaceted nature of creativity.
- Recognize that creativity is a sign of and contributor to psychological health.
- Work to appreciate what children find for themselves.
- Inform parents of what you are doing and why.

Some creative students are late bloomers who may not be "seen as gifted when they are children, but go on to make a creative contribution as adults, if and when they discover a field of particular interest," notes Jack Levin and Nina Greenwald, based on their study of Ellen Winner's work. "As young children, potential late bloomers may show great curiosity, unusual interests, a willingness to take risks, and a tendency toward nonconformity – but they hardly appear to be the talented individuals they eventually become." Later, as young adults, they may find their passion as talents are encouraged and confidence is reinforced.

High Achiever, Gifted Learner, Creative Thinker

Bertie Kingore is known for developing a profile chart that builds on the work of Janice Szabos and helps distinguish between students who are high achievers, gifted learners, or creative thinkers (see next page for chart). The columns are not meant to be exclusive, as some students may possess characteristics from different columns, while others may tend to be more singular in their profile. The descriptors offer a basis for discussion as well as offer a tool to use with teachers and parents when discussing the profile of various types of learners.

Creativity manifests itself in far broader realms such as science, history, language, engineering, and more.

A High Achiever...	A Gifted Learner...	A Creative Thinker...
Remembers the answers.	Poses unforeseen questions.	Sees exceptions.
Is interested.	Is curious.	Wonders.
Is attentive.	Is selectively mentally engaged.	Daydreams; may seem off task.
Generates advanced ideas.	Generates complex, abstract ideas.	Overflows with ideas, many of which will never be developed.
Works hard to achieve.	Knows without working hard.	Plays with ideas and concepts.
Answer the questions in detail.	Ponders with depth and multiple perspectives.	Injects new possibilities.
Performs at the top of the group.	Is beyond the group.	Is in own group.
Responds with interest and opinions.	Exhibits feelings and opinions from multiple perspectives.	Shares bizarre, sometimes conflicting opinions.
Learns with ease.	Already knows.	Questions: What if...
Needs 6 to 8 repetitions to master.	Needs 1 to 3 repetitions to master.	Questions the need for mastery.
Comprehends at a high level.	Comprehends in-depth, complex ideas.	Overflows with ideas – many of which will never be developed.
Enjoys the company of age peers.	Prefers the company of intellectual peers.	Prefers the company of creative peers but often works alone.
Understands complex, abstract humor.	Creates complex, abstract humor.	Relishes wild, off-the-wall humor.
Grasps the meaning.	Infers and connects concepts.	Makes mental leaps: Aha!
Completes assignments on time.	Initiates projects and extensions of assignments.	Initiates more projects that will ever be completed.
Is receptive.	Is intense.	Is original and continually developing.
Is accurate and complete.	Is original and continually developing.	Is original and continually developing.
Enjoys school often.	Enjoys self-directed learning.	Enjoys creating.
Absorbs information.	Manipulates information.	Improvises.
Is a technician with expertise in a field.	Is an expert who abstracts beyond the field.	Is an inventor and idea generator.
Memorizes well.	Guesses and infers well.	Creates and brainstorms well.
Is highly alert and observant.	Anticipates and relates observations.	Is intuitive.
Is pleased with own learning.	Is self-critical.	Is never finished with possibilities.
Gets A's.	May not be motivated by grades.	May not be motivated by grades.
Is able.	Is intellectual.	Is idiosyncratic.

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Chapter 3: Identifying the Creatively Gifted Child

"Creativity is best judged by products of individuals and groups that are both original and relevant to one's culture at a given point in time." - Joyce VanTassel-Baska

Generating original ideas may be seen as the basis of creative potential, and thus it is helpful to exercise potential through the active process of creativity, emphasizing process over product for young children. Creativity exists not only in the development process, but when original, high quality, and genuinely significant products are developed.

Bertie Kingore, known for her "High Achievers, Gifted Learners, or Creative Thinkers" chart (see Chapter 2) states that "Identification of gifted students is clouded when concerned adults misinterpret high achievement as giftedness. High-achieving students are noticed for their on-time, neat, well-developed, and correct learning products. Adults comment on these students' consistent high grades and note how well they acclimate to class procedures and discussions. Some adults assume these students are gifted because their school-appropriate behaviors and products surface above the typical responses of grade-level students."

Generally, judging creativity using completed products after time has passed yields accurate assessment of creativity. The challenge then comes in predicting who will be creative in adulthood using traits and behaviors manifested in children.

"It is important to recognize that levels of creative talent differ between and among individuals and at different times and stages in their development," notes John Feldhusen. "A fourth grader may exhibit talent strength in dramatics but far less than a high school student who has taken several courses in acting. Thus, at any given point in time a creative talent may be emerging, growing in the individual."

As with any area of identification in the field of Gifted Education, multiple sources and input for identification are a best practice and likely to yield more effective results.

Jane Piirto encourages teachers to "try to notice and be sensitive to the situations of the children you teach. Don't be under the impression that a child will not be creative because he is poor or disheveled." The life situations that families and children struggle through might in fact result in creative solutions or resolutions.

Dennis Hocevar suggests that peer nominations, supervisor ratings, teacher nominations, and judgments of products may be "inadequate indicators of creativity due to the rater's inability to discriminate creativity from other traits. Divergent thinking, biographical characteristics, attitudes and interests, and personality characteristics are best described only as correlates of real life creative behavior, and they should not be taken as direct measures of creativity." Hocevar recommends "a simple and straightforward inventory of creative achievements and activities." Hocevar's research focused on older students and adults, but provides food for thought.

Among published tests of creativity, two seem most popular; those from Paul Torrance and those from Sylvia Rimm.

The Torrance Tests of Creative Thinking require examinees to reflect on their life experiences. Examinees draw and give a title to their drawings or write questions, reasons, consequences and different uses for objects. Published in two equivalent forms, Forms A and B, the Figural and Verbal TTCT can be used for pre- and post testing.

The Figural TTCT: *Thinking Creatively with Pictures*

The Figural TTCT: Thinking Creatively with Pictures is for kindergarten through adult and requires 30 minutes of working time to administer. It uses three picture-based exercises to assess five mental characteristics: fluency, elaboration, originality, resistance to premature closure, and abstractness of titles.

The Figural TTCT can be scored locally or by STS. Scoring provides standardized scores for the mental characteristics listed above as well as for the following creative strengths:

- emotional expressiveness
- storytelling articulateness
- movement or action
- expressiveness of titles
- synthesis of incomplete figures
- synthesis of lines or circles
- unusual visualization
- internal visualization
- extending or breaking boundaries
- humor
- richness of imagery
- colorfulness of imagery
- fantasy

Two different norm types are available: grade-related norms and age-related norms. Grade-related norms use one set of norms for each of the grades for which the test is appropriate, including the adult level. Age-related norms are based on the typical age for each of the grades in which the Figural TTCT may be used. The Figural TTCT is also available in Spanish

The Figural TTCT Norms-Technical Manual includes national norm tables with standard scores and national percentiles by grade and age for each score area. The tables also show national percentiles for average standard scores, as well as a creativity index developed from the five standardized scores and thirteen creative strengths. The Manual and a Streamlined Scoring Guide are required for local scoring.

At any given point in time, a creative talent may be emerging, growing in the individual.

Verbal TTCT: ***Thinking Creatively with Words***

Appropriate for first graders through adults, the Verbal TTCT: Thinking Creatively with Words uses six word-based exercises to assess three mental characteristics: fluency, flexibility, and originality. These exercises provide opportunities to ask questions, to improve products, and to "just suppose."

The Verbal TTCT can be scored locally or by STS. If a school chooses to score the test locally, the Manual for Scoring and Interpreting Results provides an easy-to-use scoring method. The Verbal TTCT uses one set of grade-related norms for each of the grades that is age appropriate, including the adult level. Age-related norms are based on the typical age for each of the grades in which the Verbal TTCT may be used. They range from age six to eighteen years and beyond.

Required for local scoring, the Verbal Norms-Technical Manual includes national norm tables with standard scores and national percentiles by grade and age for each score area. Both manuals are required for local scoring.

Dr. Rimm's tests of creativity, the GIFT, GIFFI, and PRIDE, are companion instruments for screening students in the area of creativity. Results are reported in terms of percentile scores and stanines. Dr. Rimm's tests include scoring services and administration manual.

Both GIFT and GIFFI have been normed with rural, urban, and suburban students; are culturally fair; have specific reliability established for African-American, Hispanic, and Native American student groups; and identify creativity in both achieving and underachieving students.

GIFT (Group Inventory for Finding Talent)

GIFT was developed by Dr. Rimm to provide an instrument for use in screening elementary school students for inclusion in creatively gifted programs. Factor analysis was performed with GIFT. Scores for each factor or dimension are included as part of the computer scoring service. Dimension scores are reported as stanines. Dimensions are *Many Interests, Independence, and Imagination:*

> **Many Interests:** High scorers are interested in art, writing, learning about life long ago and in other countries, and enjoy many hobbies. Low scorers have few interests and hobbies.
>
> **Independence:** High scorers enjoy aloneness. They prefer challenge and are not afraid to be different than their peers. Low scorers prefer being with others instead of being alone, give up tasks easily, and are not likely to try new activities.
>
> **Imagination:** High scorers are curious, and enjoy questioning, make believe, and humor. Low scorers are more literal and realistic and less curious.

The GIFT is available in English or Spanish at three different levels: Primary for Grades K-2, Elementary for Graces 3-4, and Upper Elementary for Grades 5-6.

GIFFI (Group Inventory For Finding Interests)

GIFFI can be used to identify students at middle and high school levels with attitudes and values associated with creativity.

Factor analysis was performed with both GIFFI I and GIFFI II. Scores for each factor or dimension are included as part of the computer scoring service. Dimension scores are reported as stanines. Dimensions include *Creative Art and Writing, Many Interests, Confidence, Challenge-Inventiveness, and Imagination:*

Creative Writing & Arts: High scorers enjoy creative arts, stories, poetry, and music. Low scorers do not enjoy involvement in the arts.

Challenge-Inventiveness: High scorers are risk takers. They enjoy difficult tasks and inventing and thinking of new ideas. Low scorers tend not to persevere and prefer easier tasks with less risk.

Confidence: High scorers find school easy and believe they have good ideas. They are more independent from peer pressure and willing to try new opportunities. Low scorers have a poorer self-image and find it important to be like their peers.

Imagination: High scorers are curious, and enjoy questioning, aloneness, and travel. They like new and imaginary ideas. Low scorers are more literal and realistic, and less curious.

Many Interests: High scorers have many hobbies and are interested in drama, literature, life in other countries, the past, the future, and many other topics. Low scorers have few interests and hobbies.

Include a portfolio of creative artifacts or products.

The GIFFI is available in English or Spanish at two different levels: Junior High for Grades 6-9, and Senior High for Grades 9-12.

PRIDE (Preschool and Kindergarten Interest Descriptor)

PRIDE is a parent report inventory developed by Dr. Rimm to identify creative characteristics as they are displayed in children ages 3-6 years old. Dimensions include *Many Interests, Originality, Imagination-Playfulness, and Independence-Perseverance.*

WATG has developed several tools to help with the identification of the Creatively Gifted Child. These tools are designed to help nominate a child for creative talent, gather feedback on indicators of creativity from people who know the child, and cast a wide net of screening creative children. As with any process of identification, it is important to use multiple criteria, and to include a portfolio of creative artifacts or products. Recognizing that some creativity may manifest itself in non-traditional ways, it is helpful to look at creativity in its various guises. Awareness of how creativity is expressed by students from under-represented populations (including diverse socio-economic backgrounds, ethnicity, or those designated as "twice exceptional") will lead to more inclusive identification and servicing of creative children.

As different communities and school districts may have unique needs, the variety and balance of identification tools chosen should reflect those needs. To further individualize the tools developed by WATG, the forms are available formatted in Microsoft Word on the WATG website. Once downloaded, they can be modified as appropriate to your situation. The forms are also available in Adobe pdf format to maintain their original format.

Nomination for Creative Talent: This form is designed to be completed by a parent, guardian, or other adult who has knowledge of a student's creativity and wants to nominate the child for services. The information shared can be helpful in determining what types of services might be a match for the child. These might be services within school, or it may be helpful to let parents and guardians know of opportunities outside of school that foster creativity.

Indicators of Potential Creative Talent: These three tools are used to gather more detailed information from those who know a child. One form is to be completed by parent or guardian as well as the student. A separate form is designed to gather information from peers of the student, and the third is to be used by teachers of the student. The information will be helpful in documenting which areas of involvement exist – and to what degree – for the student.

Indicators of Potential Creative Talent Teacher Jot Down Form: The jot down form is used to screen the whole population of a school with teacher use throughout the grade levels. Sixteen descriptors of creative characteristics are noted in boxes. Teachers keep the tool handy for a month, and as that behavior is demonstrated, the student's name is written in the box. Subsequent observations of that behavior can be noted by a tally mark following the student's name. Forms are turned in to the GT coordinator who documents the data. By doing this school-wide during a given month each year (such as November or March) longitudinal data can be gathered, establishing the potential to see patterns or trends.

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Nomination for Creative Talent

Student Name: _____ Grade: ____ School: _____
Teacher Name: _____ Today's Date: _____
Parent(s)/Guardian(s) Names: _____
Name of Nominator: _____
Nominator's Relationship to Student:_____
Nominator Contact Information:_____
Student Home Phone: _____ Work Phone: Mother:_____
Parent E-mail: _____ Work Phone: Father:_____

Continue on the back for any questions if needed.

1. In what creative applications does the student display unusual talent? Please give an example for each area.

2. Please share a brief account of the student's attitude toward creative opportunities.

3. What are the student's learning needs in creative aspects as you see them?

4. Please list the creative activities in which the student is involved in, either in or outside of school.

5. Please list any school district personnel you have talked with in the past year regarding the student's creative abilities and needs.

FOR OFFICE USE Date Received: _____/_____/_____
Copies to:
Teacher: _____ Building Principal: _____
Gifted/Talented Coordinator: _____ School Counselor: _____

PLEASE RETURN THIS FORM TO THE SCHOOL OFFICE

Indicators of Potential Creative Talent

Peer Information Form

Name of person you are writing about _____

Your name _____ Date_____

How do you know this student? _____

How long have you known this student? _____

Please check the responses below that apply to this student:

☐ Spends free time doing creative activities

☐ Easily comes up with unique, unusual, or interesting ideas

☐ Enjoys making up games, art, music, ideas, or unique products

☐ No matter what the situation, student usually has a plan

☐ Always thinks of something to do; hardly ever "bored"

☐ Thinks quickly and adapts to changes

☐ Concentrates or stays focused when doing creative activities

☐ Chooses unusual clothes, music, hobbies, books, interests, etc.

What creative activities do you know about that the student participates in?

_____

_____

_____

_____

Why do you think this student is creative?

_____

_____

_____

_____

_____

Return this form to: _____

By Date: _____

Indicators of Potential Creative Talent

Parent/Student Information Form

Student Name_____ Age _____ Grade_____
Student Address_____
City _____ State _____ Zip_____
Parent Name _____ Date_____
Phone (H) _____ (W)_____

Part A (To be completed by the parent or guardian)
We want to learn what your child is doing outside of school, and what types of creative activities or interests you have observed at home. Please check the number that you feel most closely represents how often you observe your child in the following activities:

1 seldom or never 2 occasionally 3 frequently 4 almost always

My child demonstrates:	**1**	**2**	**3**	**4**
A sense of humor				
The ability to come up with unusual, unique, or clever responses				
An adventurous spirit or willingness to take risks				
The ability to generate a large number of ideas or solutions to problems or questions				
The ability to adapt, improve, or modify objects or ideas				
Intellectual playfulness, a willingness to fantasize and manipulate ideas				
Enjoys spending free time in creative pursuits				
Shows focused concentration when doing creative activities				
Is self-motivated to spend time and effort on creative activities				

Describe creative activities your son/daughter enjoys outside of school, including church or community groups, lessons, family activities, etc:

_____
_____
_____
_____
_____

Please give a specific example for each statement that you rated a 4 above:

_____
_____
_____
_____
_____
_____

Part B (To be completed by the student)

Student Name_____ Age _____ Grade_____

Please check the responses below that apply to you:

☐ I am comfortable being different from other kids.

☐ I enjoy making up products or projects that are different or unusual.

☐ I like to create music, art, poetry, projects, and things.

☐ I like to experiment with and try new things.

☐ I think I am good at coming up with new, unique, or unusual ideas and products.

☐ I can think of many different ways to do something.

☐ I am currently involved in creative activities outside of school (theater, music, art, teams, writing, etc.).

What creative activities do you like?

_____
_____
_____
_____
_____
_____
_____

Describe what you like best about the creative things you do.

_____
_____
_____
_____
_____
_____
_____

Send completed form to:

Name: _____

Address: _____

For more information please call: _____

Indicators of Creative Talent

Observation Rating Scale for Teachers

Student Name _____ Age _____ Grade _____

School _____ Type of Class: _____

Person completing form _____ Title: _____

You have known student _____ years _____ months Date: _____

Please indicate how often the student listed above has shown the following behaviors by checking the appropriate number.

1	2	3	4
seldom or never	occasionally	frequently	almost always

Characteristics	***Evidence (please comment)***	**1**	**2**	**3**	**4**
Comes up with unusual, unique, or clever responses					
Keenly aware of possibilities					
Thinks with focused concentration					
Does not fear being different					
Creative Interpretation	***Evidence (please comment)***	**1**	**2**	**3**	**4**
Extends, manipulates, and experiments with ideas and products					
Responds to aesthetic qualities spontaneously & creatively					
Imaginative in expressing, shaping, and refining ideas					
Revises ideas thoughtfully and perceptively					

Please give a specific example for each statement that you rated a 4 above:

Behavior and Performance	***Evidence (please comment)***	**1**	**2**	**3**	**4**
Demonstrates adventurous spirit or willingness to take risks					
Demonstrates willingness to improve products					
No matter the situation, student has a plan					
Generates a large number of solutions to problems or questions					
Intensity	***Evidence (please comment)***	**1**	**2**	**3**	**4**
Is reluctant to or has difficulty transitioning away from a creative task					
Self-motivated; works independently on creative activities					
Critiques and refines ideas and products					
Shows persistence and perseverance in creative tasks; may be resistant to collaborate					
	Add Column Total				
	Multiply By Weight	1	2	3	4
	Add Weighted Column Total				
	Scale Total				

Please give a specific example for each statement that you rated a 4 above:

Please add any additional comments describing specific strengths or weaknesses of this student that would be helpful in determining the potential creative talent of this student:

Indicators of Potential Creative Talent

Teacher Jot Down Form

For a class: As students in your class show evidence of the following characteristics, jot names in the boxes; add tallies for additional observations.

CHARACTERISTICS	CREATIVE INTERPRETATION	BEHAVIOR/PERFORMANCE	INTENSITY
Comes up with unusual, unique, or clever responses	Extends, manipulates, experiments with ideas and products	Demonstrates adventurous spirit or willingness to take risks	Is reluctant to or has difficulty transitioning away from a creative task
Keenly aware of possibilities	Responds to aesthetic qualities spontaneously & creatively	Demonstrates willingness to improve products	Self-motivated; works independently on creative activities
Thinks with focused concentration	Imaginative in expressing, shaping, and refining ideas	No matter the situation, student has a plan	Critiques/refines ideas and products
Does not fear being different	Revises ideas thoughtfully and perceptively	Generates a large number of solutions to problems or questions	Shows persistence and perseverance in creative tasks; may be resistant to collaborate

Chapter 4: An Overview of Creativity Theory

"Creativity is a basic human instinct to make something new." - Jane Piirto

A Summary from *Understanding Those Who Create 2nd Edition*, Chapter One, by Jane Piirto Ph.D.

A wide range of definitions exists for the concept of creativity. The simplest state that creativity is an ability and the making of something new. Oates wrote, "Creative activity is the desire to complete work to perfection." Subotnik agreed, "Masters of creativity devote years of creative energy and disciplined practice to the perfection of their skills and productive ideas." Gruber elaborated by saying, "creativity is the work of a lifetime, and not a moment of 'Aha!' It is a process of insight and motivation, not a flash of lightning." In keeping with his other studies, Gardner believes, "Creativity is an aspect of each of the eight intelligences. The creative person solves problems, fashions products, or poses new questions within a domain in a way that is initially considered to be unusual but is eventually accepted."

The link between creativity and giftedness is also a matter of debate. Piirto wrote, "Confusion exists when creativity is separated out from giftedness as a special 'type' rather than a necessary aspect of all giftedness." Renzulli included creativity in the definition of giftedness, "Giftedness is above average intelligence, creativity, and task commitment." Feldman laid out the differences clearly:

1. Giftedness is achieving advanced mastery within a domain.
2. Creativity is extending mastery to find new meaning in the domain.
3. Genius is remaking the domain so everyone has to think in new ways.

Studies of creative adults have revealed certain characteristics of creativity. Creative people repeat their discoveries in different varieties that reveal minute distinctions. Creative people have a network of enterprises; that is, they work on many related things at once. Creators have extensive systems that they delineate, often visually. Creative people in their youth make "initial sketches" of later works, a type of foreshadowing. Piirto identifies six facets of creativity:

1. Creative intelligence
2. Specific knowledge in a domain
3. Certain style of mind
4. Certain aspects of personality
5. Motivation
6. Nurturing Environment

The study of how scientists and technicians work revealed unique traits that mirror qualities of creative people. This style of approaching a problem is called Divergent Production. The traits of divergent production are:

1. Fluency – many ideas
2. Novelty – new ideas
3. Flexibility – ease of change

4. Synthesizing ability – combining unlike ideas
5. Analyzing ability – recognizing large, more inclusive patterns
6. Reorganization – redefinition of already existing ideas.
7. Degree of complexity – interrelated ideas
8. Evaluation – must have restraint

Convergent Intellect: Emphasizes what is known and exists, and saves information.
Divergent Intellect: Revises what is known, what will be, and builds new information.

"Creative Flow" is a state of being that encourages creativity; when a person's mind is stretched to its limits in a voluntary effort to accomplish something difficult and worthwhile. The 9 Elements of "Creative Flow" include:

1. Clear goals
2. Immediate feedback
3. Balance between challenges and skills
4. Action and awareness merged
5. Distraction excluded from consciousness
6. No worry of failure
7. Self-consciousness disappears
8. Sense of time is distorted
9. Activity becomes an end in itself

The core of creative process is solitude.

During the creative process, the creative person does the following:

1. Notices opportunities
2. Notices flaws in thinking
3. Directs the memory to select pertinent information
4. Notices the critical reactions of others and himself while the work is in process, and forms judgment based on those reactions
5. Looks at the work in progress with certain criteria in mind
6. Sets the work aside for awhile and comes back to it
7. Makes long searches for options during the process, as each option is tried out, such as narrowing down or opening up for new options
8. Is familiar with the patterns and nuances of the field
9. Can find new and challenging creative problems to work on

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Chapter 5: Teaching the Creatively Gifted Child

"Creativity is as important to education as literacy and we should treat it with the same status. We don't grow into creativity, we grow out of it, or rather, we are educated out of it." - Sir Ken Robinson

Kingore discussed that high achievers are valuable participants whose high-level modeling is welcomed in classes, but highlights that "they learn differently from gifted learners. In situations in which they are respected and encouraged, gifted students' thinking is more complex with abstract inferences and more diverse perceptions than is typical of high achievers." Thus, establishing a teaching and learning environment where gifted learners and creative thinkers can foster their abilities requires a conscientious effort. While some of these classroom techniques to foster students' gifts and talents may require distinct time and planning, others can be put in motion through simple tweaks. It has been said that sometimes the best differentiation is just getting out of the way.

Moran notes that "for young children, the focus of creativity should remain on process: the generation of ideas. Adult acceptance of multiple ideas in a non-evaluative atmosphere will help children generate more ideas or move to the next stage of self-evaluation. As children develop the ability for self-evaluation, issues of quality and the generation of products become more important. The emphasis at this age should be on self-evaluation, for these children are exploring their abilities to generate and evaluate hypotheses, and revise their ideas based on that evaluation. Evaluation by others and criteria for genuinely significant products should be used only with older adolescents or adults."

Guilford differentiates between convergent and divergent thought. Problems associated with convergent thought often have one correct solution. But problems associated with divergent thought require the problem-solver to generate many solutions, a few of which will be novel, of high quality, and workable – hence creative.

Joyce VanTassel-Baska offers the following article for consideration:

> **Creativity as an Elusive Factor in Giftedness**
> Research on good teaching suggests that feedback is crucial to student improvement, yet at least one researcher on creativity argues against evaluative judgment. Collins and Amabile (1999) have noted the problems with providing both positive and negative feedback to potential creators on their products as it may interfere with their internal capacity to move the product and other manifestations of their work forward to a new level. Perhaps educators might take the middle ground by providing feedback on the processes that underlie the work while still not judging the overall product. For example, to assess a student's research project, one might comment on the process for selecting the problem, the use of search tools to review the literature, and the instrumentation selected to study the problem. Such feedback should serve to assist the student in deepening an awareness of the research process itself, while still acknowledging the integrity of what the student has done.

The Development of Creativity

Given our understanding of the phenomenon, what can parents and schools do to promote creative capacities in students? There are six goals that we may focus on to promote such behaviors. They include the following:

1. To develop intellectual risk-taking through expression and valuing of differences and through selecting activities of interest from a list of alternative ideas and perspectives;
2. To develop high level convergent and divergent skills through employing educational models like CPS and problem-based learning that require and promote such skills;
3. To develop deep knowledge in a domain by exposing students to major areas of thought and encouraging deep learning in those for which there is both interest and aptitude;
4. To develop strong communication skills in written and oral contexts by requiring student work in both modalities and providing feedback on the effectiveness of the work for communication to an audience;
5).To develop personal motivation and passion by broad exposure to the culture and following up and supporting expressions of strong interest linked to values and occupational predispositions in and out of school contexts;
6. To nurture creative habits of mind by broad-based reading, perspective-taking, and the introduction of novelty.

Dr. Joyce VanTassel-Baska's articles are used with permission and are available at http://www.cfge.wm.edu/articles.php

Paul Torrence and Kathy Goff offer suggestions for teachers in the following article:

What Can Teachers Do?

Wise teachers can offer a curriculum with plenty of opportunities for creative behaviors. They can make assignments that call for original work, independent learning, self-initiated projects, and experimentation. Using curriculum materials that provide progressive warm-up experiences, procedures that permit one thing to lead to another, and activities that make creative thinking both legitimate and rewarding makes it easier for teachers to provide opportunities for creative learning.

Sometimes the best differentiation is just getting out of the way.

The following are some things caring adults can do to foster and nurture creativity:

We can teach children to appreciate and be pleased with their own creative efforts.

We can be respectful of the unusual questions children ask.

We can be respectful of children's unusual ideas and solutions, for children will see many relationships that their parents and teachers miss.

We can show children that their ideas have value by listening to their ideas and considering them. We can encourage children to test their ideas by using them and communicating them to others. We must give them credit for their ideas.

We can provide opportunities and give credit for self-initiated learning. Overly detailed supervision, too much reliance on prescribed curricula, failure to appraise learning resulting from a child's own initiative, and attempts to cover too much material with no opportunity for reflection interfere seriously with such efforts.

We can provide chances for children to learn, think, and discover without threats of immediate evaluation. Constant evaluation, especially during practice and initial learning, makes children afraid to use creative ways to learn. We must accept their honest errors as part of the creative process.

We can establish creative relationships with children--encouraging creativity in the classroom while providing adequate guidance for the students.

Po Bronson and Ashley Merryman stress the importance of fostering creativity in every area of the curriculum; creativity should be "put into homeroom. The argument that we can't teach creativity because kids already have too much to learn is a false trade-off. Creativity isn't about freedom from concrete facts. Rather, fact-finding and deep research are vital stages in the creative process."

Bronson and Merryman continue, "What's common about successful programs is they alternate maximum divergent thinking with bouts of intense convergent thinking, through several stages. Real improvement doesn't happen in a weekend workshop. But when applied to the everyday process of work or school, brain function improves."

The academic success of the National Inventors Hall of Fame School, a new public middle school in Akron, Ohio with a 42% poverty rate, is attributed to structuring to foster creativity. Bronson and Merryman write, "With as much as three fourths of each day spent in project-based learning, principal Buckner and her team actually work through required curricula, carefully figuring out how kids can learn it through the steps of Treffinger's Creative Problem-Solving method and other creativity pedagogies. "The creative problem-solving program has the highest success in increasing children's creativity," observed William & Mary's Kim. The home-game version of this means no longer encouraging kids to spring straight ahead to the right answer."

Having a physical classroom environment conducive to creativity is an important element proposed by Jane Piirto. "Mentally reconfigure the room so that you have a place where children

can go. Create a hideout beneath a table or desk in the back or front of the room. Pitch a tent in the room. Get an upholstered chair that faces the wall. Use your own creativity to imagine a place where good schoolwork can get done, and yet there is a place to ready, to think, to draw."

Piirto also notes in the importance of providing supplies for students, and that students are "encouraged to be free with the supplies. Teachers are known for their propensity to gather odd pieces and bits of materials and to recycle them for use in the classroom – oatmeal containers, scraps of cloth, milk bottles, discarded containers – all become part of the teacher's supply closet."

"Encourage and display child's creative work, but avoid evaluating it," states Piirto. "Do you as a teacher know what talents your students have, and do you praise them for themselves; or are you in the dark? Many a child has stopped singing or drawing because of a teacher's or other students' sarcastic comments. Your comments will live forever in those children's minds." As an example, Piirto notes a teacher colleague of hers "wrote on a student's paper that she was very talented in math." Years later, the student sent a card to the teacher noting she had just finished her PhD, and that the teacher's comment had given her inner permission to go to graduate school. "Your words have legs, wings, and immense power. Use them for good."

Piirto suggests to "do your own creative work, and let the child see you doing it. "So what if you are a math teacher? Do your students know you are also a cabinetmaker? A painter? A writer? That you sew, or knit, or design boats? The wee bit of humanizing that such information about you does for you with your students can make a big difference in their feelings of freedom of expression with you." Teachers are creative people. "Teaching itself feeds on your creativity, and if it were only an activity where you 'deliver' curriculum, you would atrophy and die, become disillusioned. Teaching is an art, the teacher's art."

A school setting a tone to foster creativity is evident by its appearance, notes Piirto. "The halls were filled with artwork; the bulletin boards were replete with children's efforts. The rooms were filled with learning centers, and every week there was a performance or a class project. The atmosphere was creative. The teachers were interesting people, interested in creative things, and it showed in their interactive teaching." Field trips should be encouraged, along with video and meaningful online cultural experiences.

Your words have legs, wings, and immense power. Use them for good.

While creativity may be typically associated with the positive, upbeat, and uplifting, Piirto writes that if "hardship enters your life, use it positively to teach the child expression through metaphor. In this way, creativity can be permitted to be somber and to sing the blues. Creativity and productivity across a lifetime should not only mean optimism and excitement, the idea of constant improvement with no regrets and wrong turns, for creativity also involves the dark side, the introversive, contemplative, intuitive, insightful side, in order to round out the whole picture."

While natural talents start creative pursuits at the first stage, development is needed to maintain and grow creativity past this first stage, when things may seem to come relatively easily. Piirto notes that educators must "emphasize that talent is only a small part of creative production, and that discipline and practice are important." Hard work and discipline will lead to the realization of creativity; "the talent becomes consciously developed. The world is full of talented people, but fully creative people do a lot of hard work."

Piirto emphasizes educators should "Avoid emphasizing socialization at the expense of creative expression; allow the child to be 'odd.'" Creative people may at times be at odds with the world, possibly being "prickly, rebellious, and nonconforming: often the nonconforming is actually conforming, but conforming to a stereotype similar to how they perceive creative people to behave." Piirto notes creative students may "act out in class, be argumentative, or consciously underachieve – that is, they do well in classes they like, but don't care about classes they don't like or don't see as relevant to their futures."

Educators are developing an awareness that elements of our culture may work against creative children. Jack Levine & Nina Greenwald state that single standards for everyone "discourages efforts to be adventurous, to experiment in unchartered intellectual waters, to be original, to look at things in an unconventional way." Creative children "do not operate well under time-bound circumstances." As a result, fostering creativity may take time. "Creativity is about good thinking, rather than quick thinking."

To accommodate this, flexibility with the different types of learners in your classroom is important. Levin and Greenwald note, "In many schools there is an inordinate, even irrational, emphasis on the speed of students' responses, on their ability to give the right answer within a specified time period, and on their competence at finishing a task despite the need for more time to think it through and consider a range of possibilities."

Feldhusen notes that teachers using creative, adaptive, or inventive thinking processes with their students are successful at fostering creativity. Students can combine, alter, extend, modify, or elaborate information to generate "potential solutions, new ideas, inventions, designs, and so on."

Teachers looking to bolster creativity in their classroom can take note of Sally Ries and Joseph Renzulli's Schoolwide Enrichment Model (SEM), in which the curriculum is modified to

1. Adjust levels of required learning so that all students are challenged
2. Increase the number of in-depth learning experiences, and
3. Introduce various types of enrichment into regular curricular experiences

Much is written elsewhere on developing curriculum compacting, but for the creative child to flourish, compacting can offer numerous possibilities for developing creativity and creative products. This is when gathering other folks to assist in the classroom or planning can make an important difference for the teacher and child alike. Tap into resources such as librarians, media specialists, content area teachers, gifted coordinators, mentors, community members, parents, and the like. Opportunities may include small group work, special-topic seminars, community service,

design challenges, invention convention, science fair, art contests, drama productions, and more, which can offer a realm of possibilities.

Reis and Renzulli also offer enrichment clusters as a way to serve creatively gifted students. "Enrichment clusters bring together non-graded groups of students who share common interests. Like extracurricular activities and programs, the clusters meet at designated times of the school day and operate on the assumption that students and teachers (or community resource people) want to be there." Enrichment clusters may focus on producing a puppet show, researching and sharing achievements of women pioneers, developing a structure out of Lego pieces that can hold 25 pounds at least a foot above ground, or any other theme, subject area, or study. "One golden rule exists for enrichment clusters: Everything students do in the cluster is directed toward producing a product or delivering a service for a real-world audience. This forces the issue of learning only relevant content and using only authentic process."

The importance of educating to foster the development of creativity is noted by Sir Ken Robinson; "We don't grow into creativity, we grow out of it, or rather, we are educated out of it." Using concepts outlined in this chapter, our students can be both educated and creative.

Menu of School Programs to Serve the Creatively Gifted Students

Elementary Services	**Middle School Services**	**High School Services**
1. Magnet classes	1. Counseling	1. Counseling
2. Pullout	a. Group	a. Group
a. Cluster Groups	b. Individual	b. Individual
b. IEP's	2. Honors Classes	2. Honors Classes
3. Jr. Great Books	3. Jr. Great Books	3. AP Classes
4. Future Problem Solving	4. Future Problem Solving	4. Seminars
5. Odyssey of the Mind	5. Odyssey of the Mind	5. Mentorships
6. Destination Imagination	6. Career Explorations	6. Internships
7. Career Explorations	7. Seminars	7. Concurrent College Enrollment
8. Mentors	8. Mentors	8. College Classes in High School
9. Enrichment Classes	9. AP Classes	9. Special Opportunities
a. Arts	10. Subject Area Acceleration	a. Art
b. Academics	11. Special Opportunities	b. Music
10. Summer Programs	a. Art	c. Drama
11. Foreign Language	b. Music	d. Dance
12. Early Admission	c. Drama	10. Special Projects
13. Grade Advancement	d. Dance	11. Debate
14. Talents Unlimited	12. Special Projects	12. Online Course
15. Knowledge Master	13. Foreign Language	13. Independent Study
16. Drama Club	14. Online Course	14. Math Olympiad
17. Curriculum Compacting	15. Independent Study	15. U.S. Academic Triathlon
18. Chess Club	16. Chess Club	16. Academy for Creative Expression

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Chapter 6: Parenting the Creatively Gifted Child

"There is compelling evidence that how a young child's creative behavior is treated by parents and other important people in his/her life seems to make all the difference." - E. Paul Torrance

Parenting to foster creativity is a dynamic experience. Author Elizabeth Gilbert states, "You have to be open to creativity when it comes to you, but also be able to persevere when it doesn't." Pablo Picasso tells us "All children are born artists. The problem is to remain an artist as we grow up." Paul Torrance and Kathy Goff offer suggestions for parents in the following article:

What Can Parents Do?

It is natural for young children to learn creatively by dancing, singing, storytelling, playing make-believe, and so forth. One of the first challenges to creativity may be formal schooling. By this time parents, as well as teachers, appreciate conforming behaviors such as being courteous and obedient, following rules, and being like others. While these are desirable traits to some extent, they may also destroy a child's creative potential.

The following are some positive ways parents can foster and nurture the growth of creativity:

Encourage curiosity, exploration, experimentation, fantasy, questioning, testing, and the development of creative talents.

Provide opportunities for creative expression, creative problem-solving, and constructive response to change and stress.

Prepare children for new experiences, and help develop creative ways of coping with them.

Find ways of changing destructive behavior into constructive, productive behavior rather than relying on punitive methods of control.

Find creative ways of resolving conflicts between individual family members' needs and the needs of the other family members.

Make sure that every member of the family receives individual attention and respect and is given opportunities to make significant, creative contributions to the welfare of the family as a whole.

Use what the school provides imaginatively, and supplement the school's efforts.

Give the family purpose, commitment, and courage. (Torrance, 1969)

How Adults "Kill" Creativity

Insisting that children do things the "right way." Teaching a child to think that there is just one right way to do things kills the urge to try new ways.

Pressuring children to be realistic, to stop imagining. When we label a child's flights of fantasy as "silly," we bring the child down to earth with a thud, causing the inventive urge to curl up and die.

Making comparisons with other children. This is a subtle pressure on a child to conform; yet the essence of creativity is freedom to conform or not to conform.

Discouraging children's curiosity. One of the surest indicators of creativity is curiosity; yet we often brush questions aside because we are too busy for "silly" questions. Children's questions deserve respect.

How Can Adults Encourage Creativity?

Author James Moran offers the following suggestions for encouraging creativity in young people:

- Provide an environment that allows the child to explore and play without undue restraints.
- Adapt to children's ideas rather than trying to structure the child's ideas to fit the adult's.
- Accept unusual ideas from children by suspending judgment of children's divergent problem-solving.

Parenting to foster creativity is a dynamic experience.

- Use creative problem-solving in all parts of the curriculum. Use the problems that naturally occur in everyday life.
- Allow time for the child to explore all possibilities, moving from popular to more original ideas.
- Emphasize process rather than product.

Jane Piirto suggests the need for children to have a private place. “Where do you go when you want to think?’ I ask. ‘Have you ever built a place that is just yours?’ Almost all students have. As a parent I remember the places my own children built – beneath the staircases, in the garage, in

the living room with blankets and pillows." Such a place may not keep to the housekeeping standards of the house, and that can be OK. One mother working with Piirto "loosened her immaculate standards, and the house became a home for the child as well as for the mother. 'I let her begin being a person who lives there, and not just a hotel resident,' my student said."

Providing materials is essential, notes Piirto. "Yes it costs a lot and takes a year or two to pay it off-those time payments for the piano, the trumpet, the saxophone-but do it. No one started to be creative in adulthood without having some thread for the creativity leading back to childhood."

"Encourage and display child's creative work, but avoid evaluating it," states Piirto. Piirto says children know on their own to what degree their drawing might or might not look like the intended dog. "The child knows; you don't have to rub it in. Is the refrigerator door an art gallery, covered with your child's work? How about the walls of your child's room? Would someone entering our house know that your child lives there?"

Piirto recommends parents value the creative work of others. Evidence of this would be books read in the home; magazines for both parents and children; public library usage; visiting museums featuring science, history, and art; attending live theater and music performances; and travel experiences.

Piirto suggests to "do your own creative work, and let the child see you doing it. The point is that people must make space and time for their creative work and to let children see this."

Creativity can enhance lives to help cope with adversity. As Piirto says, "If trouble comes into your family, try to help your child or yourself create an image of it. The creation of an image, a metaphor, is helpful and even necessary in brining the hurt outside." Creative releases can sometimes help children who may not be able to or willing to verbalize their thoughts.

Natural talents, when things may seem to come relatively easily, start creative pursuits at the first stage. Development is needed to maintain and grow creativity past this. Piirto challenges parents to "emphasize that talent is only a small part of creative production, and that discipline and practice are important." Hard work and discipline will lead to the realization of creativity; "the talent becomes consciously developed. The world is full of talented people, but fully creative people do a lot of hard work."

Piirto emphasizes parents should "Avoid emphasizing socialization at the expense of creative expression; allow the child to be 'odd.'" Creative people may at times be at odds with the world, possibly being "prickly, rebellious, and nonconforming: often the nonconforming is actually conforming, but conforming to a stereotype similar to how they perceive creative people to behave." Piirto also urges parents to avoid investing "so much of themselves in their children's successes and failures that they lose sight of the purpose of the practice," which can be very harmful.

Nancy Robinson notes that parents should know it is "quite OK if your gut-level response is 'No

Thanks! Creative children can be more unpredictable, unconventional, messy, and emotionally labile than I want to put up with.'" Yet, by mastering social conventions, creative children can develop skills to communicate effectively and become experts in their field. Robinson celebrates the creative child's ability to cherish the richness of the world, appreciate different genres and people, entertain ideas, and see multiple views to complex issues. Robinson offers suggestions for what parents can do to foster effective creativity:

- Create "safe space" (define where it's OK to get messy; where it's not)
- Greet children's production receptively (appreciating effort and investment)
- Encourage multiple solutions (even in mundane routines, find different ways to get things done)
- Encourage independence (children who learn to do things for themselves develop a sense of confidence)
- Preserve free time (don't over-schedule and don't hover)
- Preserve privacy (appropriate time and place to create without observation by others)
- Respect gumption (the courage to try)
- Teach skills (everybody needs practice)
- Provide stuff (materials and tools)
- Provide models (observe artists, musicians, and innovators at work)

Provide an environment that allows the child to explore and play.

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Chapter 7: Mind Sparkers

"You have to be open to creativity when it comes to you, but also able to persevere when it doesn't."
- Elizabeth Gilbert, author of *Eat, Pray, Love*

We can cultivate creativity through divergent thinking. Psychologist E. Paul Torrance (1970) pioneered research on the identification and development of creative potential. His definition of creativity and divergent thought are as relevant today as ever. It is possibly one of the more important times in recent memory to revitalize these skills with our students.

Fluency: the production of a large number of ideas, products or plans.
Flexibility: the production of ideas or products that show a variety of possibilities.
Originality: the production of ideas that are unique or unusual.
Elaboration: the production of ideas that display intensive detail or enrichment.

As with any skill, students need practice with these processes in a school and classroom that make it psychologically safe for new or unusual ideas to be expressed. There are times when a precise response is necessary and there must also be times when many divergent responses are appropriate.

Students need to be supported, encouraged, and allowed the opportunity to be healthy risk-takers through their expression of creative thought, writing, artwork, or innovative ideas.

There can be cultural blocks to creativity to overcome:

1. Fantasy and reflection are a waste of time, lazy, even crazy!
2. Playfulness is only for children.
3. Problem-solving is serious business and humor is out of place.
4. Reason, logic, utility, and practicality are good; feelings, intuition, qualitative judgments are *bad*.
5. Tradition is preferable to change.
6. Any problem can be solved by scientific thinking and lots of money.

Classrooms are also prone to these emotional blocks to emerging creativity:

1. Fear of making a mistake, to fail, to risk a solution that might not be "right."
2. Inability to tolerate ambiguity.
3. Preference for judging ideas rather than generating them.
4. Inability to relax, incubate, "sleep on it."
5. Lack of challenge. Problems fail to generate interest.
6. Excessive hurrying; overpowering need to succeed quickly.
7. Lack of access to areas of imagination.

"The chief enemy of creativity is good sense." - Pablo Picasso

Creativity Squelchers:

1. We've never done it before.
2. It won't work.
3. Be practical!
4. It will mean more work.
5. It's not in the curriculum.
6. No one has taught that before.
7. Don't rock the boat.
8. That's not our job!

Warren (1974), Clark (1958)

Jean Strop, Counseling Coordinator and Gifted & Talented Resource Teacher at Cherry Creek High School in Colorado, outlined these characteristics of a supportive environment for creative students (*Understanding Our Gifted*, Summer 2001):

Creation of Products: creative students may respond more positively to more solitary and individual ways to express emotion and ideas. Suggestions include: journal writing, creating art work in many media, photography, and poetry, among others.

Visualization: often creative students are visual thinkers. Creative visualization strategies are very useful. A superb resource for visual thinkers is Linda Silverman's *Upside Down Brilliance: The Visual-Spatial Learner* (Delta Publishers, 2002).

Open-endedness: the lack of predictability is appealing to creative students.

Encouraging creativity is another reason to keep learning preferences in mind when planning classroom activities and options for learning. Here are a few ideas to get started:

- Post a puzzle, brain teaser, math "stumper" problem or a "what if . . . " situation on the board each day. Students can share ideas at those moments when there isn't enough time to complete teaching objective, but still time before the bell, the next class, etc.

- While waiting in line to go to lunch, music, recess, etc., challenge students to brainstorm as many red (or square or icy or expensive; you pick the adjective) things as possible. More think time will produce the more creative responses.

- Analogies can be verbal, visual, and mathematical or made to suit your content.

- Forced analogies can provide an unusual way for students to apply academic concepts. Example from a science class: Compare a light bulb to photosynthesis. Include five facts and concepts we know about this process.

More think time will produce the more creative responses.

- Dr. E. Paul Torrance also recommends the practice of "idea traps" – a way to keep creative ideas from being forgotten or lost while brainstorming or in a discussion. An idea trap can be anything that is convenient for you and your students. A white board, 3 x 5 card, post-it note, bulletin board, etc. This is a way for children to capture their ideas before they get away and still not interrupt others.

- Using the **SCAMPER** technique (Eberle, 1971) can encourage students to look at problems or situations from varying perspectives:

Substitute

What can you substitute? What can be used instead? Who else instead? What other ingredients? Other material? Other process? Other power? Other place? Other approach? Other sounds? Other forces? Instead of... I can...

Combine

What can you combine or bring together somehow? How about a blend, an alloy, an assortment, an ensemble? Combine units? Combine purposes? Combine appeals? Combine ideas? I can bring together... and... to...

Adapt

What can you adapt for use as a solution? What else is like this? What other idea does this suggest? Does past offer a parallel? What could I copy? Who could I emulate? I can adapt... in this way... to...

Modify

Can you change the item in some way? Change meaning, color, motion, sound, smell, form, shape? Other changes?
Also: **Magnify**: What can you add? More time? Greater frequency? Stronger? Higher? Longer? Thicker? Extra value? Plus ingredient? Duplicate? Multiply? Exaggerate?
And: '**Minify**': What can you remove? Smaller? Condensed? Miniature? Lower? Shorter? Lighter? Omit? Streamline? Split up? Understate? I can change... in this way... to...

Put to other uses

How can you put the thing to different or other uses? New ways to use as is? Other uses if it is modified? I can re-use... in this way... by...

Eliminate

What can you eliminate? Remove something? Eliminate waste? Reduce time? Reduce effort? Cut costs? I can eliminate... by...

Rearrange

What can be rearranged in some way? Interchange components? Other pattern? Other layout? Other sequence? Transpose cause and effect? Change pace? Change schedule? I can rearrange... like this... such that...

Example: I want to invent a new type of pen.
Substitute ink with iron, nib with knife
Combine writing with cutting, holding with opening
Adapt pen top as container
Modify body to be flexible
Put to other uses use to write on wood
Eliminate clip by using Velcro
Rearrange nib to fold outwards

How it works

SCAMPER works by providing a list of active verbs that you associate with your problem and hence create ideas. As they are all verbs, they are about doing, and so get you to think about action. **SCAMPER** was defined by Robert Eberle, after an initial list from Brainstorming originator Alex Osborn.

SCAMPER with a Fairy Tale

1. Think of a fairy tale, "Cinderella," for example.
2. Use the SCAMPER Model to creatively make changes to the tale.
   Substitute a character
   Add to the conflict
   Redesign the setting
   Minify the villain
   Magnify the ending

SCAMPER at Home

1. Redesign the arrangement of the furniture in your room to gain more floor space.
2. "Put to other uses" junk from the garage (within reason!) OR create art with "found items" (be sure the items don't belong to someone first!)
3. Elaborate on your creative story

SCAMPER Questioning

1. Ask questions with **SCAMPER** as a stem . . .
   What could you add to the recipe?
   How could you minify the family noise during homework time?
   How can you find another use for your discarded toys?

Curiosity – Wondering

"All learning progresses with this kind of natural curiosity about the world."

"Parents and schools need to nurture within the children that sense of being in a state of doubt and searching for answers is a positive form of learning."

" . . . educating the young to grow up to be thoughtful citizens who can use their imaginations to wonder, to speculate about possible futures, and to critique all these new ideas with the rigor of young scientists."

- John Barell, *Developing More Curious Minds*

Resource websites for more ideas:

- www.thinkfinity.org

  Thousands of Free Lesson Plans in Math, Social Studies, Art, Language Arts, Music, Physical Education, Reading, Writing, Geography, Science Projects, Science Lesson Plans, and Thematic units.

  Search key words to suit your unit or concept.

- Torrance Center for Creative studies (www.coe.uga.edu/torrance). This site has so many wonderful connections – too many to mention. However, these might whet your appetite:

- Creativity Tools

- Creativity Techniques

Creative students may respond more positively to more solitary and individual ways

- Creativity Challenges

- Creativity Workshops

- *Creative Kids Magazine* – Published by Prufrock Press (www.prufrock.com)

- *Games Magazine* (www.gamesmagazine-online.com)

- Additional magazines to spark imagination, critical and creative thought can be located on (www.hoagiesgifted.org/magazines)

- *Shidonni* lets kids draw animals online, give them names and design backgrounds for imaginary worlds. Winner of 2009 Parents' Choice Gold Award; Ages 5-12. (www.shidonni.com)

- Devise Games: *Fidget* is a multiplayer game on PBS's Design Squad site. Kids can also design and build their own games and challenge their friends, Ages 8-13. (http://pbskids.org/designsquad/games/fidgit/)

- Craft Cartoons. Kids write, read and tell stories by creating comic strips online. Then printing or e-mailing them to friends or relatives. All ages. (http://www.makebeliefscomix.com/)

Chapter 8: Inventors & Innovations

"The Wright Brothers flew right through the smoke screen of impossibility." - Charles F. Kettering

Once our classroom culture is open to creative thought through some of the techniques in Chapter 7, the path is open for an Invention Fair as its own event or as a portion of a science fair.

Inventions often come about to solve a problem or make a task easier. Brainstorm a list of problems students have noticed or complain about. A running list could be posted somewhere in the room for additional ideas to be added as time goes on. Challenge students to devise a solution to the problem or difficulty through a new tool or a new application of an existing tool. For example, a spaghetti-eating utensil under the condition that an ordinary table fork may not be used unless it is modified.

Study the famous inventors of recent history, a particular period of time, or a particular country or ethnicity. A search of biographies can be helpful here: (www.dmoz.org/Kids_and_Teens).

- What characteristics do these people have in common?
- What made them successful?
- This could be a literature study of biographies, or related to a particular area of study; science, art, music, sport, health, entertainment, etc.

Camp Invention (http://www.campinvention.org/) This is a summer enrichment activity with curriculum related to science, technology, engineering and mathematics. Teachers are able to use the curriculum ideas in their regular instruction during the school year following their Camp Invention work.

Inventors Hall of Fame (www.invent.org) Search under Programs and there are links to search inventors by last name, decade, invention, or induction date.

Bob Stanish (www.prufrock.com) has several items available through Prufrock Press. Search by author or search keywords "thinking skills – creative problem solving" or keyword "inventing." His titles include:

Inventioneering: Nurturing Intellectual Talent in the Classroom ISBN No. 0-86653-402-4

The Unconventional Invention Book ISBN No. 0-86653-035-5

Roger Von Oech has a creativity exercises webage: www.creativethink.com. He is the author of *A Whack on the Side of the Head* and *A Kick in the Seat of the Pants,* which were originally written to encourage the business world to think more creatively in their areas of production, marketing and sales. His newest products are the "Creative Whack Pack" for the iPhone, and the "X-Ball."

Teachers' Domain (www.teachersdomain.org) This site is an extensive library of free digital media resources produced by public television, designed for classroom use and professional development. Search: invention, innovation, women inventors, African American Inventors, etc., for a range of connecting ideas.

Delicious (http://delicious.com) You can sign up using an existing Yahoo account or you can create one for free. This site allows you to get your bookmarks from any computer. Your bookmarks will organize themselves; as you tag your bookmarks collections will naturally emerge. You can share your bookmarks with friends and see what others are sharing with you.

Success Beyond the Classroom (http://www.successbeyond.org/index.html). This site is the gateway to these opportunities for students and teachers:

1. Young Authors Conference
2. Student Creativity Festivals
3. Future City Competition
4. Knowledge Bowl
5. Young Inventors Program
6. STEM Quest
7. Freshwater Society Art Contest

Young Inventor History
(http://www.ideafinder.com/features/classact/young.htm). Read about the inventions of children ages 10-19. Plus there is an additional bibliography of inventors and other websites to explore.

Chapter 9: Creativity in Various Domains

"Creativity often has been associated with the arts, although creativity also is essential for innovative discoveries and applications for scientists, engineers, mathematicians, inventors and entrepreneurs."
- Constantino, et. al.

When thinking of creativity, typically the arts come to mind, but creativity needs to be infused throughout all academic disciplines. Bronson and Merryman note the "age-old belief that the arts have a special claim to creativity is unfounded. When scholars gave creativity tasks to both engineering majors and music majors, their scores laid down on an identical spectrum, with the same high averages and standard deviations. Inside their brains, the same thing was happening – ideas were being generated and evaluated on the fly."

Studies through the years develop a set of "commonalities" for those creative individuals known for a particular domain of self-expression. Called "predictive qualities", these characteristics reveal themselves at early ages. The simplest form of these is on the table below using adjectives that describe the creative personality, and those adjectives that do not. It is hard to resist the impression that these are stereotypical characteristics, but the brief descriptions here are well explained in Piirto's book referenced below.

Artists and Architects

1. The visual artists showed independence, passion, intellect, persistence and a rejection of the usual economic values.
2. Talent for art tended to develop in young adulthood
3. Gender differences in special ability and treatment by teachers were apparent.
4. Success was in good part luck, growing from an open-minded culture and possible struggles in family life.
5. Visual artists had a sense of intuition and perception through feelings, architects added an amount of thinking to their preferences.
6. The work of older artists was an inspiration.

Creative writers

1. They were often early readers, using reading and writing to escape.
2. They have a strong conceptual and verbal intelligence as well as a sense of humor.
3. Independent, driven, they can work alone for long periods while able to stand rejection.
4. Productive and self expressive, feelings and emotions come out in writing.
5. Playing with words, imagery, humor, paradox, rhythm and other elements with confidence are among the early signs of writing creativity.
6. Young talent in writing appears to be prevalent, with transition issues as the adolescent moves into more formal operations.

Scientists, Mathematicians, Inventors

1. They are often internally motivated by the desire to know

2. There is a love for the field of math or science, they develop mentors, and have support from home and school.
3. Emotionally stable, self disciplined, efficient and conforming, independence is channeled into problem-solving.
4. They enjoy interaction at the creative level, and develop in a happy family and school context.
5. Creative thought tends to be purposeful, with a theory or idea being hatched.
6. Inventors tend to take risks in their ideas, not in their lives.

Musicians

1. Talent shows itself at an early age: keyboard play, spontaneous singing, or listening behaviors.
2. Natural interest and talent in music hits a cognitive reorganization period during adolescence with self criticism and reflection.
3. Self discipline and support at home are necessary because the development of music talent takes much work, practice and hard training.
4. A balance of repetition, drill and training with inspiration and improvisation allows for talent development and creative expression.
5. Musicians find joy and fulfillment in their craft, being able to express their emotions.

Physical Performers: Actors, Dancers, Athletes

1. Early demonstrations of specific movements and the will to master complicated tasks lead to creative expression.
2. Kinesthetic interpretation of emotional intelligence and keen observation allow for creative movement.

Creative Personality Adjective Lists

Indicators	Self-confident
Adventurous	Temperamental
Ambitious	Versatile
Artistic	
Assertive	
Clever	**Non-indicators**
Complicated	Affected
Curious	Cautious
Energetic	Commonplace
Enterprising	Conservative
Imaginative	Conventional
Independent	Dissatisfied
Intelligent	Honest
Inventive	Mannerly
Original	Submissive
Interested	Suspicious
Resourceful	

Bibliography:

Bronson, P. & Merryman, A. (2010, July 10). The Creativity Crisis. *Newsweek*.

Pirrto, J. (1998) *Understanding Those that Create,* 2nd Edition, Scottsdale AZ, Gifted Psychology Press.

Chapter 10: Programs That Nurture Creativity

"The creative process can yield unexpected ideas that tickle and delight and awesome products that are unlike anything children's peers are doing." - Nancy M. Robinson

Future Problem Solving (www.wifps.com) Teaching students *how* to think, not *what* to think. This is the link to the Wisconsin FPS Organization. Training for coaches and problem information for the current school year is available through this site.

Odyssey of the Mind Creative Opportunities Unlimited (www.creativeopportunites.org) has a wealth of activities, practice problems, spontaneous problems, and classroom activities to keep us busy for years.

Destination Imagination (www.idodi.org & www.wisconsindi.org), is a wonderful opportunity for a variety of student strengths to work together in a creative endeavor. Their "Instant Challenge Flip" provides more than four billion (yes, that is a "B!") fun and entertaining instant challenges for use in the classroom or any time to prime creative thought with your students. The 2010 price: $30.00)

First Lego League (www.firstlegoleague.org).

Badger B.O.T.S. (www.badgerbots.org) is a Dane County Chapter that any Dane County school or team can join.

Cartoons for the Classroom (http://nieonline.com/aaec/cftc.cfm).

Teaching with Cartoons (www.kimskorner4teachertalk.com/writing/general/cartoon.html).

Improvisational Theater, Games, Activities for the Classroom

Preview these sites for age appropriate activities. With a little imagination, the games can have a content focus for review or fun way to conclude a unit.

For example, the familiar Dr. Know-It-All game can work this way. Three or four students stand shoulder to shoulder. They represent Dr. Know-It-All who is all of them combined sharing a single brain. A question is asked related to a field of study. Dr. Know-It-All answers the question by each person saying only one word at a time. The result is amusing and adds an extra challenge to include the vocabulary related to the concepts of your unit.

http://www.childdrama.com/warmups.html
http://www.childdrama.com/edwena.html
http://www.whoseline.net/show/games.html

Creative Every Day, Every Day Creative (http://creativeeveryday.com/) Creative Every Day Challenge and the Art Every Day Month Challenge (every November.).

National Association for Gifted Children (NAGC) (http://www.nagc.org) has a Network devoted to Creativity. Connect through their website. Search "Networks" to find Creativity.

The Set Game (http://www.setgame.com/index.html) is a challenging game of visual perception for either solitaire or competitive play.

Teaching students *how* to think, not *what* to think.