

# The Da Vinci Coda: *Arts Immersion and Executive Function in Gifted and Talented Education*

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# The Arts Save Lives: Stranger Things



Although never identified as gifted (other than a rather keen and profound connection to the prevailing fashions of the early 1980s), the arts saved my academic life.

Seventh period arts was the only course that quieted the voices of uncertainty and fueled my creativity. And beyond our high school band, the only reason I came to school at all.

# Context: Food for Thought

- **Being gifted is a gift**—unless you are the one experiencing it first hand (both blessing and burden)
- Gifted have a tendency to look **outwardly for approval and inwardly for blame**
- Gifted may experience unique pressures to 'perform' as if the **spotlight is always on—even when alone**
- The greatest risk is the social risk, and the **greatest challenges for educators and parents alike are socioemotional**
- **Gifted tend to be great starters**, but at times lack discipline for follow through (beginnings are always fun!)
- Things come **naturally—without having to work hard.**
- Wearing an **impenetrable suit of emotional armor** every day can be exhausting, both mentally and physically.

# Artistic Wisdom from Those Who Knew Best

“Art is the Queen of all sciences communicating knowledge to all the generations of the world.”

-- *Leonardo da Vinci*

“The aim of art is to represent not the outward appearance of things, but their inward significance.”

-- *Aristotle*

“The art of a people is a true mirror of their minds.”

-- *Michelangelo*



## Into the Light: Understanding the Gifted Using Plato's *Allegory of the Cave*

In many ways, the gifted and talented are akin to the imprisoned featured in Plato's *Allegory*. Their perceptions are shaped by shadow, distortion and exaggerated interpretation emerging from their unique neurobiology and socio-affective characteristics.

Thus, one of the most important duties parents of the gifted have is to help bring them into daylight and offer them a quality of life with a lesser degree of anxiety and intensity.

The same neurochemistry that fuels all we love about the gifted in the classroom and at home can wreak havoc internally. That is why counseling the gifted takes all the king's horses and all the king's men.



## One Word Says it All: INTENSITY

Giftedness has both intellectual and emotional elements that are complex, multifaceted and layered.

Intensity impacts every aspect of the lives of gifted and talented individuals. They tend to 'go all out' in just about everything.

It is not that they feel more than the non-gifted, but experience these feelings rather vividly and deeply. This is an experience that can prove alarming and warrants our attentions.

Source (in part): SENG, 2015



# Artistic Perceptions: Andy Warhol

*"What's great about this country is that America started the tradition where the richest consumers buy essentially the same things as the poorest. You can be watching TV and see Coca-Cola, and you can know that the President drinks Coke. Liz Taylor drinks Coke, and just think, you can drink Coke, too."*



# Socioaffective Characteristics of the Artistically Gifted and Talented Learner

## CHARACTERISTICS

- **Fluency of imagination** and expression / self motivated in a medium
- **Highly developed sensibilities** (movement, space and color, for example)
- **Faith in ideas** (no need to copy)
- **Directness of expression** and eagerness to engage arts activities related to a given topic
- **Identification with subject and medium** of the art
- **Design sensibilities and extraordinary skill** with a medium
- **Individual and inventive\***

## TRAITS AND SKILLS

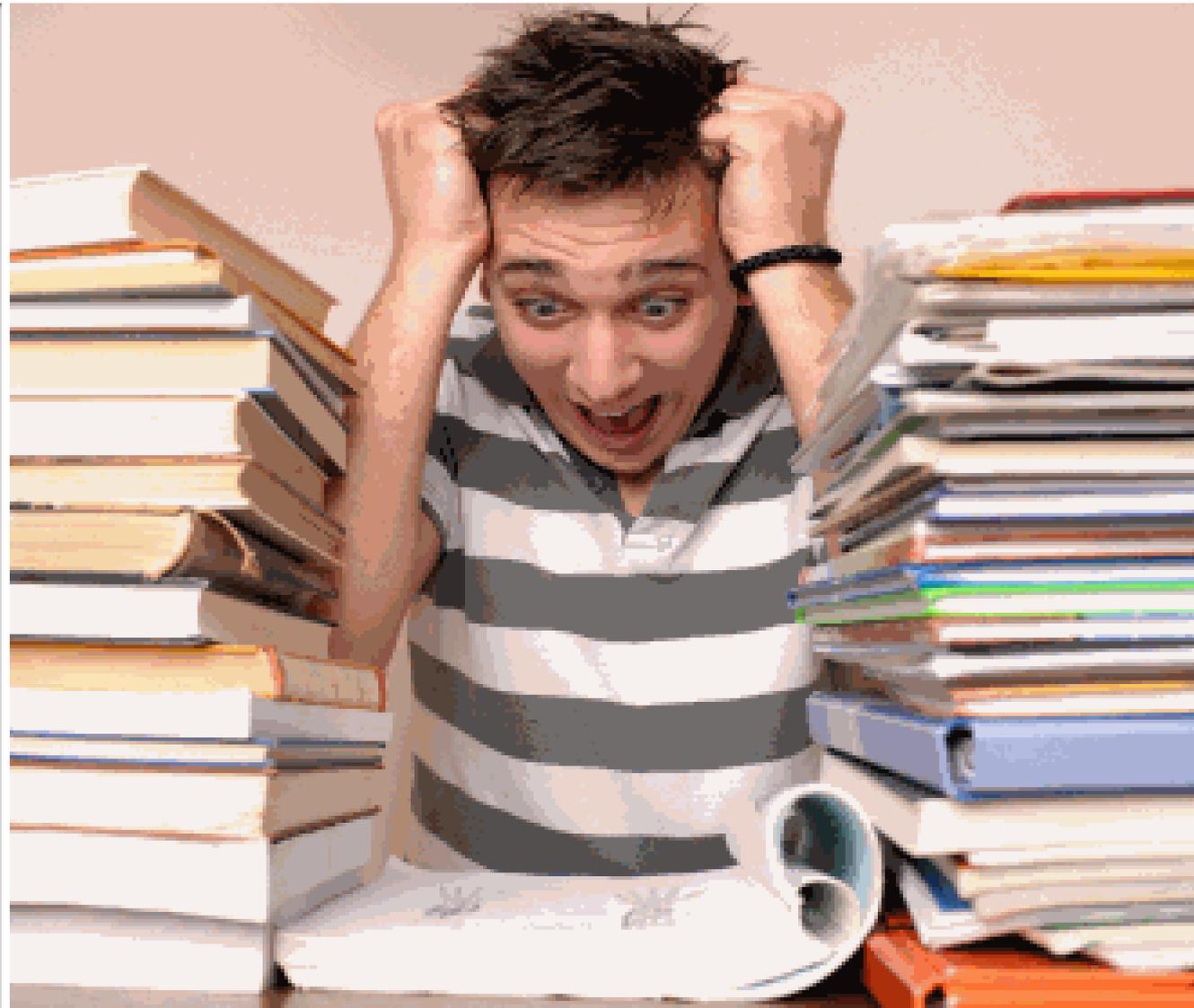
- **Perceptual discrimination** – perceive and differentiate senses
- **Metaperception** – ‘artistic knowing’ and aesthetic sensibilities
- **Creative interpretation** — increasingly sophisticated as one reworks or refines the art (also building metacognitive skills)
- **Also:** rapidity of development; extended concentration; self-directedness; risk aversion (even creative); calculating capacity; memory and detail; and random improvisation (doodling, for example)

# Executive Functions and the Gifted Individual

*Executive functions are 'those cognitive processes that allow people to plan, organize, make decisions, pay attention and regulate behavior (Fielder, 2017).*

*Recalling the manifold impacts that gifted neurochemistry has on the socioemotional/ affective domain, it is no wonder that problems in this area can lead to negative self concept and exacerbating perfectionist tendencies.*

*These impacts are by no means linear. If left unattended, they will magnify logarithmically throughout the lifespan, making giftedness more struggle than gift.*



# About Executive Function (EF)

- The frontal lobe's 'CEO' – metacognitive/process-related skills
- Dependent upon three types of brain function: (1) **working memory**; (2) **mental flexibility**; and (3) **self control**
- Executive function must be **cultivated** (skills not innate) and are hindered by toxic stress that **disrupts brain architecture and development of EF**.
- Skills must be **developed in diverse environments, including home and school**.

# Executive Functions (A Partial List)

- Inhibition of impulse  
(**lengthen the fuse**)
- **Previewing** consequences
- Holding and manipulating information in **working memory**
- **Sustaining attention**
- **Planning** in the short and longer term
- **Saliency** determination
- Task initiation
- Depth of processing
- **Tempo control** (speed of work)
- Automaticity (skills that do not require conscious effort)
- Satisfaction (real, not temporary)
- Organization and time management
- Flexibility
- **Self monitoring**
- Metacognition
- Emotional self regulation

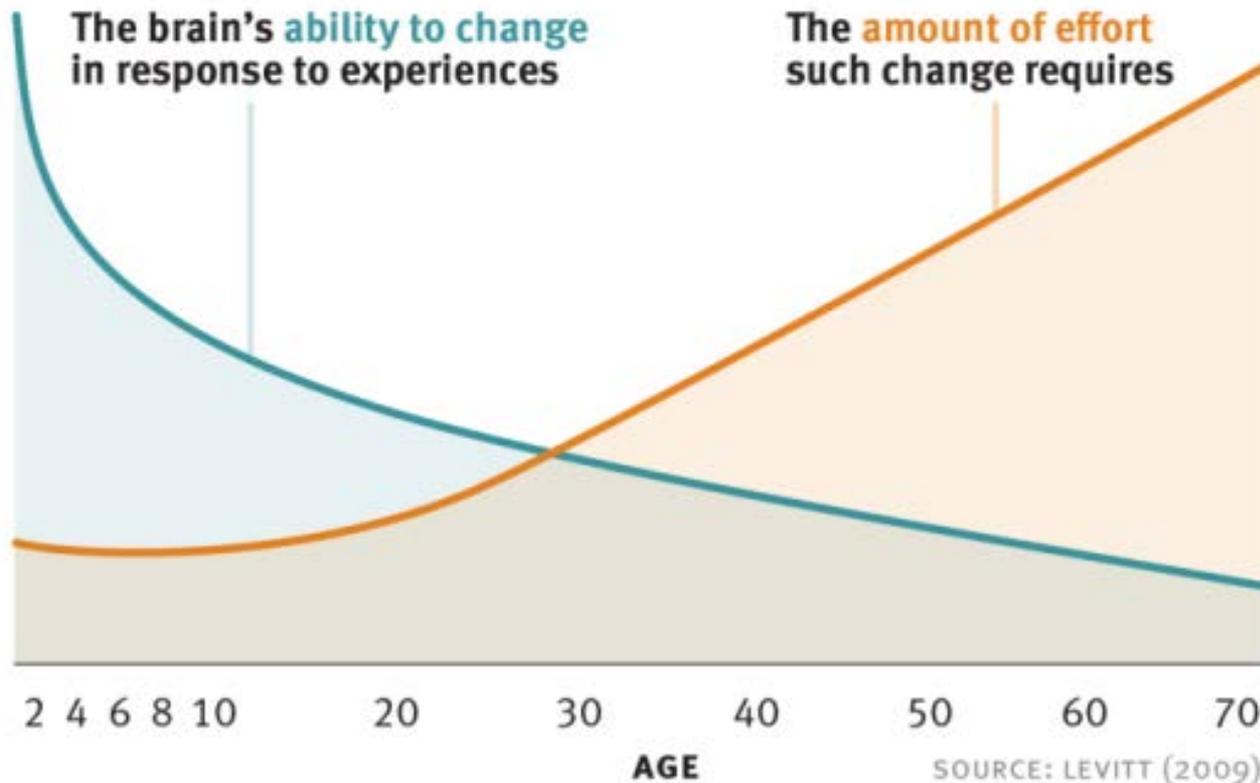
# Executive Function and the Gifted

*Problems with executive functions typically lead to difficulties with self-concept, both personal and academic. No matter how high their abilities, some gifted kids simply don't feel good about themselves. And parents, teachers and counselors who misguidedly try to reassure or praise them find their efforts to be in vain. These kids are frequently frustrated and have very little tolerance for their own errors. They have trouble dealing with their expectations of themselves and their expectations of others.*

*Additionally, other people in their lives have trouble understanding the inability of these bright kids to get things done or to be able to express their thoughts and feelings accurately. They frequently make impulsive decisions and decisions that lack depth. Long-term goals elude them. In fact, they often simply don't know how to establish goals.*

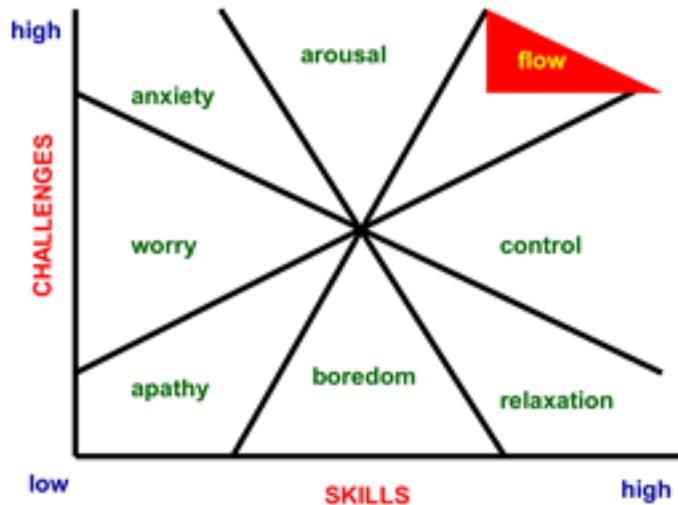
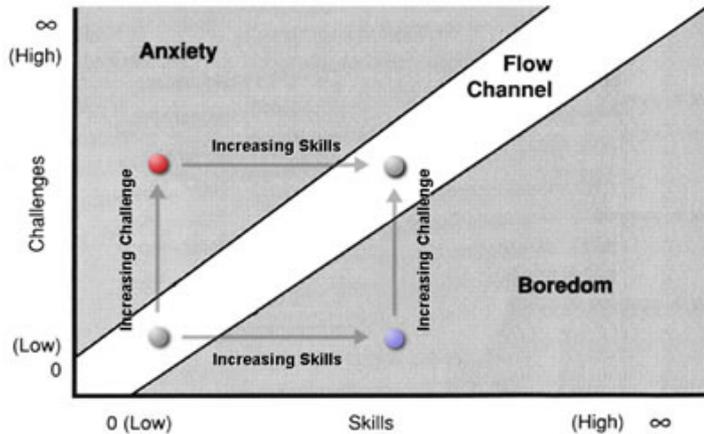
**-- Fiedler, 2017.**

# The Brain and Change



*Note the way in which age and experience play important part in responding to change.*

# The Arts and Flow: Affective Effects



- Csikszentmihalyi (1970s)
- High challenge, high skill
- Clear goals (CLARITY)
- Balance between ability level and challenge
- Immediate feedback
- Total immersion (intrinsic)—completely absorbed
- “In the groove,” “on the ball,” “in the zone”
- Produces **feelings of enjoyment, confidence and balance**

# Routine, Ambiguity and Anxiety

Neurochemically speaking, departure from routine is difficult for the gifted individual, especially if the pathway is ambiguous or where the chance of success is undetermined.

Ambiguity tends to activate the survival mechanism (fight, flight or freeze) and the associated adrenaline and cortisol that signals the brain to focus can produce an unpleasant experience we are trained to avoid.

Thus, the trick is to remove the danger from the unknown and to provide a sense of stability and predictability moving forward. Clarity is king.



# MINDFUL PAINTING

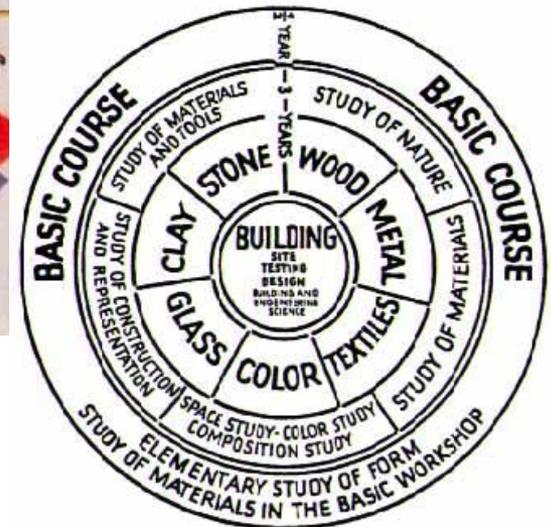
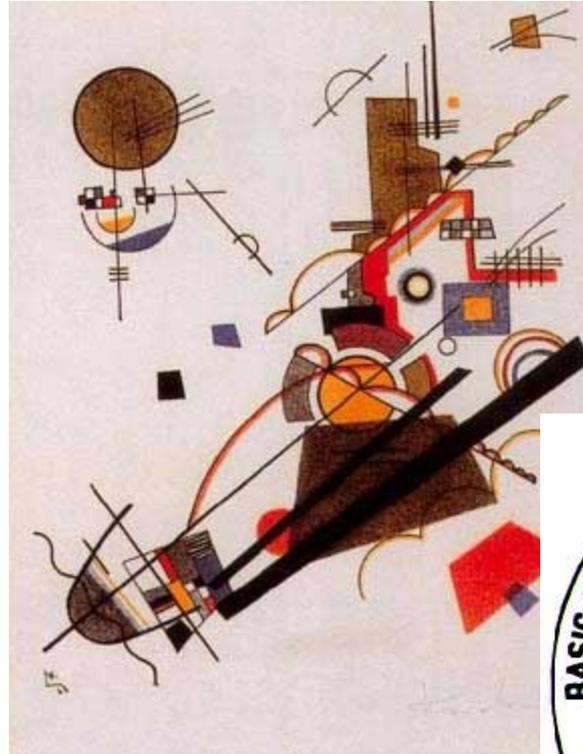
Part of the joy associated with the art of painting lies in the sensory experience: the smell and texture of paint and brush. The visual sensation of a messy palette.

Purposeful attention to the scrape of the brush against canvas is an act of mindfulness and an entry point for Flow.



# Creative Movements Over Time

- Involving
- Spirited/Manic
- Chaotic
- Porous/Focused
- Tense
- Artistic
- Creative Play
- Collaborative
- Competitive
- Energetic
- Purpose-Driven
- Synergistic
- Differentiated
- Epiphany-Based



## Effective Affective Filtering Through the Arts

Engaging in artistic pursuits empowers a sense of determined purpose and focus. They tend to keep the mind rather busy in creative exploration, thus filtering exogenous static and opening the flood gates of inspiration.

Clarity and focus offers opportunities for flow to kick in in meaningful and productive ways.



# General Socioemotional Benefits of Arts Integration for the Gifted

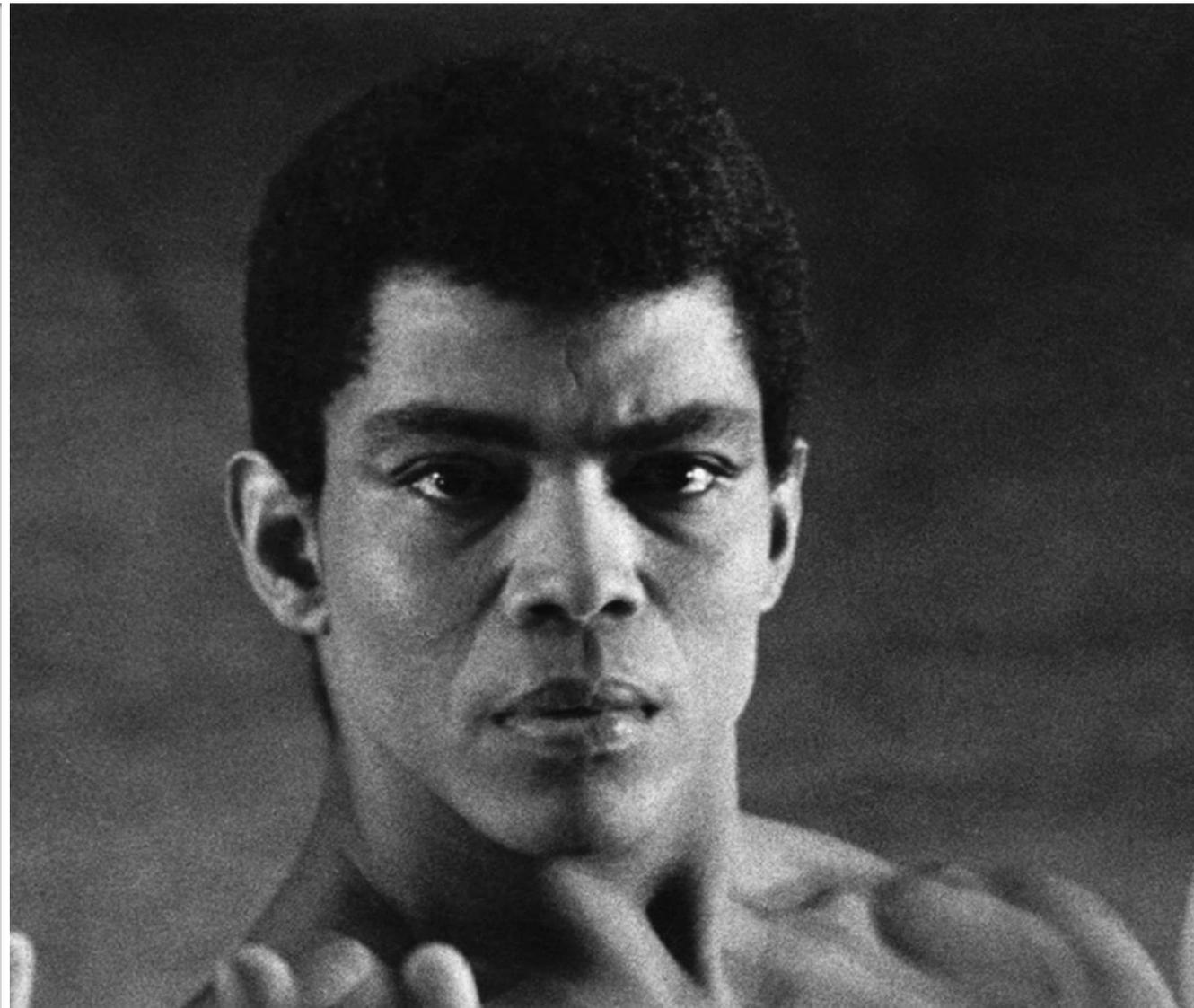
- Provides **'safe' environments** for gifted learners (no 'right' or 'wrong' answers) and a means to develop sound metacognitive habits and mitigate the impacts of perfectionism through revisions and refinements
- Facilitates **freedom of expression** and seeing 'shades of gray'
- Socially constructed learning that connects to the 'real world' and helps to **explain it, realistically**
- An outlet for both **empathy and intensity** – not always verbal
- Inspires **risk taking, confidence and competence**
- Discovering **role models** who have much in common with themselves

## On the Creative Process

"The creative process is not controlled by a switch you can simply turn on or off; it's with you all the time." – *Alvin Ailey (dancer)*

"I'm a very restless person. I'm always doing something. The creative process never stops." – *Oscar de la Renta (designer)*

"When I started 'Record Collection,' I had no idea that it would come out sounding the way that it did, and that's one of the best things about the creative process, taking turns with the things you didn't know." – *Mark Ronson (musician and producer)*



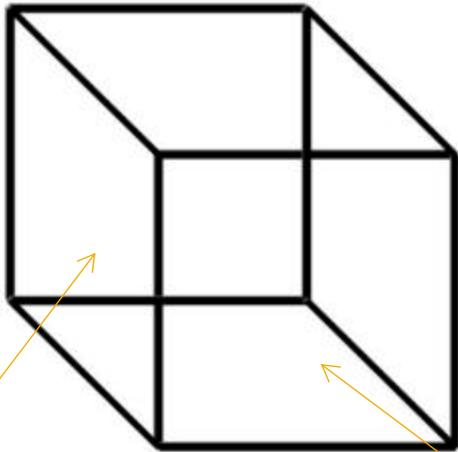
# General Socioemotional Benefits of Arts Integration for the Gifted

- Counteracting the Effects of a 'Media-Driven Culture'
- Cultivating social competencies (and relationships)
- Impacts on self-regulation and understanding of social justice and equity
- Opportunities to enhance socioemotional development (must be undertaken in a purposeful way)
- Empowerment, voice and the creation of healthy social scripts (decision making related to focus and methods)
- Opportunities for 'bite-size' successes, competence and confidence
- A place for everyone—not just the stars on stage

# Arts Immersion and Executive Function: A Partial List of Benefits

- Inhibition of impulse (lengthening the fuse)
- Previewing consequences
- Holding and manipulating information in working memory
- Sustaining attention
- Planning in the short and longer term
- Saliency determination
- Task initiation
- Depth of processing
- Tempo control (speed of work)
- Automaticity (skills that do not require conscious effort)
- Satisfaction (real, not temporary)
- Organization and time management
- Flexibility
- Self monitoring
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- Emotional self regulation

# The Necker Cube Illusion



*Although we all see lines and boxes, our Experiences will dictate whether we see the front as nearest to us or in the back. A rather rudimentary tool like the Necker Cube can compel gifted pupils to think beyond black and white and 'right' and 'wrong'. Important in ethics, important in physics.*

**Is the front here?**

**Is the front here?**

# Socioaffective Benefits of Music

- Enhances biological survival (hard wired for music— attracting mates, imitation, etc.)
- Advances cognitive systems (visual-spatial; analytical; mathematical; creative)
- Advances **stress-response systems**
- Improves memory, concentration and recall
- Improves ability to follow directions, **work collaboratively and/or individually**
- Positively affects **emotional systems, including enhancement of cultural understanding; social skills; personal skills**

## **JK Rowling on Commitment as it Pertains to Writing and the Arts**

*"You have to resign yourself to wasting lots of trees before you write anything really good. That's just how it is. It's like learning an instrument. You've got to be prepared for hitting wrong notes occasionally, or quite a lot. That's just part of the learning process. And read a lot. Reading a lot really helps. Read anything you can get your hands on."*



# Benefits of Visual Arts

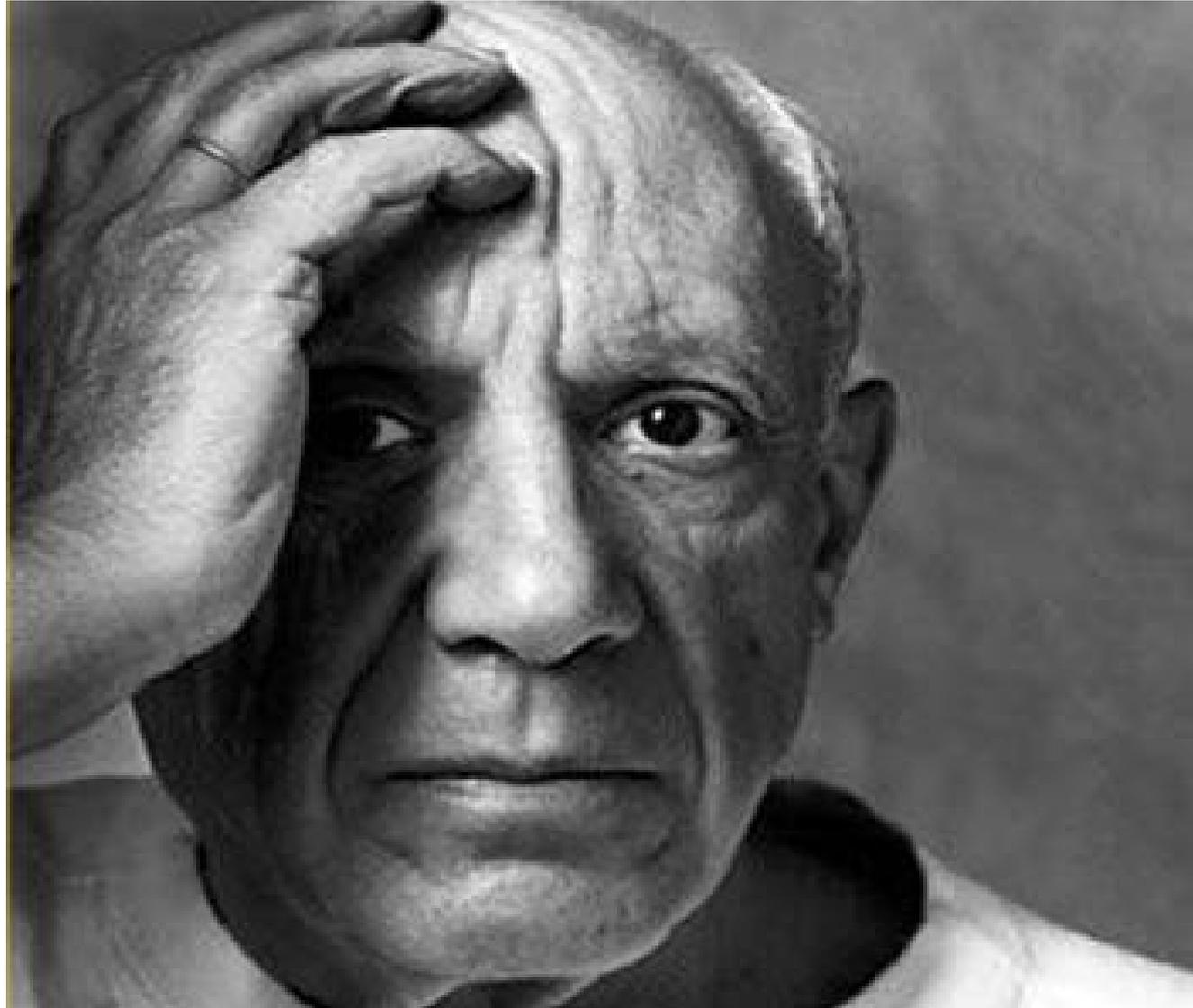
- Again, hard wired as part of survival mechanism—also a 'sketchpad' to accompany the spoken word
- Link between **visual arts and improvement in creativity, critical thinking** and reading (no easy answers!)
- Can enhance awareness in cognitively and culturally diverse classrooms
- Improvement in vocabulary and writing skills
- Improvement in recall, identification of patterns and outliers
- Provides students with '**choice**' and **greater levels of motivation** (attendance, participation)
- Improved levels of task commitment and **self control; teamwork,** time management (especially relevant for twice-exceptional pupils)

*Source:* Jensen, 2001

# WISDOM FROM PABLO PICASSO

*Every child is an artist. The problem is how to remain an artist once (s)he grows up.*

We tend to lose our enthusiasm for the arts around third grade, when we feel less free to color outside the lines and become more aware that our renditions look less and less like the 'real thing.'



# The Kinesthetic Arts (Dramatic, Industrial, Recreational)

- Enhance cognition, **positive attitudes, confidence** —may grow new brain cells
- Enhance ongoing development of various neurobiological systems, including cognition, immune, circulatory and perpetual-motor
- Provide unique challenges and environmental constraints that require the **application of multiple tools/systems to manage** (versus seatwork)—**metacognition, patience**.
- Compels making rapid decisions, keeping attention up, alertness for potential problems, scaffolding upon past experiences
- Increases **Emotional Intelligence** (monitoring own emotions, reading those of others)

# HEALING THYSELF THROUGH THE ARTS

*Research undertaken at UC Irvine with medical residents immersed in the visual and performing arts as part of the core curriculum indicate improved understanding of non-verbal cues. 'Bedside manner' was shown to have improved (empathy, self regulation of emotions, stress management).*



# Dramatic Arts

- **Inspire creativity** because of a 'natural recipe' for brain growth: challenge, novelty, feedback, coherence and time
- Improve understanding of sequencing, time, and **collaborative interpretation skills**
- Improve learning through multimodal reinforcement (running from state to state)
- Opportunities to **relate with the opposite sex in a non-threatening setting that calls for social discipline**
- 'Language' of dance (telling stories/expression)
- Improve **Emotional Intelligence**, empathy (puts oneself in the shoes of another)
- 'Feel good' chemicals run high: ***noradrenaline, dopamine***

Source: Jensen, 2001

# THE LANGUAGE OF DANCE

Labnotation is a symbolic language (not unlike hieroglyphs or today's Emojis) that provide us with a way to choreograph and understand human movement.

Dance, like music, offers a unique interpretation of and opportunity to connect to cultural perspectives, histories and traditions—for example, the Hula or the Vietnamese Harvest Dance.

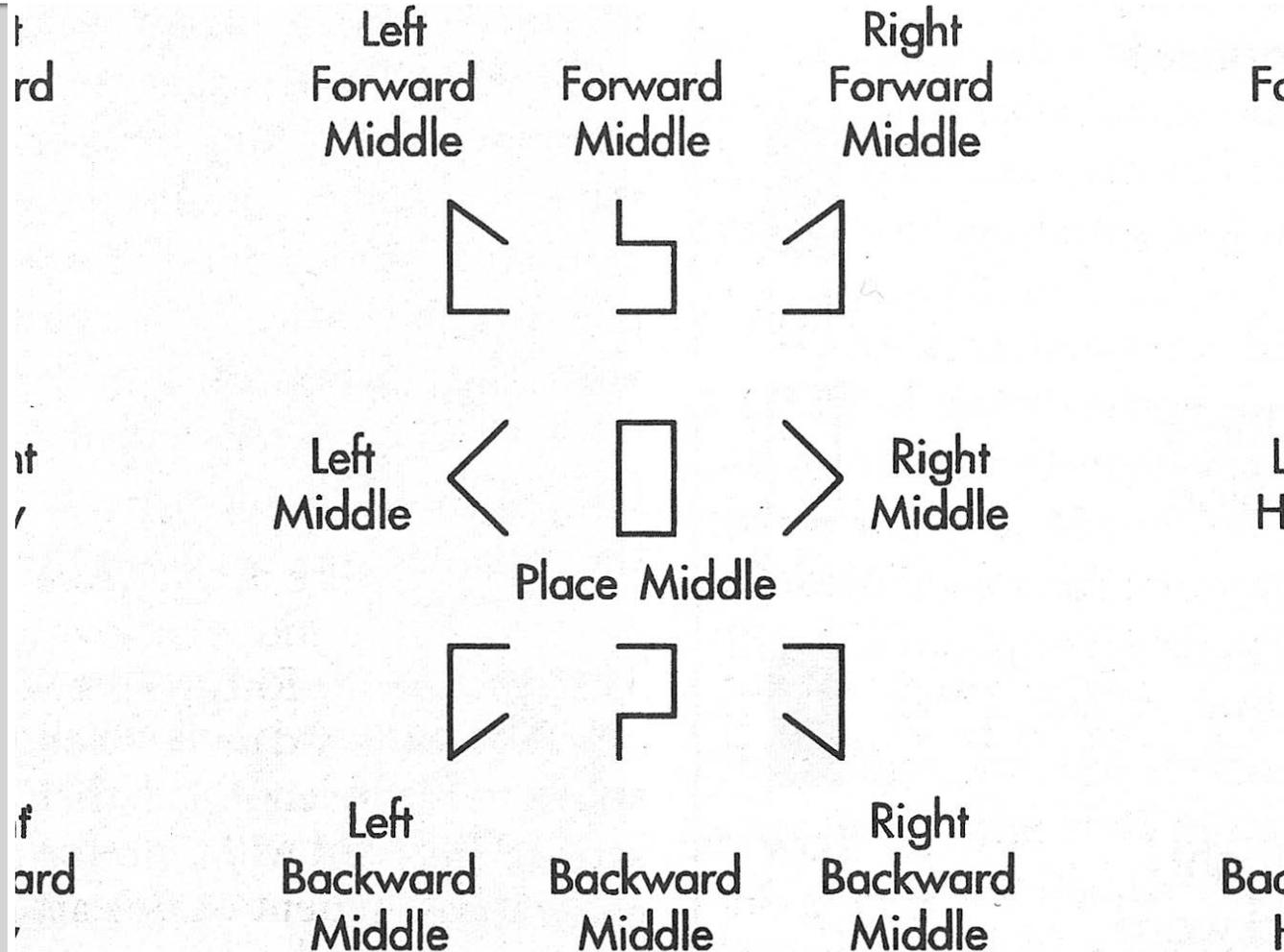


Figure 6

# THE MONUMENTS MEN

The story of the Monuments Men is inspiring for a number of reasons – a good movie and an even better read. Beyond preserving our shared cultural history as war raged through Europe, the epilogue of the Monuments Men helped bridge science and the arts.

The field of conservation and restoration involves a host of scientific tools and concepts (infrared, x-rays, chemistry, among others)—with many techniques pioneered by Lt. Cdr. George Stout (played by George Clooney in the movie).



# Understanding Depth and Complexity In and Through the Arts



2000s



1940s

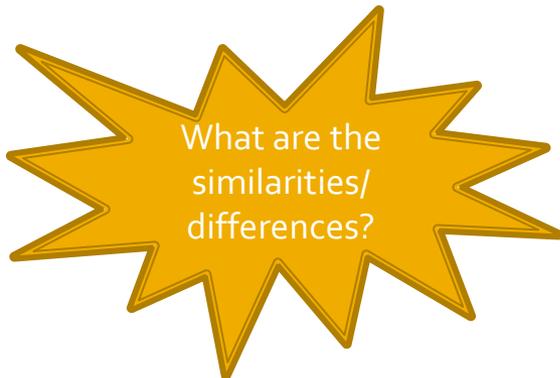
## Elements of Depth and Complexity

- Details
- Big Picture
- Perspectives
- Ethics
- Over Time
- Rules
- Language
- Patterns
- Unanswered ?s
- Across Disciplines

# Different Cultures, Different Times – Same Themes

Yo trabajaba, mis hijos iban creciendo  
Todos nacieron bajo de esta gran nacion  
-- y mis derechos los han ido pisoteando  
van formulando leyes de constitucion  
Que ha ya viejo si me quitan mi dinero --  
yo solo quiero mi seguro de pension

***Los Tigres del Norte, "Mis dos Patrias,"***  
**1997**



Now fill your glasses up, my boys, a  
toast come drink with me,  
May Erin's Harp and the Starry Flag  
united ever be;  
May traitors quake, and rebels  
shake, and tremble in their fears,  
When next they meet the Yankee  
boys and Irish volunteers!  
God bless the name of Washington!  
that name this land reveres;  
Success to Meagher and Nugent,  
and their Irish volunteers!  
Chorus--God bless the name, etc.

**"The Bonny Blue Flag," 1861**

# Past as Prelude

What is the symbolism? How do things change over time?

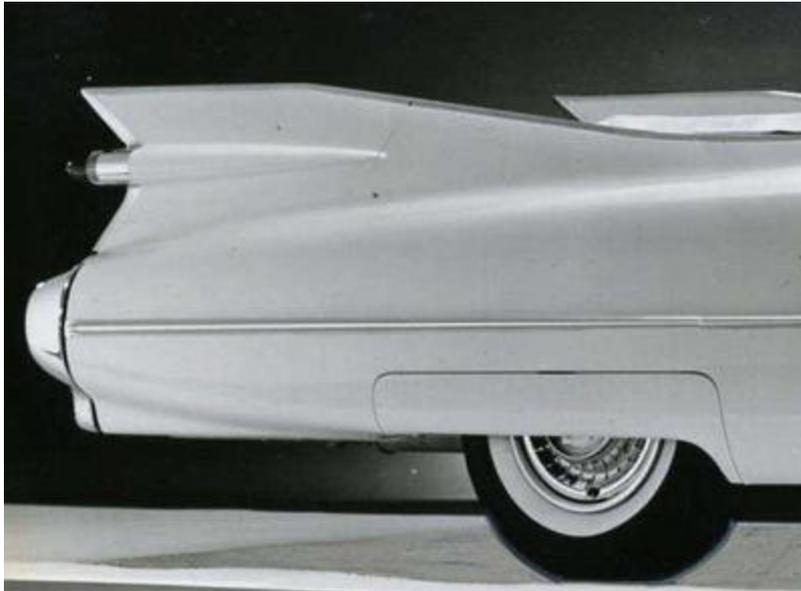


1940s, Iwo Jima



2000s, Baghdad

# Design a 'Retro-Inspired' Car



When was this car built?

How do you know?

How does the design of the car reflect the times?

Beyond style, is there purpose behind the design? What is it?  
How do you know?

**Your assignment:** *Design a modern car with a 'retro' influence—taking into consideration cost, price, fuel efficiency, environment, etc. Alternatively, design a car that best reflects the times we live in today!*

# THE NIGHT JAMES BROWN SAVED BOSTON

*Say it loud: I'm black and I'm proud!  
Say it loud: I'm black and I'm proud!*

*Some people say we've got a lot of  
malice, some say it's a lot of nerve.  
But I say we won't quit moving until  
we get what we deserve. We have  
been bucked and we have been  
scorned We have been treated bad,  
talked about as just bones.*

*But just as it takes two eyes to make a  
pair, ha Brother we can't quit until we  
get our share! Say it loud: I'm black  
and I'm proud! Say it loud: I'm black  
and I'm proud!*

*One more time! Say it loud: I'm black  
and I'm proud! I worked on jobs with  
my feet and my hand. But all the  
work I did was for the other man Now  
we demand a chance to do things for  
ourselves. We're tired of beatin' our  
head against the wall And workin' for  
someone else.*

**--James Brown, 1968**



# BLACKBIRD SINGING IN THE DEAD OF NIGHT

*Blackbird singing in the  
dead of night*

*Take these broken wings  
and learn to fly*

*All your life, you were  
only waiting for this  
moment to arise*

*You were only waiting for  
this moment to arise,  
You were only waiting for  
this moment to arise*

**--Paul McCartney, 1968**



# CODA

*Engaging gifted and talented students in arts pursuits not only brings them into the light as Plato envisioned, but offers opportunities for a sense of calm and well being.*

*As we understand, many gifted and talented feels as though they are under the spotlight and feel compelled to perform, even when alone.*

*Providing occasion for free expression in a challenging environment may not take the spotlight away in its entirety, but offers an opportunity not to be blinded by same.*



# Comments and Questions

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# Contact Information

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