

CHAPTER 4

THE SIX OTHER I'S

The other six "I's" are discussed in this chapter. These are imagery, imagination, intuition, incubation, insight, and improvisation.

THE "I" OF IMAGERY

Imagery is also part of the creative process. The term *imagery* is psychological, the ability to mentally represent imagined or previously perceived objects accurately and vividly. Imagery is an attribute of imagination. Imagery is not only visual, but also auditory, tactile, olfactory, and gustatory. Three types of studies of creativity and imagery have been done; (1) biographical and anecdotal studies of creators telling about their personal imagery and how it inspired them; (2) studies which compared people's ability to create imagery and their scores on certain tests of creative potential; and (3) studies about creative imagery and creative productivity.¹⁴⁶

Imagery is so natural to people that it almost goes without noticing. Take the creation of metaphors. Metaphors abound in human speech and writing. In fact, all metaphors are images for what is signified, helping people to see things better. A whole science of metaphor exists, which is too arcane to go into here, but the reader can notice metaphor in any magazine or television advertisement. Metaphor is the very way we see life, one may argue.

Advertising creators have great skill in this; the image of the bored Maytag repairman has been implanted in a society's psyche so that one just knows that Maytags don't need servicing very often. The image of the rough, tough, craggy man on a horse is associated with the Marlboro cigarette that hangs out of his mouth. The black and white photographs of languid anorexic European-looking teenagers with drug habits lounging around on the beach is the image of Calvin Klein for Americans who are not so slim, not so bored, and not so vacant. The image of singing fish on the wall ordering the man to give him back his filet of fish raised fish sandwich sales at McDonald's. The old lady asking where the beef was did the same at Wendy's. People watch the Super Bowl for advertising images. Babies talking about trading stocks from their high chairs and cowboys herding cats attract as many viewers as are attracted by the football.

To create an image that functions as a metaphor in words is what creative writers do. The word signifies the image and the skillful writer chooses the proper word or combinations of words to do the signifying. Read the various shades of white named in your local paint store: "pure white," "Zurich white," "rhinestone," "off white," "Navajo white," "ambience white," "city loft," "minimal white," "light moves," "white wool," "antique white," "Bauhaus buff," "nostalgia white," or "aria ivory"

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which do you “see” through the words chosen by the writers who named these shades? The adjectival metaphors, the nouns associated with shades of white bounce off the recognition of the reader. Which do you want on your walls? Or of green: “gallery green,” “Majorca green,” “acanthus,” “Regina mist,” “bayberry,” or “billiard green”? You say you can’t tell until you see the variations of shades; the written and the visual are here combined and the choice is often agonizing to the fussy decorator. The name of the shade doesn’t matter, but yet it does. The evocation of image through word is here illustrated.

Examples from Creators of the “I” of Imagery

Darwin saw evolution as the image of a branching tree; Einstein pictured what it would be like to fly next to a beam of light: “If a person could run after a light wave with the same speed as light you would have a wave arrangement which could be completely independent of time.”¹⁴⁷ Einstein learned to make visual thought experiments in his high school at Aarau, which was run on the Pestalozzi theories that “Visual understanding is the essential and only true means of teaching how to judge things correctly.”

Architect Maya Lin, who won the competition for the design of the Vietnam War Memorial in Washington, DC when she was still in college, deliberately tries not to create an image when she is working on an idea. That is because imagery is so powerful. She argued that creating an image immediately might lead to a sort of premature closure. She said, “In anything I’ve done, what I will do is resist picking up a pen, except to write, for as long as I can. And what I want to do is try to understand what I want to do as an idea.”¹⁴⁸ She researches about the site—its history, its culture—before creating the image. “I try to think of a work as an idea without a shape. If I find the shape too soon—especially for the memorials, which have a function—then I might be predetermining a form and then stuffing the function into the form.”

Guided imagery training goes on in schools, in athletics, and in business and industry. This training attempts to help people learn to manipulate images in their minds. The 2010 Winter Olympics television coverage showed skiers such as gold medal winners Lindsay Vonn and Bode Miller with eyes closed, imaging the course they were about to ski. In guided imagery a leader reads a script, with pauses, that suggests images to the people in the group, who sit in a receptive manner, quietly, with eyes closed. Imagery is essentially spatial, and as such, concrete evidence of the mind’s power to construct. Coaches teach athletes to image their performances before they do them; they visualize the ski run, the football play, or the course for the marathon. Studies have shown that athletes who use imagery perform better.¹⁴⁹

Exercise for a Group or for Staff Development

In creativity group, members experience an example of guided imagery.¹⁵⁰ Group members then think of ways they could use imagery in their own practice (see [Table 3.1](#)). One wrote, “I love the imagery exercise. It feels so real – helps create

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so much in my mind. It also makes me feel so calm and centered. I also like closing my eyes. Using the mind’s eye is a great skill. I think we should all develop the ability to create in our heads.” The group does an exercise called “Ten Minute Movie,” in which group members, in groups of two or three are randomly given a time and a place, and they must create a storyboard for a movie based in that time and place.

Exercises for an Individual

- Practice creating images from thoughts. You may use similes (this is like ...) or metaphors (this is ...). Draw them or write them in your Thoughtlog.
- Mentally image a lemon. Now mentally suck it. Feel the juices in your cheeks spurt. This is gustatory imagery. Draw it or write a poem about it.
- Mentally image the smell of your favorite flower. Feel the smile in the nose. This is olfactory imagery. Draw it or sing a song about it.
- Mentally image touching the soft fur of your favorite pet or mentally stroke the cheek of your newborn baby. This is tactile imagery. Draw it or dance about it.
- Mentally image yourself winning a race in your favorite sport. Take yourself through the whole process, in all the moves. This combines visual imagery with tactile imagery. Make a flowchart.
- Mentally image the voice of your mother, father, or favorite teacher saying one of his/her famous sayings. This is auditory imagery. Imitate her.

Ways Teachers can Embed the “I” of Imagery into Their Curricula

Here are some ways that teachers can use imagery to enrich their classroom curricula. These are suggestions by teachers from the creativity groups.

Table 4.1. Ways teachers can embed the “I” of imagery

Ways Teachers can Embed the “I” of Imagery into their Classrooms
General
<ul style="list-style-type: none">– Students create their own images for things they need to remember.– Have students image themselves completing a goal or obstacle. Visualize what it would like and feel like to achieve that.– When students are too wound up, help them find their “inner” adult by asking them to visualize themselves in the future.
Social Studies
<ul style="list-style-type: none">– Imagery could be used to set the stage for an event in history. Students would close their eyes and listen as the teacher painted a word picture of the scene. Descriptions of the place, the people,

the emotion, the action give a clear sense of what it was like to be there.

- Students would be given the name and description of a character they will play in a dramatic representation of the event in time. They will imagine themselves as the character and “act” accordingly.
- Before reading Susan B. Anthony’s speech, “Are Women Persons,” create an imagery exercise about women and men coming to hear her speak. Maybe a woman with her child in arms. Jeers in the background. Loud noise. Posters on both sides of issue. After giving a chance to imagine setting, I will read the speech.

Language Arts

- As a pre-writing exercise, they could make drawings, not using any words until the images were all released from their minds.
- Assign a writing exercise requiring students to write descriptions of images, without transitions or paragraphs, around the theme of a journey or a dream.
- Students always write better and more naturally after the teacher shows them video excerpts concerning the historical facts and commentary from the time and place that we are studying. This is partly due to them acquiring background knowledge, but more because the images in the film connect with the images in their own minds and blend to form new images in their writing.
- Use paintings and other artworks as writing prompts. Visual images transform and become written images.
- Use imagery before beginning a literary unit. With *Great Expectations*, my students close their eyes and I take them on a trip to the graveyard. Pip is alone, meets the convict.
- Poetry: Students close their eyes and listen to a poem. Have them draw or write down images.
- Discuss the importance of visualizing scenes from what you’re reading to deepen understanding.

Mathematics

- Forming the semi-regular polyhedra from the regular polyhedra; imagine the truncation of the vertices – see the new faces. Use images to predict and then concretely verify those images.

Science

- Use imagery when studying bees. By using cups with different scents the students will explore how bees use their senses to find the pollen that needs to be collected. By using their sense of hearing,

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students will listen to the flight of the bumblebee to imagine the sounds of a busy bee hive.

- Use imagery as anticipatory set to understand different processes—water cycle, food chain, flow of electricity; history, health (Magic School Bus series).

Music

- Play evocative music and have them draw pictures while the music is playing, or tell stories about what images the music made them think of.

Art

- Setting a scene is a great way to make students think visually. Take turns describing a place while the other students draw that place.
- Students close eyes and imagine their own “happy place”—have them create the place in a picture (through art)

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MY THOUGHTS AND INSIGHTS ON THE “I” OF IMAGERY

Possibilities:

- What is the difference between imagery and imagination?
- Make an image (drawing, creative writing, music, photography, dance, diagram, skit, etc.) about the “I” of Imagery.

THE “I” OF IMAGINATION

Imagination in the creative process refers to a mental faculty whereby one can create concepts or representations of objects not immediately present or seen. Imagination is a deepening of imagery.

The topic of imagination has generated much debate and thought in the area of philosophical aesthetics. French philosopher, playwright, and novelist Jean Paul Sartre wrote a book on imagination in which he proposed that imagination is more real than actual sensory perception, and thus imagination frees us, existentially.¹⁵¹ The Greek philosopher Aristotle considered works of the imagination such as poetry, drama, and fiction, more true than history because the artist could fabricate truth from the elements of history rather than exhaustively tell all the facts. The artist is able to tell the truth on a deep level, being able to see the patterns, and the overarching themes, using the imagination.

Working from the imagination is both stimulating and entertaining. Visual imagination is not the only kind that creators use. Composers imagine works in their “mind’s ear,” and mechanics imagine problems in their physical, spatial, array. Imaginative thought is also called daydreaming, and may be called night dreaming, as well as being called fantasy. Imagination contains known images, but also creates new images. When working from imagination, creators experience glee, a type of joy that makes one laugh, snort, and emote.

Everyone has a memory of the freedom of childhood play, of being free from the eyes and presence of adults, of running and pretending and making up stories until the summer day leads into dusk, then evening, and the adults call, ending the sweet fantasies enacted with the gang. To recapture that freedom of fantastical storytelling is the job of the “I” of Imagination.

Examples from Creators of the “I” of Imagination

Inventor Nicoli Tesla had, from his childhood, an imagination that could create images of inventions, without the help of drawings. Tesla wrote in a 1919 essay about his inventions,

When I get an idea I start at once building it up in my imagination. I change the construction, make improvements and operate the device in my mind. It is absolutely immaterial to me whether I run my turbine in my thought or test it in my shop. I even note if it is out of balance.¹⁵²

Russian actor and director Constantin Stanislavski has a whole chapter on imagination in his groundbreaking 1936 book, *An Actor Prepares*. He described his fictional director (his own persona, which he had to suppress because of censorship) inviting the cast to come to his apartment, where he pointed at the objects in the room, pointing out a sketch by Chekhov for the scene design of his last play. “Who would

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believe that this was painted by a man who, in all his life, never stirred beyond the suburbs of Moscow? He made an arctic scene out of what he saw around him at home in winter, from stories and scientific publications, from photographs. Out of all that material his imagination painted a picture.”¹⁵³ He went on to give the group, over a period of weeks, exercises to develop their imaginations as actors. His method became known as The Method, and it inspired actors throughout the world, including Marlon Brando and others who studied at the Stella Adler studio. Adler was a disciple of Stanislavski’s. Stanislavski emphasized sense memory, and extolled his students about imagination, thus:

*Every Movement you Make on the Stage, Every Word you Speak,
is the Result of the Right Life of your Imagination.*

If you speak any lines, or do anything, mechanically, without fully realizing who you are, where you came from, why what you want, where you are going, and what you will do when you get there, you will be acting without imagination.... If I ask you a perfectly simple question now, “Is it cold out today?”... you should, in your imagination, go back on to the street and remember how you walked or rode. You should test your sensations by remembering how the people you met were wrapped up ... how the snow crunched underfoot ... If you adhere strictly to this rule ... you will find your imagination developing and growing in power.¹⁵⁴

Writer John Updike said that said that creative imagination “is wholly parasitic upon the real world ... Creation.” This imagination is two-sided, the outer side seeks an audience and the inner side intersects with “reality itself... whatever may be true in painting or music, there is no such thing as abstract writing.”

Some writers connect imagination and dreaming. Novelist John Gardner said, “Out of the artist’s imagination, as out of nature’s inexhaustible well, pours one thing after another. The artist composes, writes, or paints just as he dreams, seizing whatever swims close to his net. This, not the world seen directly, is his raw material.” Poet Denise Levertov said, “Imagination, that breathing of life into the dust, is present in us all embryonically manifests itself in the life of dream and in that manifestation shows us the possibility: to permeate, to quicken, all of our life and the works we make.” Levertov described how in a dream she went to the mirror and saw the dream character, a woman with hair wet with a spidery net of diamond-like water drops from misty fields, and said that the very detail of the woman in the mirror was evidence for the “total imagination,” which is different from the intellect. She called it the “creative unconscious.”

Mathematician Steven Strogatz wrote about the use of the imagination in the creation of fractals, which require the understanding of the square roots of negative numbers, which logically, don’t exist as negatives because when you multiply two negatives you get a positive. “The square root of -1 still goes by the demeaning name of i , this scarlet letter serving as a constant reminder of its “imaginary” status.” However, you need to continue to imagine: “But with enough imagination, our minds can make room for i as well. It lives off the number line, at right angles to it,

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on its own imaginary axis. And when you fuse that imaginary axis to the ordinary “real” number line, you create a 2-D space — a plane — where a new species of numbers lives.” These are complex numbers, which are “the holy grail,” where fractals and binary calculations begin.¹⁵⁵

Exercise for a Group or for Staff Development

In creativity group, the group members rummage through a costume trunk, choose a costume, and form teams whereby they imagine a myth of creation for an animal mask. They then act out the myth. This exercise ends up in hilarity, as well as profundity, and illustrates, in a short concrete way, how the imagination, when permitted, is used in creating literary works and works of the body such as theater and dance.

Exercises for an Individual

- Join a community theater group or workshop, and, when you get a role, throw yourself into pretending. Truly suppose you are the person you are cast to be.
- Imagine you are somewhere in time, sometime in time—give yourself an age, a gender, a costume. Sit there with your eyes closed, and tell the story of this person.
- Play dolls.
- Play cowboys.
- Play war.
- Play paintball.
- Play Dungeons and Dragons or other fantasy games.
- Join a re-enactment group and re-enact their passion.
- Find a child and tell him/her a bedtime story that you make up as you go along.

Ways Teachers can Use the “I” of Imagination

The classroom is a place for hard work and, increasingly, drill, repetition, and teaching about how to get the right answers on tests. Take a break sometimes and “play.”

Table 4.2. Ways teachers can use the “I” of imagination

Ways Teachers can Use the “I” of Imagination

- Create an “imagination corner” in your classroom, with appropriate prompts for the use of imagination. (Yes, secondary teachers of basic and advanced subject matter, this means you, too.)
- Have students remember incidents, tell stories, and teach them to exaggerate playfully. The delight that imagination enhances should be noted.

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- Emphasize play as an initial activity for any topic. Like adults at conferences, have imaginative warm-up activities for getting acquainted, beginning a new unit, changing settings.
- Help students walk in the shoes of other students. Teach students to imagine how others think and feel and to understand that certain phrases/actions may be harmful, if not debilitating, to another student.

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MY THOUGHTS AND INSIGHTS ON THE “I” OF IMAGINATION

Possibilities:

- What would the world be like without imagination?
- When you are imagining things, how do you feel?
- Make an image (drawing, creative writing, music, photography, dance, diagram, skit, etc.) of the “I” of Imagination.

THE “I” OF INTUITION

Intuition is having a hunch. “Just knowing,” having a gut feeling. Again, the philosophers have discussed intuition since Plato and Aristotle, through Descartes, to Kant, to Bergson and Husserl. I won’t go into this complicated esoterica, except to say that the discussion of intuition has evolved from being a discussion of a type of intellectual closure (e.g. $2 + 2$ is, intuitively, 4) to a discussion that intuition is completely non-intellectual.¹⁵⁶ Bergson described his intuition about intuition as one of the most meaningful of his life. He was a professor of philosophy at a university in France, and it just came to him that the rational is not rational, and that the not rational is necessary. Psychologists giving certain tests and checklists have concluded that creative people trust and prefer to use their intuition.

Everyone has intuition, but many don’t trust their intuition. Intuition is ambiguous, nebulous. For example, skipping steps in mathematics is an indicator that intuition is being used. Paul Erdős frustrated even fellow mathematicians with his tendency to skip steps and then expect that people understand him).¹⁵⁷ Those who prefer the intuitive often prefer not to read technical manuals, but jump straight to the tasks, using trial and error to solve the problems.

Intuition is not verifiable by scientific or empirical means, which leads experimentalists to say that it doesn’t matter if it can’t be verified to exist, and the trusters in the mysterious to say, well, of course. Intuition seems to be a personality preference on the MBTI for artists, scientists, and writers, entrepreneurs, mathematicians, actors, inventors, and composers¹⁵⁸. Biographical information, testing, historical and archival research, and experimental studies have shown that creative people use intuition in doing their work.

The place of intuition in creating has long been honored. Jung thought that intuition was a message from the collective unconscious of the archetypes of the deep human experience. He defined intuition as “neither sense nor perception ... a content presents itself whole and complete, without our being able to explain or discover how this content came into existence.” Jung wrote about introverted intuition, that it makes mystical dreamers, creative artists, or cranks: “If he is an artist, he reveals strange, far-off things in his art, shimmering in all colours, at once portentous and banal, beautiful and grotesque, sublime and whimsical. If not an artist, he is frequently a misunderstood genius.”¹⁵⁹ Malcolm Gladwell wrote a book called *Blink*, in which he said that people use the first 2 seconds after encountering something new to make a decision, but he was adamant in saying that this was rapid cognition, and not intuition, as intuition is too emotional:

You could also say that it’s a book about intuition, except that I don’t like that word. In fact it never appears in “Blink.” Intuition strikes me as a concept we use to describe emotional reactions, gut feelings—thoughts and impressions that don’t seem entirely rational.¹⁶⁰

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Now who’s splitting hairs, Mr. Gladwell? says this reader.

Daniel Cappon made a helpful list of the skills that are inquired for intuition. They consist of the basic skills and the higher skills, and are arranged in a hierarchy from lower to higher.¹⁶¹

1. Utilizing quick eyes (recognizing an object exposed for 1/25 seconds).
2. Seeing through things (recognizing an object through a whiteout).
3. Finding things in a crowd (needle in the haystack or “Where’s Waldo?” (the kids’ game).
4. Recognizing similar objects from successive exposures.
5. Recognizing dissimilar objects from successive exposures
6. Putting things together (assembling a jigsaw puzzle).
7. Estimating present time flow.
8. Employing quick memory (instant recall of different objects in a crowded space).
9. Knowing what one didn’t know one knew (puzzling out a word or symbol from a foreign language, or naming an object and its use from the very ancient past).
10. Using spontaneous imagery such as imagining things on a plain wall.
11. Associative imagery related to a picture (active imagination).
12. Knowledge of what will happen next (anticipation or foresight, such as predicting what will happen next in an evolving event, as when a goalie knows where to be in order to save a goal).
13. Best timing (knowing exactly when to take the right step or action).
14. The hunch (perception of a problem’s ultimate optimal solution, such as the foot-of-bed medical diagnosis).
15. The best way (choice of optimal method, e.g., knowing what steps to take in order to solve a problem).
16. The best application of a discovery (optimal future application of a discovery, such as foreseeing aerodynamic transportation from flying a kite).
17. Hindsight (perceiving the causality or aetiology of a medical problem or discovering the steps of a process).
18. Associative matching (assortative cognitive synthesis, such as matching a child’s face to his or her face as an adult).
19. Dissociative matching (dissortative cognitive synthesis, e.g., being able to tell who didn’t belong in a group picture of a family with one stranger in it).
20. The meaning of things (teleological ideation, such as understanding the meaning of archetypes, symbols, religious rituals, etc., or the meaning of an event).

As a possible illustration, with regard to number 20, visual artist Stuart Davis said, “What I’m trying to do is resolve my daily intuitive questions into a practical visual logic that will last through the night. And if it lasts through the night it will last forever.”¹⁶²

Of course, we must not forget that teaching itself is an intuitive practice, despite the attempts of overseers to make it concrete and accountable. The teacher constantly intuits, thinks on her feet, understands instantly what the student is driving at, and what is the best way to respond. Teaching is improvising and reacting in the instant. The more one teaches, the more intuitive one is; a deep knowledge of the techniques

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of pedagogical interaction is embedded into the teacher's repertoire by the time she has been teaching for awhile. No lesson plans for how to teach will suffice; teaching well also needs gut reactions and intuition. Christopher Bache, a college professor, has written a book about how intuition feeds upon synchronicity while the teaching is going on. He called it "a mysterious interweaving of minds," and "the magic."¹⁶³

When the magic happened, the walls of our separate minds seemed to come down temporarily, secrets were exchanged, and healing flowed. When the magic happened, my students and I tapped into levels of creativity beyond our separate capacities ... If I cut myself off from my intuition ... I would also be cutting myself off from a creativity that was benefiting my teaching in very tangible ways.

Exercise for a Group or for Staff Development

The importance of intuitive perception of the world, of a non-concrete but still tangible apprehension of underlying truth informs the creator's view of life. Instruct the group to sit back to back, and try to send a message, one at a time, to the person behind them. They then give each other feedback. It is sometimes amazing what people are able to intuit. Others get nothing, but still remember that intuition is mysterious and ephemeral.

Another exercise is Zen sketching.¹⁶⁴ Project a series of art works on the screen in a darkened room, and have group members quickly sketch the outlines. This helps them see the big picture, a characteristic of the intuitive perceiver. This also can be used to illustrate insight, as they immediately see the negative and positive space in the illustrations.

One teacher said, about intuition:

Intuition is something that children recognize. They already know it and are comfortable with whatever it is that they know. Therefore, they should be allowed to explore it fully. Intuition will be the base, and from it will extend elaboration and the development of their gifts.

Exercises for the Individual

- Try some of the types of intuition that Cappon (see above) has categorized
- Play games that require intuition such as Battleship, bridge, or Clue.
- Do jigsaw puzzles.
- Guess. Pay attention to your hunches.

The suppression and disparaging of intuition by the rational is rife; try to treasure your intuition and practice using it.

Ways Teachers can Embed the "I" of Intuition into the Classroom

Again, the classroom is supposed to be a place of logic, of judgment, of order and predictability, but experienced teachers "just know" things about procedures,

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students, and colleagues. “Is anything wrong?” one says to another as they stand by the mailboxes, before they even speak. “What’s going on?” says the principal, as she stands at the doorway welcoming students, and suspects a supposedly innocent gang of being up to something. Management by Walking Around, a famous strategy for administrators and teachers, relies on the experienced educators’ intuition to divine what’s up. Here is a table (Table 3.3) of some ways to honor intuition that teachers have recommended.

Table 4.3. Ways teachers can embed the “I” of intuition

Ways Teachers can Embed the “I” of Intuition into their Classrooms
General Classroom
<ul style="list-style-type: none">– Have a discussion of intuition—has it affected them in any way? and then have students generate examples to spur an awareness.– Have students make predictions about the rest of the day (phrases they may hear, what they expect for dinner, etc.) Then they can watch and listen. This might heighten awareness of what is going on around them.– Discuss safety issues. Define, discuss, share—safe situation vs. unsafe. If your gut tells you it’s wrong, it is wrong. Help young children recognize and appreciate their “gut reactions”; “feelings” about situations in their lives from an early age. The safety message of if it feels wrong or bad, it probably is. Run!– Recognize hunches and relate it to the hunches described by creators—inventors, athletes, scientists, mathematicians.– Discuss testing strategies—often the first answer one thinks of is the right one.– Talk about times they followed/didn’t follow their intuition. What can we learn from this? Expose them to intuition as a part of themselves; they may not realize it.– Look for examples of characters in books using intuition.– Many kids are very intuitive and it is almost like a breakthrough for them when they realize others have it too. Just ask, “What is intuition?” The question generates discussion and deep thought.– Honor children’s choices about what they think they should do with their lives.– Let kids explore times they “just know.” Allow a correct outcome w/out requiring the steps to it. Talk, journal about places that make kids feel good/bad. Trust the kids. Allow alternative explanations. Be open to interpretations based on feelings. Don’t overthink.

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- Working with intuition with the kids could include work with the invention process. If they go with their “gut instinct” rather than try to “overthink” everything, what will solve this problem? How will it work?

Mathematics

- Play some strategy games/ideas where they can try to figure out what someone else will do before they make their move – analysis.
- Play Battleship
- Interdisciplinary Arts and history
- Study a painting before reading about a period of history and ask them to use their intuition to read the artist’s message before. Use a representative piece of music in the background as the piece.

Language Arts

- Read science fiction/fantasy writing. The characters often operate on intuition. Have them recognize when and how it works.
- Write a story without an outline, intuitively creating a plot.

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MY THOUGHTS AND INSIGHTS ON THE “I” OF INTUITION

Possibilities:

- Describe a time when you had a hunch and it paid off.
- What does Davis mean when he says “If it lasts through the night it will last forever”?
- Make an image (drawing, creative writing, music, photography, dance, diagram, skit, etc.) of intuition.

THE “I” OF INCUBATION

Incubation as a part of the creative process occurs when the mind is at rest. The body is at rest. The creator has gone on to something else. The problem is percolating silently through the mind and body. But somewhere, inside, down there below the surface, the dormant problem is arising. A solution is sifting. Incubation was one of the steps in Wallas’ four-part description of problem solving.¹⁶⁵

Psychologists speak of an “incubation effect,” which may be caused by conscious work on the problem, and after wards, overwhelming fatigue, where what doesn’t work has been forgotten.¹⁶⁶ While resting, the mind works on putting unlike things together. All the ideas may be assimilated through this time period. Then awareness comes and the answer is there.

Experiments have shown that if people are given a problem and told to solve it right away, they solve it less successfully than if they are given the problem and told to go away and think about it. The psychological research on incubation often uses insight problems where the problem solvers reach an impasse and must take a break before coming upon the answers to the problems.¹⁶⁷ Some evidence also exists that using forced incubation, that is, intentionally putting aside a creative project and letting it bake, so to speak, results in more creative products.¹⁶⁸

Examples from Creators of the “I” of Incubation

People often incubate while driving, sleeping, exercising, even showering. Kary Mullis, a Nobel-prize winner, came up with PCR (Polymerase chain reaction) while driving.¹⁶⁹ Novelist Gabriel Garcia Marquez, while he was a reporter was driving one day between Acapulco and Mexico City. He perceived the first chapter of *One Hundred Years of Solitude*. He went home, told his wife not to disturb him, and for the next 18 months, he closed himself into a room for up to ten hours a day, and wrote the novel.¹⁷⁰ Child developmental psychologist Jean Piaget said: “When I have done a number of chapters I leave them for six months in a drawer, to reread later. One then senses what is missing, what must be developed or shortened.”¹⁷¹

Exercise for a Group or for Staff Development

In creativity group, incubation is illustrated by the individual creativity project, which is the final product. Group members spend days (some who prefer Judging and Sensing on the MBTI know instantly what they will do, but others take time), weeks, and months thinking of what they will do for this project. “Let it incubate,” the leader should say. “You’ll know what you will do when you know what you will do.” The leader must approve this project, and have ongoing discussions with the group members, as they incubate about it. Then, when they choose their products, they incubate about how to present it, and how to make it.

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Exercise for an Individual

Put it away. Stop work on it just as you are revving up. Go and do something else. Sleep on it. Pay attention to your thoughts and even your dreams throughout the days, weeks, months, year. Let it rest. You are incubating and the insight will come.

Ways Teachers can Embed the “I” of Incubation Into the Classroom

The natural way to do this is to give a specific time period for assignments before they are due. Make it conscious, though. The literature on metacognition suggests that reminders and a schedule for certain aspects of the assignment to be completed along a timeline helps students get things made.

Table 4.4. Ways teachers can embed the “I” of incubation

Ways Teachers can Embed the “I” of Incubation

- Subscribe to the project curriculum orientation. The recent emphasis on 21st Century Skills emphasizes collaboration and projects. Give group and individual projects, with a timeframe that gives enough time for thought. Set a time when students must tell you what their project will entail, but don’t demand specific steps or details, as these will change as they incubate. Ask for progress reports so they will have the self-discipline to complete the project.
- Use technology for collaboration with distant partners. Several ongoing quest systems exist, such as ThinkQuest, where students collaborate with students in a different place, country, location. Emphasize that the projects need downtime, where one can think and plan and come up with variations, methods, and new ways.

CHAPTER 4

MY THOUGHTS AND INSIGHTS ON THE “I” OF INCUBATION

Possibilities:

- Describe a time when you incubated a creative solution.
- How does incubation work in the mind and body?
- Make an image (drawing, creative writing, music, photography, dance, diagram, skit, etc.) about incubation.

THE “I” OF INSIGHT

Insight in the creative process is the ability to see and understand clearly the inner nature of things, especially by intuition. Cognitive psychologists have researched several types of insight. The studies have shown that insight has the appearance of suddenness, requires preparatory hard work, relies on reconceptualization, involves old and new information; and applies to ill-structured problems.

Insight involves restructuring the problem so that it can be seen in a different way. Many notable creative works have originated from insights. When insight happens, we just have to say “Aha! So that’s how it works. So that’s the answer. So that’s what it’s all about. So that’s what the pattern is.” The most famous image of insight is that of Archimedes rising from the bathtub, saying “Aha!” and running down the street, after he discovered the principle of the displacement of water. The “Aha!” comes after knowing the field really well, and after incubation. However, the insights are often a series of small progressive insights as the creator thinks about the problem or creation.¹⁷²

Examples from Creators of the “I” of Insight

Physicist J. Robert Oppenheimer was known as an idea man. He would have the insight and publish a small paper, just ahead of the scientists who would develop the elegant solutions to the problems. He published about black holes before anyone, but then moved on to another insight and another, having no patience for developing the problem further.¹⁷³

Steve Jobs and Steve Wozniak, who founded Apple Computers together, when they went to their first computer show, in the 1970s, saw how other companies advertised their wares and had an insight. Marketing is key. For the next computer show, they rented the first spot, near the door, and made a splashy display utilizing awe-inspiring graphics and design, even though they had not yet invented the computer. They sold out before the computer was made.

Exercise for a Group or an Individual

Zen sketching, as mentioned above, in the intuition session, also works here, to illustrate insight. Turn out the lights. Show slides of scenes. Group members must keep their eyes on the screen and quickly draw the slides. This forces insight into the layout of the slide, quick perception of what it consists of.

Group members also record their creative process of insight in their Thoughtlogs, as they decide upon their individual or group creativity projects. They cite their dreams, their walks, their drives, and such, as the moments when it all came together—their “aha!” experiences that came incrementally or all at once (big “aha” or little “ahas”).

CHAPTER 4

Ways Teachers can Embed the “I” of Insight

Again, making it conscious is the task. All people experience insights; the teacher’s job is to help students recognize the insights.

Table 4.5. Ways teachers can embed the “I” of insight

Ways Teachers can Embed the “I” of Insight
<ul style="list-style-type: none">– Intentionally define insight and talk about it, and then discuss it with the students, to have them realize its presence when they are thinking about things.– Keep a list of students’ insights and post it.– Study the insight method of teaching math. Give students a problem without a solution. Do not teach them a model or a theorem. They will have to develop insights in order to create a mental model in order to solve or partially solve the problem. http://teachingmath.nfo/index.htm– In language arts/literature, encourage students to write their thoughts in the text (alternatively, use sticky notes) as they have insights about the topic, the style, the thoughts. This will create a permanent record of their thoughts and will give them insight when they come back to the text. (See example of the “thoughts and insights” pages in this text.)– Talk about your own insights.

THE SIX OTHER “I’S”

MY THOUGHTS ON THE “I” OF INSIGHT

Possibilities:

- Describe the physical and mental circumstances of your last insight. What was it about?
- What does insight have to do with creativity?
- Make an image ((drawing, creative writing, music, photography, dance, diagram, skit, etc.) having to do with the “I” of Insight.

THE “I” OF IMPROVISATION

The importance of improvisation in the creative process cannot be understated. Improvisation is to go where you have not been before, to fly by the seat of your pants, to play it by ear, to trudge through the desert without a camel. For example, to play your musical instrument without music in front of you is frightening to some who have learned to trust in their reading ability and not in their intuition and musical memory. The idea of “play” in improvisation is a necessity. Think of children making up the game as they go along, lost in imagination, forming teams and sides in a fluid all-day motion generated by the discourse of the moment.

Examples from Creators of the “I” of Improvisation

Improvisation seems to be a key part of the creative process. Although improvisation is a key skill in the domains of music, dance, and theater, other creators also use it. Visual artist Edward Hopper relied on improvisation as he painted: “More of me comes out when I improvise.”¹⁷⁴ The poet James Merrill used automatic writing as an improvisational technique: so did William Butler Yeats. In automatic writing you keep your pen on the paper and do not take it off and just write and write whatever comes out, without judgment.

Improvisation underlies all creativity, but in music, dance, and theater, the improvisational performer cannot revise the work as writers or painters can. Improvisation in theater and music is almost always collaborative, and requires instant communication between people in the improvisation group. The Russian composer Dmitri Shostakovich was forced to take several jobs accompanying films at the silent cinemas. During one film, called *Swamp and Water Birds of Sweden*, he improvised birds calling and singing and flying, and he was surprised when the audience began to cat call and clap. They didn’t like his improvisation, but he was glad he was able to divert them from the film with his talent for doing so.¹⁷⁵ Later, he composed many scores for films.

Dance choreographers rely almost universally on improvisation in order to begin to make a dance. Martha Graham would begin to dance, outlining the pattern she wanted, and her dancers would imitate her. Then she would work on fixing the gestures so that the dancers would be moving together. Merce Cunningham would improvise with figures on his famous computer program for choreography. Choreographer and dancer Twyla Tharp, winner of the Kennedy Medal, called improvisation “futzing.” To call it improvisation seemed too institutional. Improvisation is messy.” She is

in a certain state where the cerebral powers are turned off, and the body just goes according to directive that I know not of, it’s at those times that I feel a very special connection to ... I feel the most right. I don’t want to become too mystic about this, but things feel as though they’re in the best order at that

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particular moment. It’s a short period. It goes only, at maximum, an hour. But it is, that hour that ... that tells me who I am ... There are moments where things come, and they don’t know where they’ve come from.¹⁷⁶

Exercise for a Group or for Staff Development

Here are some areas in which one can improvise.

–Jazz

Play a jazz composition based on a familiar melody, a common children’s song, the simpler the better. “Row row row your boat” is fine. Improvise on the melody. Afterwards, talk about the feeling of going beyond the written notes.

–Theater

Many theater games exist. Here’s one. Get two volunteers for an improvisational theater exercise. One is the desk clerk and one is the person who wants a room. Conduct a conversation where each person can only ask questions. Switch. Conduct a conversation where each person can only make statements. Switch. Conduct a conversation where one person can only ask questions and the other person can only make statements. The work of Augusto Boal combines theater improvisational games and exercises with social justice themes, and is very powerful.¹⁷⁷ I have participated in some of these workshops, which were deeply affecting. Along the same lines, but without the social message, the work of Viola Spolin is the classic theater improvisation guide.¹⁷⁸ Laughter abounds. Creativity is at home with improvisational theater.

–Word Rivers and Writing Practice

Put your pen to paper and do not take it up. Write whatever comes to your mind for the next ten minutes. Begin with “I have this pen in my hand ...”

–Creative Movement

Play some music that is free form. Form a circle. Listen to the music and begin moving your arms in response. Now add your legs. Add your body. Try the floor, the mid-level position, the high-level position. Have fun. No one is watching you. In creative movement, no step is wrong; it is not rigid and one doesn’t need to be able to count or imitate.

–Rhythm & Drumming

Gather a series of items that can make noise; pots, pans, sticks, tubs, bells, whistles, and the like. Play a video of the group “Stomp” or of a drumming group to demonstrate briefly. Divide into small groups. Create a musical piece that utilizes rhythm and drumming. Present it to the group.

–Scat Singing

Play a recording of Ella Fitzgerald or Mel Tormé scat singing. Scat singing is improvisation with the voice. The singer uses nonsense syllables and moves

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along with the accompaniment, becoming, virtually, one of the musical instruments. Now, as a group, sing along with them. Doobie doobie do.¹⁷⁹

–Doodling

Read the group a story. They must doodle while they are listening. Tell them about how President Kennedy's doodles during important security meetings sold for big sums of money. While doodling, breathe deeply, and listen and let what comes out come out. This can also be done while listening to music.

–Joke-telling

Lighten up. Humor is a definite part of the creative process. Developmental and cultural, humor is so idiosyncratic that at different ages and in different lands, we laugh at different jokes, though slapstick humor seems to be universal. Improvise by joke telling. Sit around and tell funny stories—clean, of course! After everyone has told a joke, talk about the effect on the group feeling. Joke telling and humor increase the confidence for the core attitude of risk-taking.

–Story-telling

Someone begins by telling a story, perhaps an apocryphal family story about a relative, the one that everyone tells when they get together. The story will remind someone of another story, and that person will jump in, telling that story. That story will remind someone else of a story, and that person will tell that story. Proceed until everyone has a chance to tell a story. There is no set order of participation, and people can tell more than one story, but no one should dominate.

–Dance

Dance is also improvisational, if one goes to a club or a special event. In group, you can dance to a video by dancer Gabrielle Roth, who is a teacher of dance as creative and spiritual practice. Students improvise on several rhythms: largo, staccato, etc., are demonstrated and the group members follow.¹⁸⁰

Ways Teachers can Embed the “I” of Improvisation

See above. Many good books on improvisation exist. Among them is Bernardi's *Improvisation Starters and Newton's improvisation book*.

THE SIX OTHER “I’S”

MY THOUGHTS AND INSIGHTS ON THE “I” OF IMPROVISATION

Possibilities:

- List and reflect on some times when you improvised.
- How difficult is improvisation?
- Improvise an image (drawing, creative writing, music, photography, dance, diagram, skit, etc.).

CHAPTER 4

Are there SEVEN “I’s”?

The Seven I’s are, of course, somewhat arbitrarily chosen, based on the stories of creators about their creative process, but made into a list by me. All creators do not use all the I’s, but most use most. A friend has suggested adding the “I” of Intent. Another friend has suggested that the I of Imagery and the I of Imagination are too similar. The point is that there is a psychological research literature on each of them, and that they are a main aspect of the creative process, and that you can incorporate them into your own creativity, whether there are 8 “I’s” or 6.

SUMMARY OF KEY POINTS

- 1 The “I” of Imagery can be visual, auditory, gustatory, tactile, or olfactory.
- 2 The “I” of Imagination contains imagery but is related to the process of play, fantasy, and story.
- 3 The “I” of Intuition is basic and consists of gut feeling, or “just knowing.”
- 4 The “I” of Insight values the quick “aha” that leads to creative exploration.
- 5 The “I” of Incubation signals a slow down and wait trust that the insight is coming.
- 6 The “I” of Improvisation is aligned to the idea of play.