

North Salem Central School District

Characteristics of Creative, Divergent Thinking

(adapted from the work of E. Paul Torrance)

Creative / divergent thinking processes work to “open up” the thinking as needed for problem solving. The work during the creative / divergent thinking process exhibits the following attributes:

- **Fluency** – easily and quickly produces many, diverse thoughts/ideas/plans/solutions/etc. – “wild and crazy” ideas are OK, does not edit self or others during this process
- **Flexibility** – flows among various divergent thinking processes* to keep ideas flowing; makes connections between / among ideas, approaches, plans, etc.
- **Originality** – produces original, unexpected, uncommon ideas and connections – resulting products and/or processes perceived as new and useful -- knocks your socks off!
- **Elaboration** – adds diverse and varied details to enrich original ideas/connections; adds complexity

Creative, Divergent Thinking Processes

a. BRAINSTORMING, QUESTION STORMING, THUMBNAIL SKETCHING

- Generate a lot of ideas regarding a specific topic. Use the research-based “rules and processes” for successful brainstorming, question storming, and Thumbnail Sketching

b. OBSERVING MORE CLOSELY AND IN MORE DETAIL (Clever Detective)

- Use all appropriate senses to find the details that might go un-noticed. Look for connections, patterns, relationships, and hidden information.
- Observe the “big picture” of the context of what you are observing. Find important, interesting, relevant information that others did not find from sources that others did not think of using

c. TAKING A DIFFERENT POINT OF VIEW (In Their Shoes)

- Walk in the shoes of another person. Support the view of different people/groups. Debate from opposing points of view.

d. USING DIFFERENT CRITERIA TO MAKE A DECISION (What if....?).

- What if the conditions or criteria were different? What would happen?

e. MAKING NEW CONNECTIONS, FINDING NEW PATTERNS, FINDING NEW RELATIONSHIPS

- Connect ideas (concepts) within a discipline or among several disciplines
- Make connections among events in your own life, the lives of other people, and the elements of human nature
- Use a metaphor or simile

f. CONSTRUCTING A NEW IDEA OR GENERALIZATION

- State a new “big idea” – a generalization-- that gives us something to think about and say, “WOW!”

g. MAKING SOMETHING THAT WORKS BETTER AND IS MORE APPEALING TO A PARTICULAR AUDIENCE

- Find a need for a tool or a machine or a process or a structure etc. and invent something new that does a better job and is more attractive to the people who want to use it
- Find a better way to communicate with your audience so that you have a greater impact on them

h. TAKING THE ROAD LESS TRAVELED

- How to get THERE from HERE on a path that is not the COMMON / USUAL approach – so the TRAVELER / THINKER has a chance of encountering a NEW discovery which might lead to a “breakthrough” – or not! But, unless you take that road less traveled you may not have a chance at finding that break through

Critical, Convergent Thinking Processes

Critical / convergent skills drill down into the task to find the accurate answer, work with precision, be logical, play by the rules, be objective, be analytical ultimately leading to a decision.

Critical/convergent processes include:

Organize	Classify	Compare/Contrast
Cause/Effect	Generalize	Infer
Predict	Analyze	Advocate
Debate	Evaluate	Judge
Assess	Rate	

Verbs focus the thinking process. Refer to the lists of verbs we created using the following three categories.

1. **Locate and Recall** verbs are lower level thinking processes
2. **Integrate and Interpret** and 3. **Critique and Evaluate** are higher order thinking processes

The same verb can be used as a creative, divergent processes and as a critical, convergent process

- If the student is given a set of rules for classifying a collection of things that thinking process is a critical, convergent process.
- If the student decides on or helps to state the rules for classifying a collection of things that process now starts with a creative, convergent process and then shifts to a critical, convergent process.

PROCESSES OF INTEGRATING CREATIVE / DIVERGENT AND CRITICAL / CONVERGENT THINKING PROCESSES IN PROBLEM SOLVING:

1. A "problem to solve" is made up of a series of smaller problems. A proficient problem solver sees the big picture of the problem and finds and solves the smaller problems within it in a systematic way.
2. The problem-solver
 - Has a "toolbox" of creative, divergent thinking skill processes and selects the tool best suited to the problem to be solved
 - Uses creative, divergent thinking to develop an array of options and ideas
 - Has a "toolbox" of critical, convergent thinking skill processes and selects the tool best suited to work out the details with precision and accuracy to lead to a conclusion
 - Can switch back and forth between creative, divergent and critical, convergent thinking as needed
 - Is resilient and persistent in working through failures and roadblocks
 - Reaches closure on the problem
 - Can describe, explain, and evaluate the thinking that went on during the problem solving process
 - Can reflect on and improve his or her thinking