The FIRE Model

The FIRE model (Factual, Insightful, Rational, and Evaluative/Ethical) for teaching thinking was developed by the *Teaching for Thinking Project* of the Minnesota State Colleges and Universities. The FIRE model has been used to introduce students to the concept of holistic thinking; to frame writing assignments (the writing assignment may focus on all or only one of the areas) on critical thinking; to serve as a simple means to introduce differences in learning styles; to identify the diverse audiences presentations and research projects; to introduce the liberal arts disciplines; and to push students to move out of their learning “comfort” zones into styles of thinking they will need to develop in college.

Summaries of the FIRE definitions and questions that can be used to generate assignments based on the model:

**Factual Thinking:** to gather factual information and apply it to a given problem in a manner that is relevant, clear, comprehensive, and conscious of possible bias in the information selected.

**Insightful Thinking:** to imagine and seek out a variety of possible goals, assumptions, interpretations, or perspectives which can give alternative meanings or solutions to given situations or problems.

**Rational Thinking:** to analyze the logical connections among the facts, goals, and implicit assumptions relevant to a problem or claim and to generate and evaluate the implications that follow from them.

**Evaluative Thinking:** to recognize and articulate the value assumptions which underlie and affect decisions, interpretations, analyses, and evaluations made by ourselves and others.

**Questions to begin thinking with the FIRE model:**

**FACTUAL Thinking: Thinking Clearly** –
What facts are presented?
How reliable, fair-minded and clear are the facts presented?
What other factual information should be determined and considered before coming to judgment?

**INSIGHTFUL Thinking: Thinking broadly** –
What is the big picture being presented? What language, images, and stories convey this picture?
What alternative “big picture” perspectives from which these issues can be plausibly understood?
What are alternative big picture questions that you can ask to better understand these issues?
What are the strengths and weaknesses of the most plausible perspectives?
Which perspective and which images provide the most insightful understanding of the issues? Why?

**RATIONAL Thinking – Thinking logically** -
What conclusions are argued for and what supporting evidence and reasons are given?
How credible is the evidence and how strongly does it support the conclusions? What assumptions and implications should be considered?
What other arguments, evidence, and implications should be considered? Which arguments are most relevant and powerful? Why?

**EVALUATIVE (Ethical) Thinking – Thinking deeply** –
What values are being expressed (implicitly or explicitly) in the presentation of these issues?
From broader or alternative perspectives, what other values are at stake in these issues?
Can a conclusion or solution be reached satisfying to the competing values? If not, what conclusion or solution would be best from the perspective of your values? Why?
## Favored Learning (Styles) Strategies for the Four FIRE Preferences

<table>
<thead>
<tr>
<th>GREEN THINKING</th>
<th>BLUE THINKING</th>
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| **Learns best:** by starting with the concrete and moving toward the abstract in a step-by-step progression  
**Values:** practical knowledge. Wants own work to be precise and accurate  
**Excels at:** memorizing facts. Prefers objective tests.  
**Expects:** Detailed and precise course descriptions, expectations, grading policies  
**Likes:** worksheets, drills, task-orientated activities that build skill competency and mastery of facts.  
**Dislikes:** open-ended questions which require opinion or have no clear-cut answers or which have complex directions or require complex logic  
**Appreciates:** being acknowledged for work that is prompt, complete, detailed, and thorough. | **Learns best:** when provided with theoretical frameworks, logical rationale and rules, and given questions which challenge their reasoning powers  
**Values:** time to plan and thinking things through before beginning to work, being empowered by material mastered  
**Excels at:** organizing, bringing structure to ideas, things and people  
**Expects:** to be challenged to solve problems, argue for positions, and to give and receive criticism that is direct and to the point  
**Likes:** topics that empower systematic and cause and effect thinking  
**Dislikes:** situations in which teachers or peers engage in editorializing or emotional venting  
**Appreciates:** being acknowledged for competence, reasoning ability, and independence of thought |

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<th>YELLOW THINKING</th>
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| **Learns best:** when learning begins with the big picture concepts or theories and works toward the particular applications  
**Values:** quick flashes of insight, freedom, and flexibility to pursue intriguing issues  
**Excels at:** pursuing “what if” questions and activities which prompt exploration and broader understanding  
**Expects:** open-ended tests which call for reflection, imagination and synthesis  
**Likes:** role playing, case studies, opportunity for debate  
**Dislikes:** instruction which seems rigid and didactic, being told what to do, how to do it, or what to think  
**Appreciates:** being recognized for personal insights, discoveries, and for finding unusual solutions to difficult problems | **Learns best:** in a safe, comfortable, personally pleasing environment where personal attention, encouragement and recognition is given by teachers  
**Values:** being acknowledged personally as an individual before getting down to business  
**Excels at:** activities which call for thinking aloud with others, sharing personal thoughts and opinions, expressing feelings about issues considered  
**Expects:** material to be related to people’s lives, experiences, and stories  
**Likes:** collaborative learning, small group discussion, and team problem solving  
**Dislikes:** learning which is competitive, purely theoretical, places emphasis on factual detail or involves long periods of working alone silently  
**Appreciates:** recognition for good work and for being helpful to others |
Thinking with FIRE

Thinking Concerning Facts

- Pattern identification
- Effective recording/recall strategies
- Observational detail, accuracy, and scope
- Factual clarity, accuracy, and fairness

Thinking Involving Imagination

- Seeking the larger context
- Seeking alternative perspectives
- Relating the known to the unknown
- Seeking alternative means of expression
- Using questions as probes
- Applying learning to self-understanding
- Drawing lessons from experiences

Thinking Through Reasoning

- Identifying structure and order
- Identifying hierarchies
- Identifying and evaluating argument
- Manipulating rules
- Judging strength of evidence
- Being aware of thinking strategies (metacognition)

Thinking Concerned with Values

- Sensitivity to values – individual and collective
- Applying values to problems
- Respect for individual and collective differences
- Willingness to risk and commit
- Valuing your individual and collective self
FIRE Model of Critical Thinking: Probes for Effective Thinking

FACTUAL THINKING: gathering factual information and apply it to a given problem in a manner that is relevant, clear, comprehensive, and conscious of possible bias in the information selected.

1. What are the relevant facts?
2. What evidence can you give to support your claim?
3. What evidence might undermine your claims?
4. Can the evidence be interpreted in any other way?
5. How reliable is the evidence?
6. Are any of the key terms unclear or ambiguous?
7. In what ways might error have entered into the observations?
8. What other information is important to attaining full understanding?
9. How can the information be displayed or recorded most effectively?
10. Does the information suggest the existence of underlying patterns?

INSIGHTFUL THINKING: imaging and seeking out a variety of possible goals, assumptions, interpretations, or perspectives which can give alternative meanings or solutions to given situations or problems.

11. What is the larger context (“big picture”) within which this problem or situation should be understood?
12. What other broad contexts or interpretations of the problem or situation can you imagine or discover?
13. Can you relate to unknown aspects of this problem to the known aspect of more familiar problems?
14. What alternative means or media can you use to depict or explain the present problem or solution?
15. What new insights arise from depicting the problem or solution in alternative ways?
16. What open-ended question for further reflection and investigation arise from this problem or solution?
17. What insights into your own thinking, understanding, or self-conception can you draw from working on this problem?

RATIONAL THINKING: analyzing the logical connections among the facts, goals, and implicit assumptions relevant to a problem or claim and generating and evaluating the implications that follow from them.

18. What are the major components or necessary sequences which structure this problem or situation?
19. What rules or hierarchy order appears to govern the order?
20. What assumptions are logically implied by your view and others’ views of the problem or situation?
21. What are the implications that follow from your solution or view of the problem, and from those of others?
22. What arguments are or can be given in relation to the problem or claim?
23. How good are the various arguments which can be given in relation to the problem or claim?
24. Can you construct an argument of your own to prove a point or raise an issue concerning the problem?
25. Given a set of strict rules or procedures, can you manipulate them effectively to reach a desired outcome?
26. Given conflicting evidence, can you give a clear justification for judging the evidence on one side as being stronger than the evidence on the other side?
27. What process did you use in approaching this problem?
28. What alternative strategies did you consider in approaching this problem?
29. What did you choose the strategy you chose?
30. What changes in strategy would make you more effective next time?

EVALUATIVE THINKING: recognizing and articulating the feelings and value assumptions which underlie and affect decisions, interpretations, and analyses and evaluations made by ourselves and others.

31. What feels most important to you in this problem or situation? Why?
32. Are your own feelings of what’s important here related to the feelings of others on this issue? How?
33. How do your own values and feelings about what is important apply to the present problem?
34. Do you have difficulty respecting some of those who act on and hold views opposed to your own on this issue? Explain.
35. Does anything hold you back from taking risk and making a commitment in this situation or problem?
36. How does your work on this problem make you feel about yourself? Is this a purely personal feeling or is it shared?
37. Are you pulled in different directions by conflicting values or feelings in the issue? If so explain. Which seems move important?
CHARACTERISTICS OF THE FOUR TYPES OF THINKING
TARGETED BY THE TEACHING FOR THINKING PROJECT
OF THE MINNESOTA COMMUNITY COLLEGE SYSTEM

“THINKING DIVERSITY GAME”

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<th>FACTUAL THINKING</th>
<th>INSIGHTFUL THINKING</th>
<th>RATIONAL THINKING</th>
<th>EVALUATIVE THINKING</th>
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<tbody>
<tr>
<td>Literal</td>
<td>Discoverer</td>
<td>Analytical</td>
<td>Personal</td>
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<td>Straightforward</td>
<td>Probing</td>
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<tr>
<td>Observant</td>
<td>Idealistic</td>
<td>Systematic</td>
<td>Forgiving</td>
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<tr>
<td>Knows the Rules</td>
<td>Visionary</td>
<td>Firm-minded</td>
<td>Stirred by Emotions</td>
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<tr>
<td>Clear</td>
<td>Flexible</td>
<td>Likes Theory</td>
<td>Likes to Share</td>
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<tr>
<td>Knows the Facts</td>
<td>Innovative</td>
<td>Seeks Justification</td>
<td>Examines Feelings</td>
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<tr>
<td>Exact</td>
<td>Follows Inspiration</td>
<td>Likes Puzzles</td>
<td>Sympathetic</td>
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<td>Seeks Human Angle</td>
<td>Reacts to Conflict</td>
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<td>Strong Beliefs</td>
<td>Aware of Feelings</td>
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<td>Seeks Rules</td>
<td>Morally Responsible</td>
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FACTUAL THINKING

Literal: Methodical, Practical, Asks What
Straightforward: Detail-oriented, Realistic, Concrete
Observant: Seeks Specifics, Seeks Clarification, Product oriented
Knows the Rules: Likes Routine, Accurate, Works by the Rules
Clear: Punctual, Precise, Reliable
Knows the Facts: Sensible, Checks Information, Orderly
Exact: Task-Oriented, Notices Patterns, Likes Organized Records

INSIGHTFUL THINKING

Discoverer: Imaginative, Aesthetic, Asks Why
Probing: Conceptual, Seeks Connection, Speculative
Idealistic: Seeks Possibilities, Metaphorical, Inventive
Visionary: Follows Hunches, Holistic, Seeks Meaning
Flexible: Synthesizing, Integrating, Spontaneous
Innovative: Makes Use of Stories, Uses Imagery, Likes “What If”
Follows Inspiration: Likes Complexity, Seeks Innovation

RATIONAL THINKING

Analytical: Principled, Quantitative, Asks How
Objective: Strategic, Consistent, Logical
Systematic: Structure-oriented, Fair-minded, Reasoning-oriented
Firm-minded: Just, Standards-Oriented, Seeks Causes
Likes Theory: Tough-minded, Objectively Decisive, Examines Consequences
Seeks Justification: Likes Puzzles, Seeks Rules

EVALUATIVE THINKING

Personal: Compassionate, Respectful, Asks Who
Harmonizing: Value-conscious, Sensitive, Collaborative
Forgiving: Passionate, Empathetic, Sentimental
Stirred by Emotions: Seeks Human Angle, People-oriented, Personable
Likes to Share: Strong Beliefs, Strongly Committed, Examines Values
Examines Feelings: Reacts to Conflict, Aware of Feelings, Morally Responsible
Sympathetic: Caring