



Super Teaching

**15 Think! Models for Instructional
Improvement in College Courses,
Online Learning, and
Professional Development**

By

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With assistance from:

Carol Koechlin
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Introduction

The Problem

Cut, paste, submit. Cut, paste, submit. Learners of all ages respond to assignments, completing them quickly but with little learning. Teachers, professors, and professional developers cry plagiarism and deem this generation of learners bereft of ethics.

The real truth is that students are only responding to the expectations built into the assignments. In other words, we as teachers should not be surprised that students simply cut, paste, and submit when we create assignments that invite them to do so.

Consider the following examples:

- Do a three-page paper on a topic of your choice.
- Do a research paper on some aspect of the Civil War. It has to be 20 pages long, include print and digital resources, and footnotes. This is Wednesday. The paper is due Friday.
- Throughout the semester, discuss this list of questions with your classmates. Respond at least twice a week.
- Read the following three chapters in the textbook and then take the open-book online quiz.

When ABC News recently interviewed students at major universities about plagiarism, paying \$20 per page for made-to-order research papers, and other cut/paste practices, students responded that they saw nothing wrong with their behavior as they rushed to tackle assignment overload, get A's, and still have a social life. The ABC commentators failed to ask professors *why* they assigned projects that invite students to plagiarize.

Some years ago, English teachers nationwide, both in public schools and universities, became aware of *Cliff's Notes* that provided plot summaries and critical comment of almost any novel assigned in high schools or colleges. Assigned papers were disturbingly alike. The alarm went out. Libraries were asked not to stock *Cliff's Notes*. The idea: stop the resource; solve the problem.

Today there is an entire industry designed to catch plagiarizers. The clever entrepreneur gets a staff of writers to produce made-to-order term papers and then saves all these papers in a data bank. The data bank provides professors with a plagiarism trap, and the clever entrepreneur collects a fat fee for both services.

At one university we know, a survey of students revealed a great deal of criticism of totally online courses and a preference for at least some face-to-face instructions along with the virtual experience. However, whenever registration was opened up each semester the totally online courses filled up first. Convenience always won.

Everywhere, over-busy students and professionals demand “easy” credentials, certifications, and licenses. The result, an incompetent society, should surprise no one. But who really wants a doctor, lawyer, or teacher whose professional development consists of vacationing in the Bahamas? Who wants medical students who have learned little beyond the latest technology trick? “Not I, said the little red hen.”

From Passive to Active Teaching and Learning

There is a surprisingly simple solution for the teacher of adults: turn passive learning into active learning, whether the lessons involve meeting face-to-face with the students or interacting with them online.

The passive learning that permeates traditional education relies on the textbook-lecture approach. The professor or professional development instructor provides a lecture, assigns readings, answers questions and then tests a student’s ability to recall the content mastered. Such methods have been the main diet of education for at least a century. And this approach is still a viable one where the content knowledge is finite or the student is learning a step-by-step skill. Many online instructional packages, such as Blackboard and Web CT, while featuring some interactive features, are essentially structured around the concept of traditional education.

A more active approach to teaching and learning places the instructor into the role of a coach rather than a deliverer of content. In the face of the information-rich and technology-rich age, the active-coach role takes on new significance simply because the instructor can’t talk fast enough or the textbook doesn’t cover enough to produce that sought after “all-knowing student”. This method of education asks the learner to take much more responsibility for learning by providing a road map to the big ideas and holding the learner accountable not only for surface learning (knowing a little about a lot), but deep understanding. Any one brain can only hold a subset of factual knowledge; therefore, facts are linked to big ideas that help the mind put the details into patterns. Learners who understand such ideas can switch topics, change details, and flexibly attack a problem where the details change but the structure of possible solutions remains the same. These types of learners are more flexible than their counterparts who are confused if any particular detail or strategy changes.

The ultimate learner has a broad store of knowledge, can act or perform using that knowledge, but also has depth or “deep understanding.” These students have developed both breadth and depth and know how to learn almost anything. They are confident learners. In the face of such students, the instructor may feel threatened because the student may know more than the instructor at times. This insecurity, however, is a temporary feeling: the teacher soon discovers how to push learners as far as they can go.

The 15 Think! Models

The 15 Think! Models are designed for instructors who expect students to be in an information-rich and technology-rich environment (access to the library, library databases, a private intranet, and/or the Internet). The models can be used either online or with face-to-face instruction. Transforming instruction into a very high-level thinking model takes three steps:

1. Decide what you want learners to know, do and understand.
2. Ask yourself how learners will show that they have met your expectations. Create a test, a performance, a rubric, or a final product demonstrating what they know.
3. Choose one or more of the models and create the learning activity either in a face-to-face mode or online.

We have created templates for all 15 models using wiki technology. These templates are available at <http://www.lmcsource.com> You may create your own templates using <http://www.seedwiki.com> or modify our templates to suit your own needs. There is an advertisement for these wiki templates on the back cover of this book.

At the conclusion of a learning experience, reflect on the level of thinking and learning that your learners demonstrated.

1. Did your transformation produce more learning, as opposed to the old teaching methods?
2. How did the learners evaluate the new way of learning?
3. Would you do it again the same way or revise your activity?
4. Was this experience less or more work than the old teaching method?

What Makes the Think! Models Different?

The models explain the activity. Words at the top are followed by a flow chart, read left to right, that describes the process. In the lower left-hand corner, reasons are given for why an instructor might want to use the model. In the center, some sample topics are given that might work well with the model. On the right, some essential learning skills are listed that the instructor, librarian, or technologist might want to teach the learners.

In each model, the activity begins as usual. Learners who are used to researching particular topics are asked to bring high-quality information to the class. Then, rather than merely passing in a product based on that first phase, learners advance to phase two. Phase two challenges learners to combine, compare, use, or transform the information gathered into a major idea that addresses all the material the learners gathered. This is the point where the instructor pushes the thinking until learners, for example, not only know the characteristics of a single dictatorship, but can also look at dictatorships in general and recognize patterns, trends, strengths, weaknesses, and longevity. At the conclusion, learners are challenged to pose the question, "So what?" as the instructor pushes hard for the complex thinking that builds an extra measure of deep understanding.

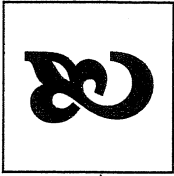
The various models will serve as idea starters—just enough structure to suggest a high-level learning activity that encourages creative ideas and boosts learning, as the 15th model suggests.

Too often we are satisfied with our own teaching. Even when learners leave the classroom or online experience mentally exhausted but certain that they have learned a great deal, we are gratified if the results of the assessment show a high degree of learning. Instructors that have the philosophy that good teaching divides the sheep from the goats will see that these models are structured to help every learner meet the high expectation of the learning experience.

One last matter to consider. Educational research shows that these models support high-level thinking. The following list demonstrates how working with these models helps students build lifelong-learning habits:

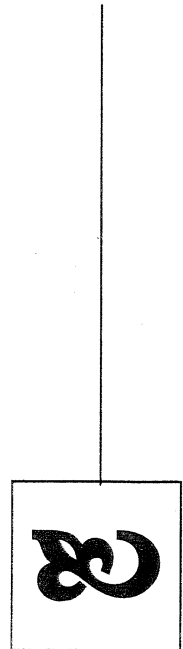
1. Background to Question model: Do your homework before you open your mouth.
2. Sensemaking model: When you are drowning in data, construct a chart, table, map, graph, or other graphic that helps you make sense of the facts.
3. The Read, View, Listen model: To achieve a greater breadth of understanding, read widely on a topic.
4. Advice to Action model: Make decisions based on sound advice rather than upon whim.
5. Compare and Contrast model: To compare and contrast is to understand.
6. The Concept Jigsaw Puzzle model: Sharing perspectives develops new insight.
7. The Problem Jigsaw Puzzle model: Considering multiple solutions; resist blindly forging ahead.
8. The Matrix model: Assuming input data is sound, a matrix will help learners wade through numerous data or ideas, discerning patterns or trends and making sound judgments.
9. The Timeline model: Sequencing events, facts, ideas, or actions will often illuminate meaning and provide understanding.
10. The History/Mystery model: What happened? What *really* happened? So what?
11. Take a Position model: Don't take a stand out of ignorance.
12. The Recreate model: Walk in someone else's moccasins before you act.
13. Reinventing a Better Way model: Doing things the way we have always done them may impede progress.
14. The Quest model: Solid research is the foundation of progress.
15. Mix It Up model: Be creative; experiment; take risks.

Every instructor should take note that the models encourage every successful teaching practice you already use. They merely ask us to tweak learning experiences so that they push thinking into understanding, far beyond what cut, paste, and pass in can accomplish.



Think! Model #1

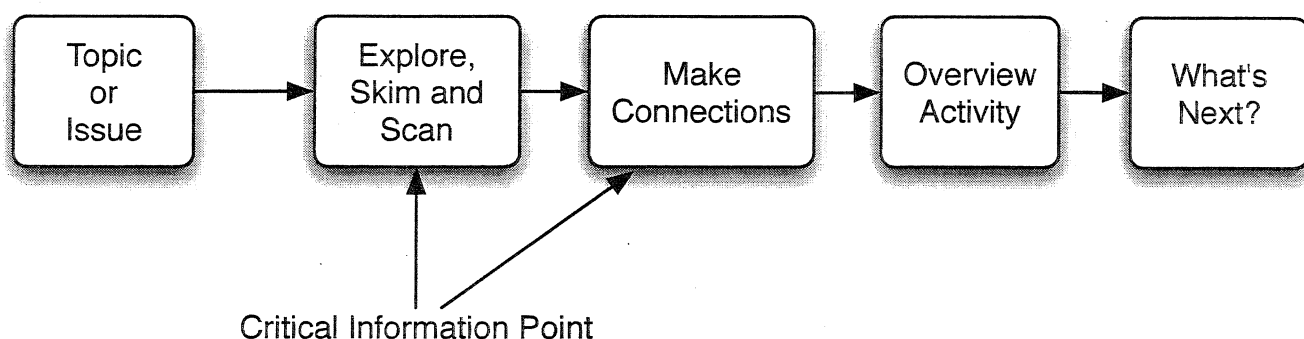
The Background to Question Model



Think! Model #1

The Build Background to Question Model

Curriculum Topic & Objectives	Background Building Activity	Connect New & Old Learning	Overview Activity	Move Forward
	<ul style="list-style-type: none"> • Read • View • Listen • Survey • More is better 		<ul style="list-style-type: none"> • Share basics • Pretest • Narrow and focus a topic • Build a question 	<ul style="list-style-type: none"> • Begin in Earnest • Goals • Timeline • Resources • Strategies



Why This Model?

- Compensate for uneven prior knowledge
- Compensate for language difficulties
- Use when prior knowledge is skimpy
- Help learners build engaging questions when they seem to lack interest
- Provide an opportunity for a "topic to select a learner"
- Use when the textbook is insufficient or difficult
- Help learners narrow a topic when struggling with generalities
- Turn a library orientation into an exploration

Possible Topics

- Course overview
- Understand *this* before we do *that*
- Build research topics
 - Explore issues, ideas, ideologies
 - Build vocabulary
- Improve basic skills
- Acquaintance with people, events
- Introduce systems

Critical Learning Skills

- Locate introductory resources
- Skim, scan
- Master vocabulary
- Glimpse big ideas
- Develop questions
- Define a research topic



Teaching with the Background to Question Model

The Potential

“Let’s start at the very beginning; a very good place to start” sings Maria in *The Sound of Music*. Analogously, we must get every runner (learner) to the starting line for the main event (the topic to come). On any topic, students’ knowledge will vary along the continuum. Often their past experiences and opportunities will influence the extent of their prior knowledge of the topic. Learners can be prepared rather quickly at times to tackle a major problem or topic by spending some time on building background knowledge. Whether our students are all English speakers or English learners; whether they come from rich or poor backgrounds; whether they have traveled the world or have never been five miles from home, the background model can be used effectively to level the playing field and raise general knowledge before launching into a major learning experience.

Robert J. Marzano, in a major review of research on background knowledge states: “Although it is true that the extent to which students will learn...new content is dependent on facts such as the skill of their teacher, the interest of the student, or the complexity of the content, the research literature supports this compelling fact: what students *already* know about the content is one of the strongest indicators of how well they will learn new information relative to the content.”¹

The Research and the Product

Instructors must often work with learners who approach a major learning experience from a wide variety of expertise, as well as with other major barriers. When this is the case, time spent building background before the main event will reduce the amount of explanation, demonstration, remedial assistance, and confusion. It’s relatively easy to ascertain the extent of students’ background knowledge: the instructor might give a brief checktest, vocabulary quiz, or survey about what is already known. Using this information, the instructor can then design an appropriate background experience. The specific medium is not as important as the easy-to-understand basic concepts. After individual exploration, it helps to have a discussion, comparison, or charting of basic ideas before launching into the main topic. As a final product, learners can develop questions about the topic, which they will answer during the main topical study. Such questions are invaluable to the instructor as the main event proceeds. The instructor will recognize the success of both technique and time spent when the main-event learning goes smoothly and more students succeed or achieve the goals of the main event.

¹ Marzano (listed below), p. 1.

Examples of Background Experiences

- **Try a Field Trip, a Guest Lecture, an Interview, or an Event.**
 - Before the event: Ask learners to browse a variety of sources about the person, place, or topic; then, as a group, formulate questions to explore.
 - After the event: Instead of opening up a question-answer period immediately following the presentation, give groups of students 5-10 minutes to reflect on the major ideas of the presentation and to formulate questions. This will result in better questions and no one questioner will dominate the questioning time.
 - Consider using this activity to prepare questions for an expert who can be interviewed using <http://www.skype.com>. On this site, up to 50 people can use an Internet telephone to talk anywhere around the world, free of charge.

- **Set the Stage Before Introducing a Difficult Topic**
 - To compensate for differences in language and cultural backgrounds, or lack of previous exposure to the topic at hand, try setting the stage. Students can browse through materials that will expose them to the topic, provide basic vocabulary, introduce the major experts of that field/topic, and then, as a group, students can record some ideas, terms, and sources that helped them get acquainted. Possible activities include:
 - See a film or video clip in class or online.
 - Browse easy printed materials (basic articles, a children's book on the topic, an encyclopedia article, an easy textbook chapter, an article in a popularized magazine)
 - Construct a concept map (use the software package "Inspiration"²) that documents what students already know about the topic. Make a list of important terms that students will encounter as the exploration continues.
 - As individuals or groups browse, have them add their own background experiences or personal connections to the new topic.
 - Help students construct major questions to be explored during the main learning experience. This can be done in small groups or as a class.
 - Lodge a streaming videotaped introductory lecture on a website and allow students to view the "basics" so that you do not have to repeat the essentials over and over. Encourage students to build questions from that presentation and ask them either online or in class.

² Learners can sign up for a free 30-day trial for Inspiration Software at: <http://www.inspiration.com/>

- **Before Learners are Turned Loose to Research a Topic**
 - Students often flood the library with topics that are too vague or that are impossible to explore in print or online sources. Ask the librarian to conduct a brief “narrow your topic workshop”, either online or in person. See also
 - The term paper workshop TILT at <http://tilt.lib.utsystem.edu/>
 - UCLA’s help: <http://www.library.ucla.edu/libraries/college/help/topic/>
 - William Badke’s advice: http://www.acts.twu.ca/lbr/research_essays.htm
 - Iowa State University’s advice: <http://www.lib.iastate.edu/commons/resources/topic/>

- **Before any Major Learning Event:**
 - When a major learning event will be central to deep understanding, use any of the other 14 Think! models as the prelude or background study preceding the main event. For example, learners might use the Timeline model to chart the development of an idea or event as a prelude to an interview with an expert. Similarly, learners might use the Reinvent model to create a new way of doing something in preparation for an expert panel inspection of their idea. For example, learners may study the faults of bureaucracies that deal with emergencies as a prelude to proposing a reorganization of FEMA.

Learning Skills

Librarians and technology specialists can be of major assistance as learners try to find basic information or choose a topic for research.

- If learners are to search for their materials, they need access to Internet searching techniques, the library catalog and database search engines. Ask the librarian to teach the needed search and sorting strategies. Otherwise, students will waste a great deal of time surfing but not finding.
- If searching and sorting time is at a minimum, then maximize the reading, viewing, and listening time by supplying the necessary materials.
- Teach, or ask the librarian to teach, skimming and scanning strategies. Use text and a selection of materials that are at a comfortable reading level. Show learners how to recognize major ideas, vocabulary, points of view, and how to ascertain the quality of the information at hand.

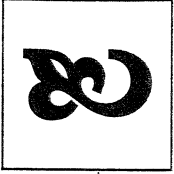
Tips with Technology

Use exploring technologies for the background-building activity. These technologies will include:

- Tips for playback technologies for videotapes, DVD's, streaming video, audio playback, etc., should they be different than the ordinary technology.
- Connecting to podcasts or video streaming, including software and speed of Internet connections required.
- Database or spreadsheet techniques for logging what is read, viewed or heard.
- Group logs of basic ideas and vocabulary using wiki technology.

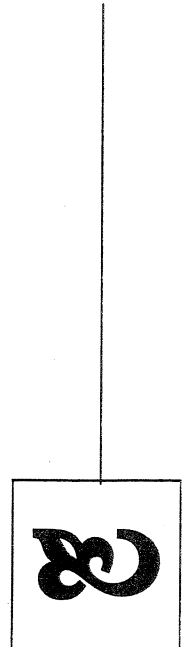
Resources

Marzano, Robert J. *Building Background Knowledge for Academic Achievement*. 2nd ed. ASCD, 2004.



Think! Model #2

The Sensemaking Model



Think! Model #2

The Sensemaking Model

Visualizing / Re-Conceptualizing

15

Concepts, ideas, or data either not understood or misunderstood

Collect & validate data

Find Connections:

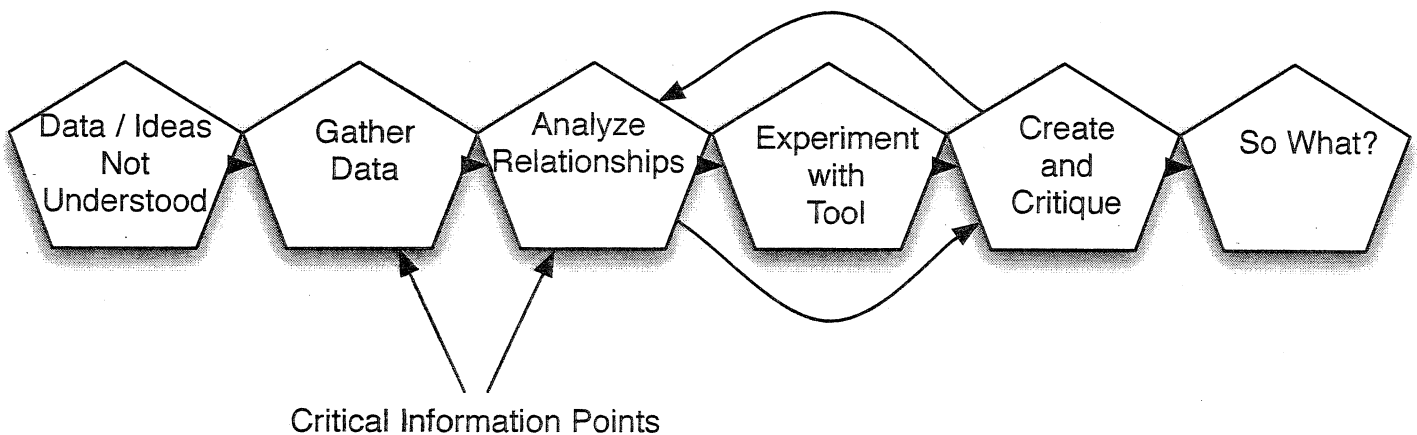
- Sort
- Classify
- Patterns
- Missing Data?

Use Graphic Tools to Assist In Visualization

Create

- Re-Work
- Re-Think

Share and Defend New Understanding



Why Use This Model?

- Take advantage of the adage that a picture is worth a thousand words
- Take advantage of learners who have high visualization abilities
- Add one more dimension to text and explanations
- Use when data cannot be understood in their raw form
- Try several visualizations of the same ideas
- Particularly useful for concepts where misconceptions abound

Possible Topics

- Popular misconceptions
- Data in any discipline
- Large amounts of data
 - Population patterns
- Ideas and their connections
 - Cause / Effect
- Environmental / Social issues
 - Difficult concepts
- Events, such as battles
 - Systems
- A whole and its parts

Critical Learning Skills

- Gather quality data
- Use organizers
- Chart, graph, map or table using technology tools
- Use t-charts
- Compare
- Classify



Teaching with the Sensemaking Model

The Potential

In an information-rich world, we naturally encounter a myriad of data, facts, and ideas that are meaningless unless they are organized. Examples include:

Data Encountered	Visualization for Sensemaking
• City names in alphabetical order	• Map
• A survey of opinions	• Results are graphed and charted
• Opinions collected at different times	• Graphic comparisons over time
• Weather data	• Map of a hurricane's position and likely path
• A list of organizational officers	• Organizational chart
• Data from a scientific instrument such as a seismograph or barometer	• Chart, graph, or map of results
• A list of elements	• The Periodic Table

We often fail to understand ideas and concepts simply because we lack the ability to visualize them. Consider the path of our moon. While some students may think it rises in the East and sets in the West, when they chart the moon's movements properly they discover the reverse to be true: the moon actually rises in the West and sets in the East. The famous scientist Edward Tufte has made a career out of visualizing mass quantities of data to understand scientific, cultural, and technological phenomenon.¹ Learners will improve their ability to grasp all concepts, even simple ones, from both the left and right sides of their brains when they practice verbalizing and visualizing data.

The Research and the Product

To teach sensemaking, first ask students to collect data from an authoritative source. (Depending on their skill level, you may need to teach or review types of sources considered 'authoritative.') Then, allow students freedom to experiment with different visualization technology tools so they can create a picture of the data at hand. In their experiments with line graphs, for example, students may realize how the size of the interval selected affects the resulting picture. If they were to chart the national debt over the last five years using the interval "billions of dollars," the result would be an almost vertical line; however, if the interval were changed to "trillions of dollars," the resulting graph would be an almost horizontal line. Students can have a great deal of fun producing different pictures of the same data, and then deciding which picture best expresses the data's meaning. In the budget example above, a Democrat might use the vertical chart, while a Republican might use the horizontal chart to make their respective points.

¹ Tufte, Edward. *The Visual Display of Quantitative Information*. 2nd ed. Graphics Press, 2003.

Examples

The enormous amount of information present in every field is too large to understand unless it is reduced to some kind of picture, chart, or diagram. Possibilities include:

- During a professional development session, teachers brought data with them about certain teaching events over the past three years. Each teacher had an opportunity to graph these events anonymously on a line graph. The group then did an analysis of the patterns they saw for the group as a whole.
- In a master's course in library science, students were looking at the impact of popular literature on the teen reader. They collected data on the various bestseller lists for the previous five years and looked at the kind of books selling across those years, as well as at the seasonal patterns.
- An online class used Survey Monkey to collect data from a group of people in the community. Survey results were charted a variety of ways; groups competed to detect patterns, results, or make decisions.
- A college class studying various data systems pulled scientific data from Internet data sources, such as NASA or the U.S. Weather Bureau, and then charted various ways to discern meaning.
- A graduate class studied ideas surrounding a controversial issue, which they then gathered, grouped, and analyzed before the learners were asked to defend a position.
- A sociology class grouped diseases across cultures and governments and then analyzed the data to perceive ways of dealing with global health crises. For example, "Are government policies toward AIDS having an impact on the spread of this disease?"

Tips for Analysis

- When collecting numbers, the ubiquitous Excel is often used as the standard to build charts, tables, or graphs of the data. Have learners vary the intervals on the various graphs created to note the difference in the meaning of the graph. How do various data representations affect the message of the product?
- When the collected data cannot be reduced to numbers that can be analyzed by Excel or some other computer program, learners will have to use human analysis to create pictures or concept maps. The program Inspiration is an excellent tool for linking or summarizing ideas.
- Subjecting the same data to multiple analyses and interpretation provides a great deal of conversation, comparison, and debate; also, it often produces better conclusions about the data. Such comparisons allow the instructor to provide yet

another perspective, and a discussion of whether there is a single “right” conclusion is very instructive.

Tips with Technology

The teaching process is two-fold: instructing students in effective data gathering methods and introducing them to various sensemaking tools and technologies. These will range from simple pencil and paper to powerful computer programs able to analyze massive amounts of data.

Specific technologies to provide include:

- Concept-mapping software such as Inspiration
- Charting/graphing and numerical calculation software such as Microsoft Excel and numerous scientific calculators
- Map-making software such as Mapedit
- Timeline software such as Tom Snyder’s TimeLiner
- Video editing software such as iMovie
- Flow-charting software such as Omnigraffle

Other tips for technology use include:

- When groups of learners are gathering data, one person may serve as the data recorder by putting all the collected data into an Excel spreadsheet, then sending each group member the raw data for independent or collective analysis.
- A wiki might be used as a central data collection point if the proper tables are set up in advance. For example, learners can enter their data as discovered, then the group or individuals can do joint analysis of columns or rows of data. This works particularly well for gathering ideas. Remember to ask students to include the source and citation of their data in the table cell. This helps ensure the quality of the data which, in turn, improves interpretation.

Learning Skills

- Learners may need assistance in constructing various advanced charts, maps, graphics, etc. Ask technology specialists or librarians to teach such skills or provide online tutorials.

- Show pictograms from the *USA Today* newspaper from the lower left-hand corner of any section. These can be idea starters for learners to represent their data in pictorial form.
- Teach learners how to use a t-chart as illustrated on the next page.

Resources

- Tufte, Edward. *The Visual Display of Quantitative Information*. 2nd ed. Graphic Press, 2004. “The classic book on statistical graphics, charts, tables. Theory and practice in the design of data graphics, 250 illustrations of the best (and a few of the worst) statistical graphics, with detailed analysis of how to display data for precise, effective, quick analysis.”

When Understanding is Critical Use a T-Chart

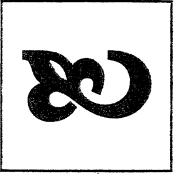
While reading difficult text, taking notes, or trying to understand a major concept, force your brain to use both of its sides by recording ideas in words on the left side of your paper and then use the right side to draw a picture of those ideas. You will remember those major ideas much longer.

Topic:

Source:

Log here notes/ideas to be mastered.

Draw some form of picture of the idea here.



Think! Model #3

The Read, View, Listen Model



Think! Model #3

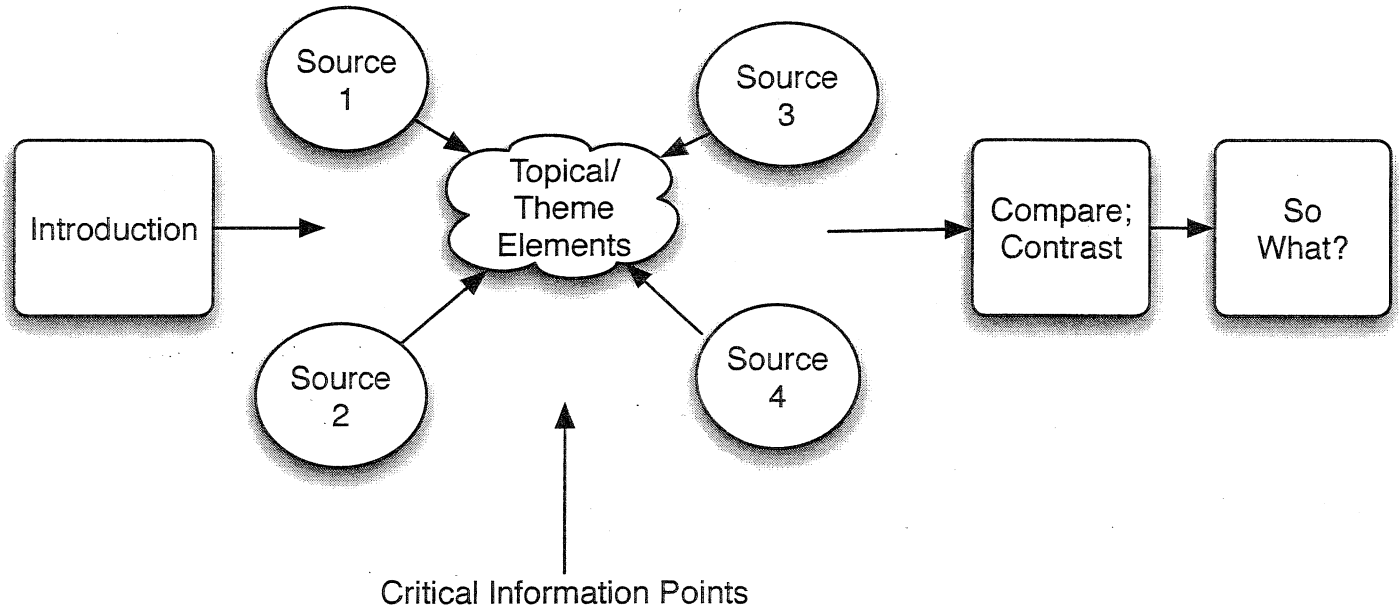
The Read, View, Listen Model

Introduce the topic(s) to be explored along with objectives

Groups or individuals read, view or listen to many or several items on topic

Compare/ Contrast items on theme elements

Summary/ Synthesis Activity



Why Use This Model?

- Experience many literary/ written works rather than a single text
- Students of varying abilities can concentrate on the theme rather than the difficulty of the text
- Concept map the big ideas across texts
- See big picture across cultures, authors, governments, time periods, ideas
- When you can't afford a textbook but have a library

Possible Topics

- Ideas or issues across experts/authors
- People across biographers
- Events across historians/ witnesses
 - Ideas across cultures
 - Issues across opinions

Critical Learning Skills

- Reading for understanding
- Identifying point of view
- Compare and contrast
- Synthesize across ideas
- Draw conclusions based on expert analysis



Teaching with the Read, View, Listen Model

The Potential

Textbooks were an amazing invention of the 20th century because in one convenient package, they summarized what was known about a topic and gave instructors a guide for what was to be known and mastered by learners. With the dawn of the information-rich world and the advances in knowledge, textbooks have been growing in length and have become gold mines for publishers lucky enough to have their high-priced and bloated tomes adopted.

In today's world, the potential for wonderful resources available to learners are astonishing. Periodical articles are often available digitally back at least 20 years, Internet sites abound, e-books are available for reading anywhere there is a connection, professors can stream lectures to be viewed by learners any time and anywhere, Original documents are available from such treasured repositories such as the Library of Congress, virtual tours of museums/art galleries/underwater sites are available via the Internet, and huge data repositories can be accessed at the press of a key.

Textbooks may be convenient one-stop, portable sources, but they are often boring, simplistic, and one-sided and out-dated on the issues. Why stick with a single candy bar when surrounded by an entire candy factory? And how many of us have purchased the \$100+ textbook and then have the instructor largely ignore or presume its contents?

Besides moving from famine to feast, instructors can recognize the existence of varying abilities, background knowledge, or cultural perspective if the one-shot textbook is replaced by a plethora of resources. Suddenly, the vast riches of the world's information resources take center place in teaching and learning. It is the new real world. The textbook is a reflection of an older world that no longer exists. To be sure, textbooks are still valuable when the amount to be learned is finite or the skill to be developed must be done sequentially. Otherwise, there is good reason to move far beyond what a textbook can offer to learners economically.

What then replaces the textbook when resources in many formats abound? Instructors can provide the learner with an outline of what is to be learned, a description of the assessment of what the learner is to know, do, and understand, and finally a starter list of resources that can serve as a central core of "readings, viewings, or audio resources." To be sure, this is more work for the instructor who may have to keep the outline and the resource lists current, but the potential for richness is so overwhelming and the potential for learning so great, that the effort is worth it.

Another advantage for the learner should not be ignored. Many learners come to a class or professional development with a wide variety of expertise already. For these learners, the vast selection of resources provides them an opportunity to ignore resources they already have read and concentrate their time on areas they need to fill in their gaps. These learners will be much happier as they build rather than be bored with material they have already mastered.

There is one major drawback, however, to this new world of information. Not all resources in print, on the web, in databases, or in video are created equal. The quality of the resource is always in question. Thus the learner needs guidance for choosing what to read, view, or listen. They need to understand authority, currency, how to recognize point of view, among other factors. In other words, they need to ask: “Who is saying what to me for what reasons and when was it said?” One fascinating new information source is Wikipedia (at <http://www.wikipedia.com>), the world’s largest encyclopedia that is created by anyone and edited by anyone who cares to contribute. What can be believed? What is accurate? In today’s world, just because I read it, viewed it, or listened to it does not make it so. What and who to believe has always been in question, but this factor has emerged as the number-one consideration in current information space. In the older world, we trusted editors and reputable publishers to control the quality of what was available. Now it is a free-for-all battle and one not likely to change in the foreseeable future. Thus, every instructor is their own quality control guide to the field and literature of that field. The sage advice of Francis Bacon still applies: “Some books are to be tasted, others to be swallowed, and some few to be chewed and digested.”

How does anyone keep up in this information blizzard? Neither instructors nor learners can, but they can all help one another find the best. Instructors who are lucky enough to have a librarian as a partner will have a much better chance of staying current, and when learners recognize that no one can know everything, not even everything that is worthwhile, then it becomes a team effort to sort and consume a worthy sampling of resources.

Using the Model in an Information-Rich World

Consider the following suggested steps in the use of the read-view-listen model:

- Select the theme or topic to be addressed in the learning experience.
- Outline what learners are to know, do, and understand.
- Describe the assessment or evidence you will use to know how well the learners have mastered the content.
- Create a core list of “starter” resources that could be read, viewed, or heard and then encourage the learners to branch out far beyond your starter list.
- Encourage everyone to share the best of what they find with the group.
- Have learners log what they read, view, or hear.
- Create an activity that will have learners share the major ideas they have encountered.
- Conduct the assessment to ascertain what the learners really know, what they can do, and what they understand.

- Use this learning experience as a prelude to the next learning experience in sequence.

Learners are usually inquisitive about the amount they need to read. The instructor can often suggest an equivalent number of pages but will also want to encourage the flexibility to “cover” the topic at hand by reading widely.

Examples

- Learners are analyzing a Shakespeare play. Because the Gale Company now has all their reference books online, learners examine a wide variety of criticism of the play from many different authorities, sort the ideas, and classify those that provide the most insight utilizing wiki technology. Learners do a collective analysis of the wiki contributions and then write personal reflections about the meaning of the play from the point of view of the various critics and also from their own perspective.
- An elementary school faculty has the task of selecting a new reading program for the next five years. In preparation for their professional development session, every teacher chooses several professional articles about teaching reading to summarize and bring to the event. At the beginning of the meeting, major ideas are summarized by small groups and then combined as a committee of the whole. Characteristics of a good reading program are created to guide the selection process.
- Learners in an online course are investigating the advantages and disadvantages of a secular vs. a religious state in Iraq and how each form of government is likely to play out over time. Every learner is encouraged to read widely from sources both outside and inside Iraq, including sources from other Arab countries. Major ideas are reported and summarized on a class wiki supplemented by online discussions. Small groups of learners then summarize the major issues, documenting their sources as they go. Individuals write a position paper that could be lodged on a website for general consumption. As a culminating event, the instructor invites an expert on Iraqi affairs to read and comment to the class about the quality and practicality of their thinking.
- In any field and in any mode (face-to-face or online), a controversial issue is examined from every conceivable point of view from a wide variety of sources. All views are summarized, classified, and documented by source and time period argued. Using small and large group discussion or conference call via Skype.com, a major exploration, argument, and position-taking session ensues. Personal reflection papers summarize the entire event. Papers are judged for accuracy of the major positions and the ability of the writer to summarize/document those positions and then base a personal stand on an intellectual foundation rather than upon personal whim.
- Budding researchers take a topic, a disease, a controversial technology, a major social issue, etc. and do a meta-analysis or major review of the research that has been done on that problem. Research studies are grouped by conclusion, research and methodology, and rated by quality. Groups by learners read, classify, and

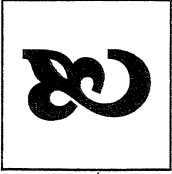
evaluate sets of studies and add their findings to a group pool. A major analysis ensues with conclusions drawn, questions asked, research methodologies probed, and out-of-the box studies considered. From this “practice,” individuals formulate proposals for their own studies.

Tips for Analysis

- When learners read widely, particularly across fields, they will encounter an array of vocabulary words used differently by the various authors. The learners may track this vocabulary as a group, noting the various shades of meaning or major differences in concepts and then establish definitions for major terms that will be used in class discussions.
- A list of experts in any field followed by a short description of their position and their points of view help learners who are reading widely to track the most important players of the field.
- Having learners connect ideas to various political movements, idea camps, or activist groups helps learners discover who is saying what and for what reasons.
- As learners share the best of what they read, view, or hear, ask them to identify the various facts listed above to help their colleagues pigeonhole an article or message. The instructor may create this matrix of ideas as a template to help students quickly categorize and understand what they are encountering.

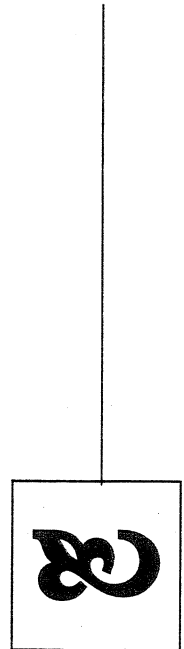
Tips for Technology

- Threaded discussions in online packages can be adapted to the discussion of a wide variety of readings, but we prefer to seek a software package that allows the joint creation of a document, file, data resource. A wiki can easily adapt to this collective creation of a joint information source, a summary, an analysis, and a place to draw major findings and make joint decisions.
- Skype.com can be used for free conference calls via the Internet of up to 50 people simultaneously. All users must have this software on their computer and be available at the same time. An experiment with this technology vs. the use of a chat room online will help the instructor and the students choose a technology that seems to work the best while communicating simultaneously.
- An editable bibliography by the instructor as well as the students will keep core readings and newly discovered quality materials current. A wiki categorized by subtopics under main topics will work quite nicely.



Think! Model #4

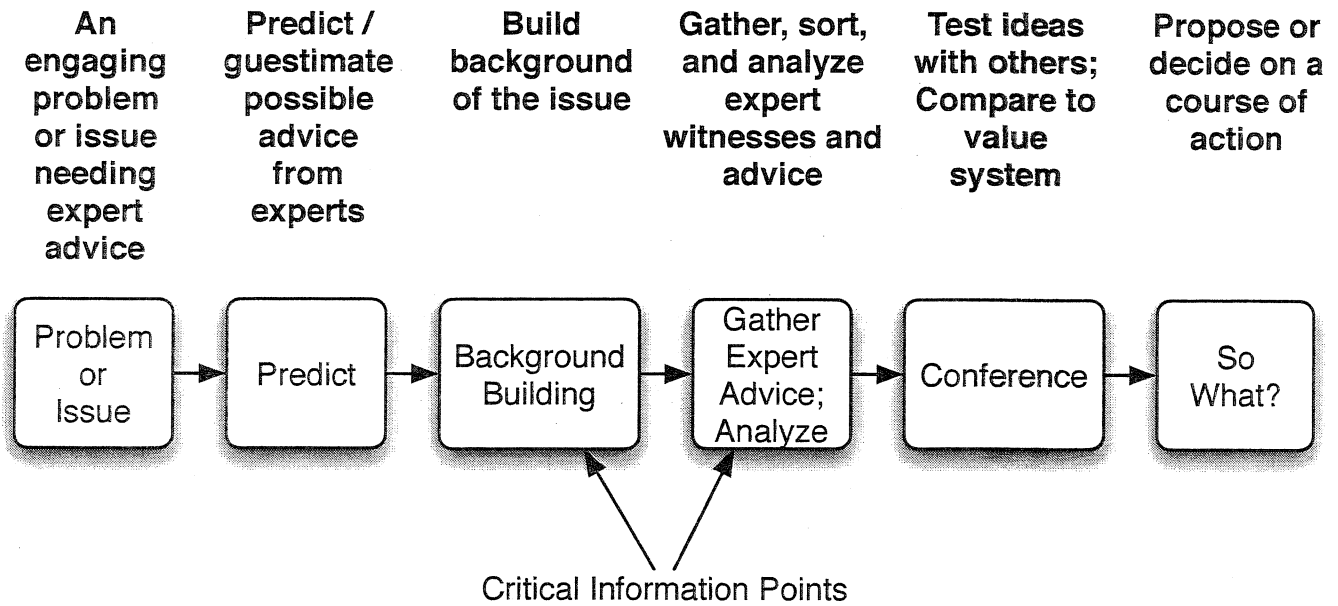
The Advice to Action Model



Think! Model #4

31

The Advice to Action Model



Why This Model?

- To solve real and intellectual problems
- Judge between good and poor advice
- To affect behavior: judging the difference between personal wishes and prudence
- To understand the consequences of taking advice
- To understand how historical events were shaped by advice both good and poor
- To make life-saving decisions

Possible Topics

- Healthy lifestyles
- Selecting advanced education or career
- Taking a position and adopting an action plan.
 - Formulating best alternatives to solve a problem

Critical Learning Skills:

- Use primary sources
- Evaluate resources
- Interpret, infer, predict
- Understanding perspective
- Cause and effect
- Judging advice



Teaching with the Advice to Action Model

The Potential

Advice is cheap and plentiful. “Try this marijuana cigarette, everyone else is doing it.” “Don’t use condoms. They cause AIDS” (a common misconception in parts of Africa). “Don’t sail west because you will fall off the earth” (advice to Columbus). In an information-rich environment, learners need to recognize the quality of the advice they are given, whether it be advice on taking a behavioral action or advice on solving a problem. This teaching model asks learners to abandon whim as a technique for taking action; rather, it asks them to seek the best advice upon which effective action can be based. The opportunities to teach this skill abound across all disciplines. Examples include:

- Who should we support as a candidate for office?
- I just lost my job. What next?
- What is the best way to deal with an addiction?
- What medical plans would be best for those on minimum income during retirement?
- Our apartment building council has decided that we want to have an environmentally friendly lifestyle. What should we do?
- What is the West Nile Virus (or any other disease) and how can our group avoid contracting it; help prevent its spread in our community?
- Will drinking Coca Cola get me a new loving relationship?

While authoritative advice is extremely valuable, learners will often recognize that the best or safest advice may not always be the soundest plan. But they can recognize a risky suggestion or propaganda and take an action knowing the consequences. Robert Frost in his poem, “The Road Not Taken” said:

Two roads diverged in a narrow wood,

.....

I took the one less traveled by,
And that has made all the difference.

If we always take the safe and tested road, we may decide not to sail west from Spain; we may fail to post the 95 theses on the church door in Wittenberg; or we may even fail to sign the Declaration of Independence.

In using this model, instructors help learners confront an issue or problem by searching for and sorting advice of many types. Certainly the sorting should be based on authority and credibility and, if a risk is to be taken, the possible consequences of that advice must be assessed. And at the same time, the instructor may be educating learners on how to give advice as well as take it. In this case, a wide range of skills will be needed to factor in the most authoritative stance to take for various audiences.

The Research and the Product

A sound decision based on solid evidence/advice can be developed by learners if they gather, sort, and analyze the advice they find by asking:

Who said what
For what reasons?
And when was it said?

- Who? – Authoritative? From what organization/interest group? From what mindset?
- What? – Categories of advice. Placement on a continuum.
- Reason? – Their interest or mine? Promoting what? Short or long term? Consistent with a value system?
- When? – Recently? Before or after new evidence?

The instructor will need to determine which of the various advice positions learners should know thoroughly. Should they master all advice before taking action? Or, should they become an expert in a single chain of advice? Should learners be able to defend an action even though it might go against their personal value system or preference? Can they understand an action without having to embrace it as their own?

Examples

- A school board is asking your group to do an audit of the food available on campus from the various vending machines and then prepare recommendations of more nutritious and less fattening foods that could be sold that would still attract consumers. The class or group does the audit and then researches the most successful programs they can find nationally that have already tested and succeeded with such programs. The class involves students in the school as they collect their data and build a plan.
- Members of a science class got into an argument about whether vitamin pills manufactured by the major drug companies were superior or equal to “natural” vitamin pills sold in health food stores. They researched the evidence on each side of the argument from the best scientific journals vs. the literature of the competing producers. Each participant then wrote a personal essay of decision based on the advice collected.
- A marriage and family class became aware that finances were one of the major hurdles of newlywed couples. They are challenged by their instructor to recommend three different systems that have been successfully used by actual couples. They first research a number of plans and then spend time in their community interviewing couples. The result is an online interactive seminar conducted by the class for newlywed couples.

- The class is studying the spread of AIDS in Africa. The instructor asks various teams of students to divide up the various African nations to investigate the official governmental position on what causes AIDS, how it can be prevented, and at least one official governmental program of the country to ascertain its success. The class then does an analysis of findings for a presentation by telephone to a United Nations expert in the topic to compare their advice as a class with the reality in the expert's position.

Tips for Analysis

- Teach learners how to weigh evidence in the face of evidence vs. the loudness of those proposing a particular solution. In other words, does or should the squeaky wheel get the grease? Perhaps we prefer solutions because they are effectively argued rather than the actual merits of the solution.
- Help learners discover what a substantiated argument consists of. Is it a preponderance of scientific evidence? The opinion of the majority? The values of a political party? Personal whim?
- Study together what constitutes a "creative" solution to a problem using out-of-the-box thinking.
- Ask students to forecast the consequences of the various solutions to a particular problem. When certain actions have been taken in similar situations, what has been the result? Should the results of others' decisions have bearing on this case at this time?

Tips with Technology

- Locating the best advice on a particular topic or position might be enabled through a wide variety of technological devices such as the telephone, chats on the Internet, email, Internet phone (Skype), and even low technology such as letters or personal interviews. Teach techniques of using a particular technology effectively to gather information.
- Use a wiki, a spreadsheet, or even sticky notes to collect and then group various opinions or positions on a topic. Such a collective location and arrangement of ideas on a continuum serves as an excellent prelude to the analysis phase of the advice leading to a particular action.

Learning Skills

- Learners will need assistance at times sorting the ideas they encounter into camps or groupings of advice.

- Some positions are very easy to locate because they are prevalent in the media, in a culture, or because a famous spokesperson predominates the “stage.” Finding an effective voice of opposition may require advanced searching skill.
- What is acceptable evidence for advice on the problem at hand? Scientific evidence? Long experience? A family, cultural, religious tradition?
- Various professions have rules of giving advice. How do learners find those guidelines and internalize them as they become professional advice givers and well as takers?

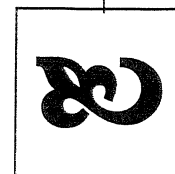
Resources

- Hammond, John S., Keeney, Ralph L., and Raiffa, Howard. *Smart Choices: A Practical Guide for Making Better Life Decisions*. Broadway Books, 1999. A rather lengthy system for considering advice and choosing an action, but worth considering.



Think! Model #5

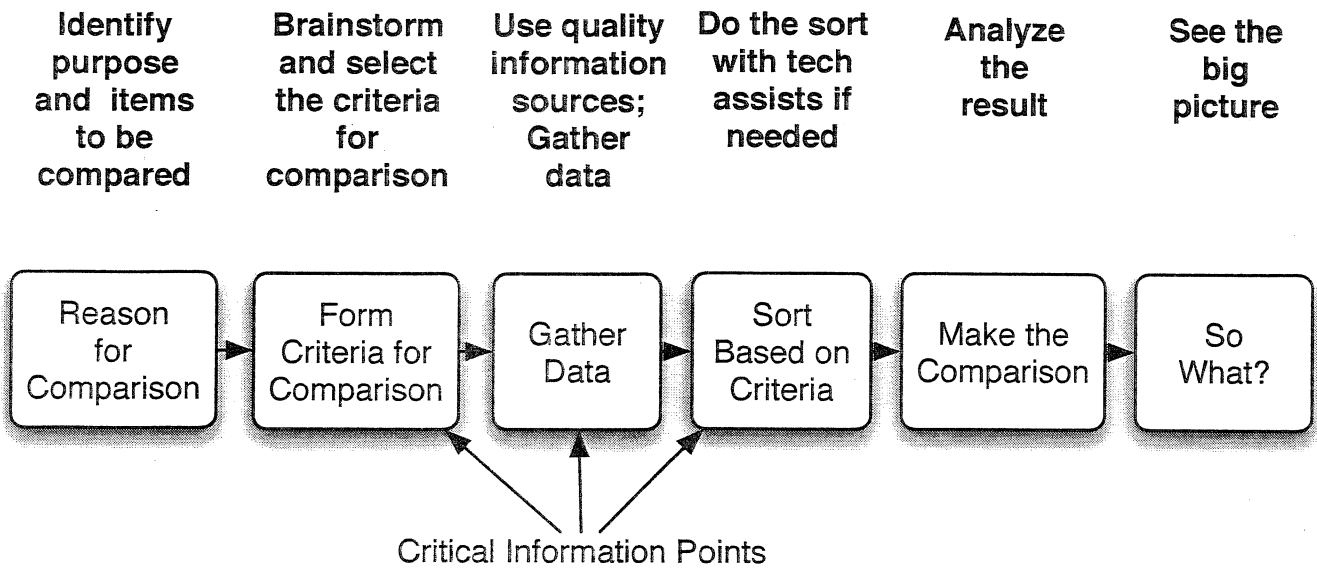
The Compare and Contrast Model



Think! Model #5

39

The Compare and Contrast Model



Why Use This Model?

- A much-researched and powerful teaching technique
- Stress quality information to achieve an accurate comparison
- Teaches reason over subjectivity
- Requires tough thinking
- Becomes the basis of many other teaching techniques with large or small data sets, facts, or ideas

Possible Topics

- Ideas
- Events
- Persons
- Cultures
- Governments
 - Life skills
 - Seasons
 - Animals
 - Plants
 - Music
 - Literature
- Varying solutions to problems
 - Competing systems

Critical Learning Skills

- Use primary sources
- Evaluate resources
- Notemaking
- Sort
- Compare
- Synthesize



Teaching the Compare and Contrast Model

The Potential

Comparing and contrasting begins in early childhood. It would seem to be automatic, yet in the adult world the analysis often turns tragic. Two tribal Africans compare their height and conclude that they must be enemies. Religious groups clash on the assumption that there is no common ground. Drug testing is done only on males with the assumption that females either don't matter or will be affected the same. Then, once in a while, someone does a re-analysis: laws requiring equal treatment for the disabled are finally enacted after two centuries of neglect. What is the same? What's different? So what? These are all great questions as both students and teacher grapple with the big ideas in any discipline. We grow up on Cowboy and Indian movies, and suddenly someone writes *Bury My Heart at Wounded Knee* causing a major stir in our preconceptions.

Comparing and contrasting as a learning activity is known to spur higher-level thinking and analysis. It can be the focus or a part of any of the other models presented in this collection. It is a life skill requiring negotiators to explore common ground or thinkers to recognize critical differences before prescribing solutions of one-size-fits-all. Instructors realize that the same/different skill activity, if taught well, may have a lifetime of impact.

The Research and the Product

The model asks that the learners help set up the criteria for comparison, gather the data, spend careful time analyzing that data, draw their conclusions, and then ask the "So what?" question. Both instructors and students must be careful about any assumptions made. In the previous example of drug testing, the assumption was made many years ago that females and males would respond equally to various medial treatments. Or, the assumption is made that African slaves are not really human, but a subspecies to be trained and dominated. Thus, comparisons are made on faulty assumptions and are tainted. As students present their conclusions, the assumptions they make and the care they take to analyze both similarities and differences can lead to fascinating discussions, re-analysis, and new major questions to attack.

Examples:

- The literacy team of a school faculty is attempting to maximize literacy among the children. The previous policy has been not to allow children to take library books home because they come from poor, dysfunctional, and transient families. Someone presents a research study showing that poor children do not have any books in their home as contrasted with children of rich or middle-class parents. This difference suggests a change in policy, but the group struggles with a conflicting value of responsibility. Solutions are proposed and become the basis of an action research study.

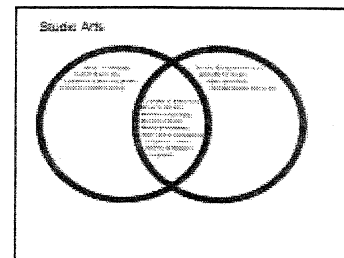
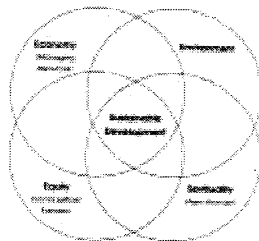
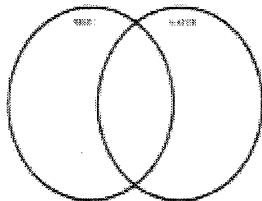
- A class in children's literature explores the story of Cinderella as it has been told and retold in many world cultures. Their resulting night of Cinderella Around the World stresses common cultural traditions.
- A class struggles with the issue of gay marriage vs. traditional marriage. Students struggle with assumptions and criteria for comparison for such an extended period of time that the instructor has to step in – but wonders what to do. Finally, with only one class period left and with little hope of any resolution, the instructor changes focus and the entire class examines the larger issue of assumptions, compare/contrast, drawing conclusions, and the impact that “who” and “what” questions may have on social policy.
- As the 2000th+ prisoner is executed in the United States, a law class is assigned to study the death penalty as a deterrent to crime around the globe and assemble an “International Conference Debate” on the topic.

Tips for Analysis

- Both instructors and students need to take time to analyze assumption and how to classify something “the same” and “different.” Perhaps a bipolar classification of opposites becomes a continuum changing the very nature of the comparison.

Tips with Technology

The Venn Diagram in either a low-tech or a high-tech environment can assist students in categorizing their data. The diagram can be a simple two-circle diagram when comparing two things or a much more complex multi-circle diagram. The following are but a few of the many simple to more complex samples.



- Microsoft PowerPoint can be used to create Venn diagrams for presentations.

Learning Skills

- Provide learners with the appropriate Venn diagram models to be used in the activity and discuss the ways of using and tracking information sources and recording information in a useful way.

- Teach the terms, assumptions, similarities, and differences for use in issues, ideas, scientific situations, or fields in which rigor is demanded.

Resources

- Irwin-Devitis, Linda, Karen Bromley, and Marcia Modlo. *50 Graphic Organizers for Reading, Writing & More (Grades 4-8)* Teaching Resources, 1999. Contains many graphic organizers including Venn Diagrams easily modified for adults.
- For a quick article about Venn diagrams, search for venn diagrams in Wikipedia.com on the Internet.

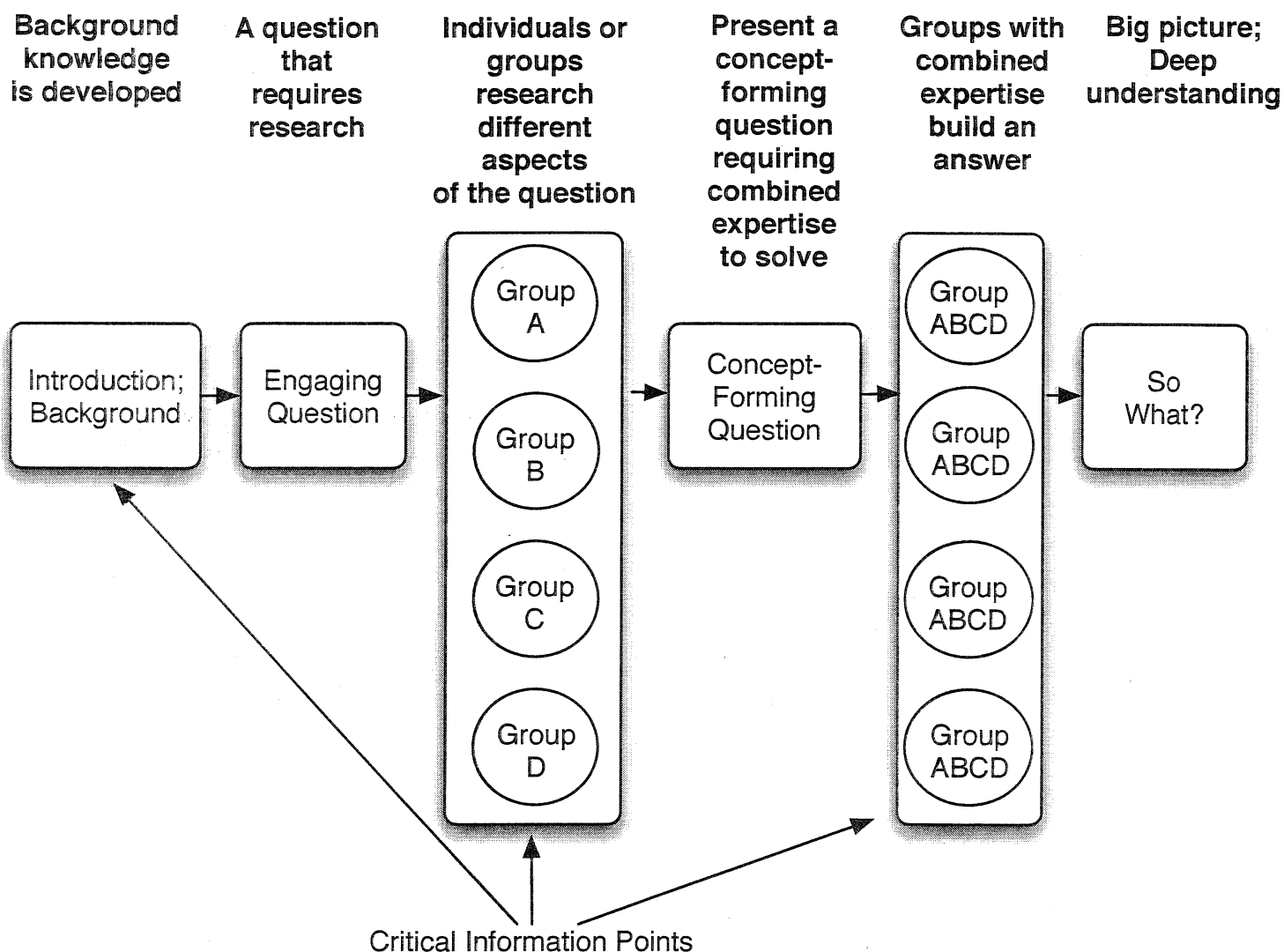


Think! Model #6

The Concept Jigsaw Puzzle Model



The Concept Jigsaw Puzzle Model



Why This Model?

- To develop deep understanding rather than surface knowledge
- To develop group skills
- Two heads are better than one
- A prototype of the real world of business and industry
- To stimulate each learner into making a contribution
- Use to introduce lots of material quickly

Possible Topics

- Persons
- Places
- Things
- Events
- Ideas
- Movements
- Competing systems

Critical Learning Skills

- Explore a topic
- Develop questions
- Locate resources
- Evaluate resources
- Collaborate
- Synthesis



Teaching with the Concept Jigsaw Puzzle Model

The Potential

All too many learning experiences end just at the point when high-level thinking could boost learning. Term papers may be assigned on topics of the student's choice, turned in, and graded. The end. The concept jigsaw offers two important improvements. The first is cooperative learning by groups. The second is the boost in learning when mini-experts rather than novices tackle major ideas in order to produce deep understanding. The concept jigsaw is a technique to transform superficial knowledge into larger and more significant concepts across a sea of details. Instead of becoming knowledgeable about one species of birds, the learner begins to create understanding about birds in general. It's not the cause of a single war. It is the causes of wars in general and how they might be prevented. It is not about a single politician running for office, it is about a group of candidates and trying to understand all the major issues of a campaign.

For instructors, the concept jigsaw puzzle model requires expertise in asking questions. Two questions per activity will do. Once created correctly, learners will dedicate their time to the challenge and will often meet or exceed the original expectations. The instructor turns into guide at the side and may be quite amazed at the level of work, the ideas, and the deep understanding that develops. The culminating experience is something like brining doctors together of varying expertise to look at a particular phenomenon in search of new ideas for research.

The Research and the Product

Two questions. Only two questions. The first question sets groups of students to do research in an information-rich environment; they gather data and ideas, manipulate those data and ideas, draw conclusions, and create a product. This first phase is common across education. Three or four groups (or individuals) in a class are asked to study a native American tribe looking at various aspects ranging from survival in their environment to cultural and spiritual traditions. The question they have been working on has caused them to gather a great deal of information to describe the characteristics of their tribe. At this point, each individual or group has become a mini-expert on a single tribe but knows little about native Americans in general. Normally, products such as research papers or PowerPoint presentations would be the culminating event. Using the concept jigsaw puzzle model, the instructor recognizes that the students are now prepared to gain deep understanding far beyond their single tribe.

The instructor cancels the oral presentations, a passive learning experience, and presents the class a second question that will require broad expertise to solve. Combining one expert from each of the previous groups, new groups form that have specialists from each of the tribes studied. The second question forces learners to combine their knowledge. The second question is a higher-level question looking beyond the collection of facts or ideas to the analysis and synthesis of those data across tribes. For example, the learners may be asked to demonstrate the truth in the statement written in the Denver Museum of Nature and Science: "There is no such thing as a typical American Indian." Such a

question would cause the new group to look at differences across tribes and the reasons for those differences. A different question might require students to analyze the similarities of the tribes rather than the differences. For example, “A new museum is proposed for your city/state and it will have an exhibit on native Americans. What themes, common to all tribes, would provide the basis of such an exhibit where both similarities and differences could be appreciated by the visitor?”

To elaborate, the first question causes individuals or groups to become an expert in individual persons, issues, ecosystems, events, wars, religions, civilizations, legal cases, diseases, animals, or plants. The second question causes comparison of the new experts to pursue commonalities, explore differences, and develop deep understanding or a big picture much like putting the pieces of a jigsaw puzzle together and a wonderful picture appears. Such a culminating experience is active as compared to the original passive “presentations” event. Everyone is involved. Everyone shares expertise. Everyone is forced to develop a broader understanding. Plagiarism is a non-issue.

Examples

- A group of coaches bring to a conclave details of a single successful player who not only excelled in the sport, but also academically in the coaches’ schools. A question, “What made this athlete successful both on and off the court?” is followed by a second question for the conclave: “What characteristics of success can we discover across athletes?”. Then the question is asked, “What programs can be developed to help a broader percentage of athletes succeed?”
- The organizational charts of the 30 corporations on the Dow-Jones list are studied by individuals or groups. The instructor then forms new groups where all 30 of the charts are available. A new group combines their knowledge of the charts they researched looking to see if any organizational pattern emerge that may predict the structure of an imaginary new corporation they are designing. The second groups compete to produce an organizational chart that is most likely to succeed.
- A community wishes to build a new public library. A patron study is to be completed before handing over design plans for the new structure. Teams of four are assigned to investigate the various types of patrons already frequenting the library: children, teens, adults, teachers with classes, homeless/transients, cultural groups, and various groups of non-users. Experts from each of these group investigations then form new groups to develop characteristics of a new facility that would appeal to the widest possible citizenry.
- Groups or individuals investigate individual dictators across world history. How did these people come to power? What tactics did they use to remain in power? And what lead to their downfall or demise? The instructor then reforms the groups to study dictatorships across time and continents to ascertain patterns. The same type of study could be used to study terrorism across time in an effort to confront this threat.

Tips for Analysis

Students may come prepared to do research on a particular topic and make presentations, but they may lack the skills of analysis and synthesis across larger bodies of ideas. As they encounter second questions, they may not have been challenged to think at higher levels of abstraction in the past and may require a fair amount of coaching. What is the “big picture?” We say that a person who can see the forest as a whole without getting muddled in the individual trees may have developed insight, the ability to group ideas in such a way as to make generalizations that reflect accurately the details. Somewhere in this type of thinking is a link to creativity. Perhaps it is the ability to see new possibilities of idea combinations; to see not only the facts that are present, but to recognize what is missing; or, the ability to understand or develop an abstract idea even when some of the pieces are missing.

Tips with Technology

During the first question of the jigsaw, normal technology that assists the learner in gathering, analyzing, recording, and presenting information are sufficient. During the second question, students will need access to the products of individual members of the group and will benefit from technology that allows them to categorize, classify, re-arrange, compare, and contrast the various ideas from individual products into a larger matrix of ideas so that the new group can do analysis and synthesis. In a low-tech space, we think of good tables and movable chairs where ideas can be spread out; recorders who classify ideas on chalkboards or large notepads for use in the synthesis process. Software such as Inspiration can be used to have one member of the group build concept maps that can be manipulated easily to link various ideas as the larger picture is constructed. Wiki technology also provides an online space where groups can work either synchronously or asynchronously to construct a collaborative text product. Look for technologies that allow sorting, blending, and reconstructing of pooled ideas into a collaborative product.

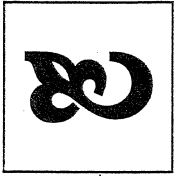
Learning Skills

A number of critical skills may be assumed by the instructor but cannot be. Consider the following:

- What are the steps of analysis?
- How do we recognize patterns from varying perspectives?
- What are the steps of synthesis?
- What group skills push products along? What should happen if a member of the group is a slacker?

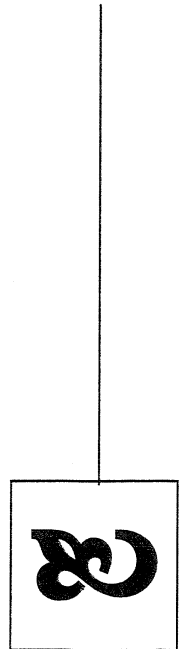
Resources

- Browne, M. Neil and Stuart M. Keeley. *Asking the Right Questions: A Guide to Critical thinking*. 7th Ed. Prentise Hall, 2005. A standard work that helps learners ask good questions during analysis and synthesis.
- McKenzie, Jamie. *Learning to Question, To Wonder, To Learn*. FNO Press, 2005. Teaches the reader to build high level questions.



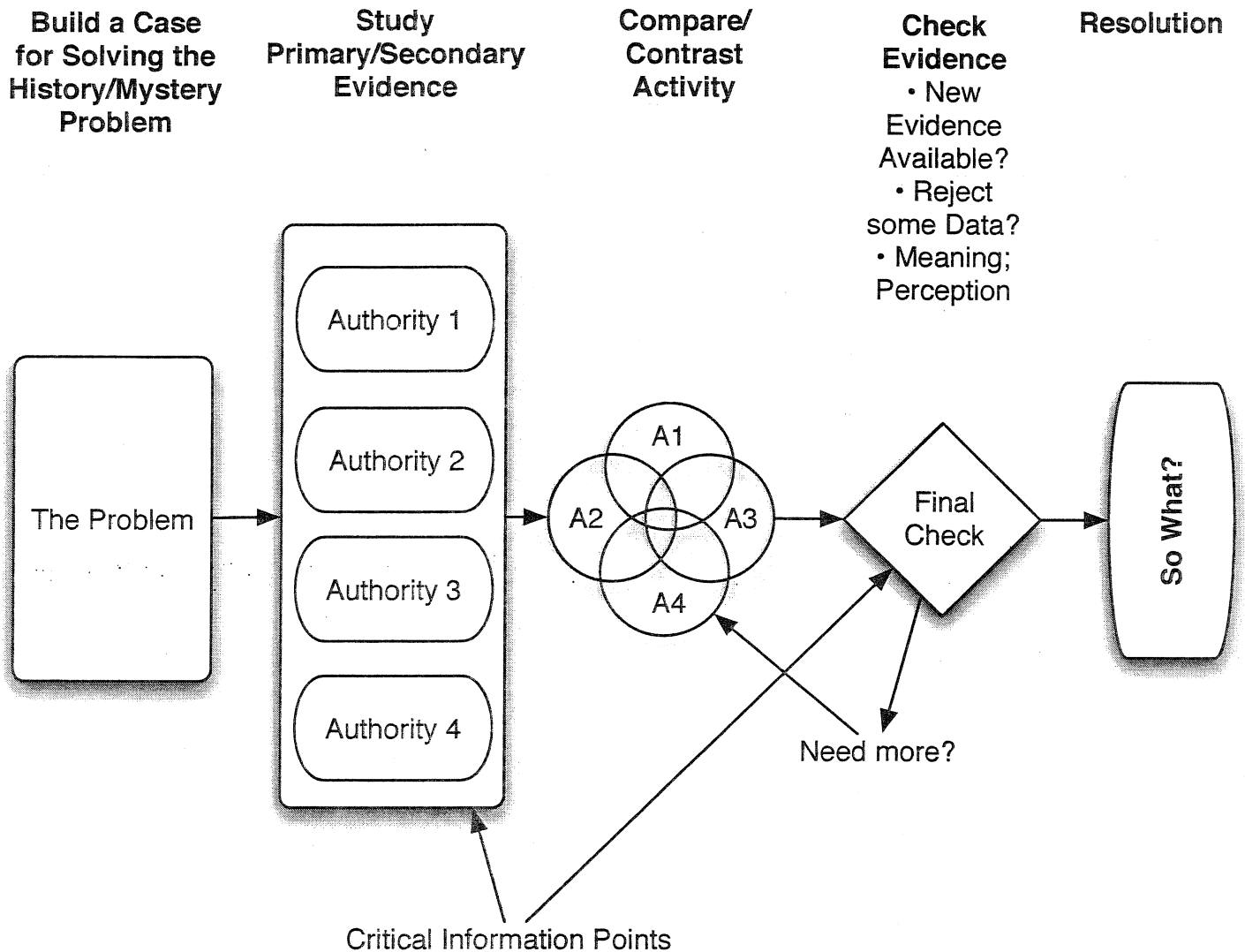
Think! Model #7

The History & Mystery Model



Think! Model #7

The History & Mystery Model



Why Use This Model?

- When, where, and what appears to have happened?
- What really happened?
- Why did it happen?
- What could have prevented it from happening?
- What can we learn based on what happened and why?
- What was the tipping point or catalyst?

Possible Topics

- Causes of war
- Change in government
 - Natural catastrophes
- Advances in technology
 - Influence of artists/ authors
- Development of art forms and genres
- History of people, places, issues, events, things, systems, movements

Critical Learning Skills

- Select relevant data
- Sort and sequence
- Determining fact
- Compare
- Make connections
- Draw conclusions
- Solve discrepancy



Teaching the History & Mystery Model

The Potential

What happened? What really happened? Such questions are the fodder for seemingly hundreds of TV series, Agatha Christie novels, the forensic investigations of Patricia Cornwell, the imaginations of *The DaVinci Code*, or the account of *1776* by David McCullough. Students may protest their interest in history, but given a well-thought out historical or mysterious happening, they plow into their investigations with vigor. Questions can range from ancient to modern: Were there weapons of mass destruction in Iraq? How did King Tut die? What really happened at Mei Lie?

The quick solution may be to read a single account of an event and presume that the task is done. Instructors, knowing such a tendency, can help the learner understand the key techniques of history and investigation. Then the instructor introduces a multitude of fascinating sources from histories, revisionist histories, primary sources, secondary sources, controversial sources, artifacts, simulations, documentaries, and newspaper accounts, just to name a few. Teams of “investigators” are challenged to reconstruct a happening, a crime, an event, a person, a movement, an issue, a civilization, an organization, or any other fascinating topic that will give the teams deep understanding beyond the usual cursory event list.

The key is the question that causes the learner to reconstruct something, but to also extend that investigation to questions such as causes or what might have prevented such an event. Is history destined to repeat itself? Does an understanding of drug addiction of a friend or celebrity provide a strong enough incentive to stay drug free? The learner may be quite successful at the reconstruction, but the final consideration of “so what” maybe worth the most time in the entire instructional activity.

The Research and the Product

Start with a fascinating question the piques the interest of the group. Then set individuals or groups on an investigative mission among a wide range of sources. Groups can be assigned to look at specific types of evidence, specific point-of-view accounts, or other natural division. As the learners collect the evidence, an activity causes them to combine that evidence to reconstruct the event. At this point, there may be further questions that develop or sources that appear with new evidence that will cause a re-assessment of the developing solution. Finally, the “so what” phase causes the learners to answer the original question with some sense of finality, but also to reflect upon the application of their findings.

Examples:

- Are the “triggers” to war staged events or natural sequences? Groups look at various wars, either ancient, modern or a combination, looking at the events that

set an actual war in motion such as the bombing of Pearl Harbor. In conclusion, the students examine escalations of tension to try to invent ways to break a catastrophe such as happened in the Cuban Missile Crisis.

- In a family relations class, students investigate through interview many divorced couples. What chain of events finally brought the marriage to the crisis point? What do marriage counselors have to say about the escalation of these crises and how to prevent them? Through interviews with successful couples, how are the crises of marriage handled well and what implications do they have for the students themselves?
- It is said that Dan Brown made many historical errors in *The DaVinci Code*. A team of budding writers decides to investigate those errors in a quest to answer the question “What are the best guidelines for authors of historical fiction?” Their quest leads to a telephone interview of David McCullough and a major project to write a historically accurate short story of either fact or fiction.
- A class of medical students investigates the history of the development of thalidomide and its tragic conclusions. What can each student learn from that event as a guide for a future career?
- Do walls work? Students look at walls both ancient and modern to analyze their success: The ancient Wall of China, the Hadrian Wall, the Israeli wall, the proposed wall between the U.S. and Mexico. What advice can the class give to their congressional representative?
- New evidence has just appeared to dispute the theory of how the Titanic sank as pictured in the movie Titanic. What credibility can our class determine about this event and the various theories of what really happened? And, as long as we are on the topic, could a small group investigate the real story of the “unsinkable” Molly Brown? What is truth and what is fiction?

Tips for Analysis

Whether a mystery or a historical event, evidence and the interpretation of that evidence becomes the critical part of the analysis phase. It is now very common to have conspiracy theories created. How are these theories generated and upon what evidence? Or a major discussion of evidence can result by examining the article in Wikipedia.com on the term “Afrocentrism.” As of January 2005, this article was labeled controversial and was generating much discussion online.

Tips with Technology

With the advent of digitalization of many of the records of the world, new resources are opening up. For example, at the Library of Congress online, where original documents and primary sources can be searched by students. Over time, these resources develop so that even a few months can make a difference of what is remotely available. Enlist the support of librarians and archivists as these resources are needed for investigation.

Learning Skills

- Teach the steps of historiography.
- What constitutes quality evidence?
- What sources of information about this event can we trust?
- What new technologies or development of evidence might be used to re-analyze the evidence already collected?
- Teach various search engines as students begin to retrieve documents both from the Internet and from the invisible web. The use of proprietary databases may present obstacles because of cost, but may be essential if the best evidence is to be gathered.

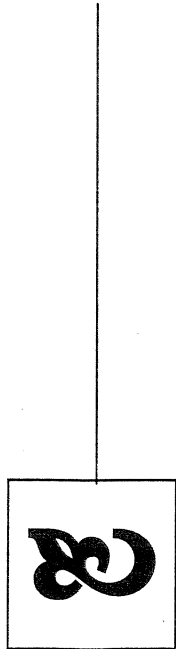
Resources

- Jackson, Donna M. and Charlie Fellenbaum. *The Bone Detectives: How Forensic Anthropologists Solve Crimes and Uncover Mysteries of the Dead*. Megan Tingley, 2001. A fascinating tale of evidence and research written for teens but hard to resist.
- Frey, James N. *How to Write a Damn Good Mystery: A Practical Step-by-Step Guide from Inspiration to Finished Manuscript*. St. Martin's Press, 2004.
- Trinkle, Dennis A. *Writing, Teaching, and Researching History in the Electronic Age: Historians and Computers*. M.E. Sharp, 1998.
- Storey, William Kelleher. *Writing History: A Guide for Students*. 2nd ed. Oxford University Press, 2003.



Think! Model #8

The Matrix Model



Think! Model #8

The Matrix Model

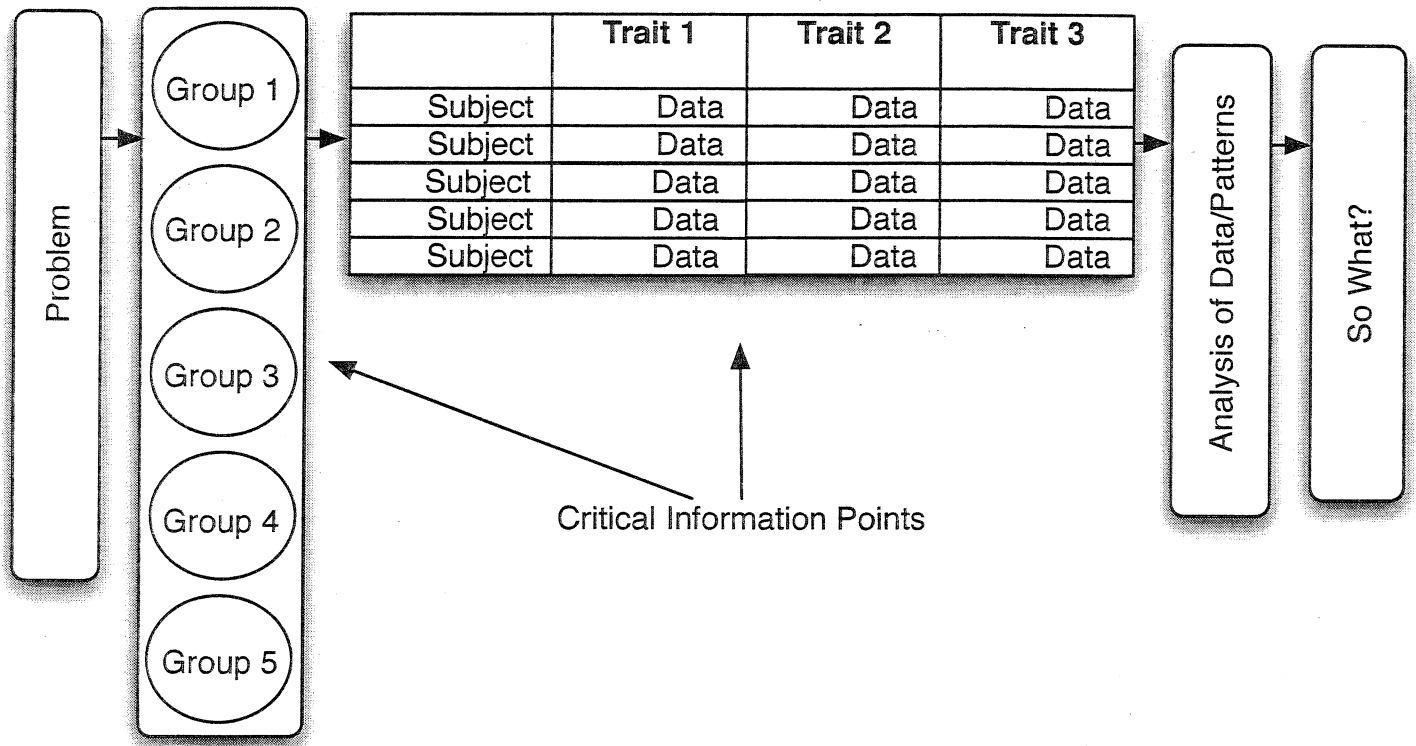
An engaging problem is created requiring data across subjects

Each group studies a subject to supply data on each trait

Place data on a large matrix or spreadsheet for comparison

Data are analyzed, contrasted, computed

The Answer/ Decision/ Conclusion



Why This Model?

- To promote accurate data gathering
- Organizing data for better decision making or understanding
- Facilitating a look at patterns and trends
- Seeing the dangers of bad data in any cell
- Teaching complex issues; solving complex problems
- Comparison of expert opinions about a topic

Possible Topics

- What auto should I purchase?
 - Are there weapons of mass destruction?
- What is the best course of action?
- Comparison of candidates for office
 - Comparing topics of interest
 - Comparing roles across various players
- Making decisions based on data rather than whim
- Which plan under consideration would maximize impact, results, profits?

Critical Learning Skills

- Evaluate information
- Select relevant data
- Analyze and categorize information
- Synthesis across columns and rows
- Drawing sound conclusions



Teaching with the Matrix Model

The Potential

The Matrix model is a method of organizing a wide range of data for the purpose of making a decision or to look at patterns and trends. The matrix can be thought of as a spreadsheet with columns and rows into which can be lodged numbers, facts, ideas, or even term papers. The advantage of this organizational structure is that groups of students can collaboratively fill the various cells in the matrix with information they research and at that point a collaborative analysis can take place.

In today's world of information, the amount of data can easily overwhelm even the brightest thinker so that some organizational structure provides a way of handling what seemingly is confusing or impossible. For example, a person faced with buying a new automobile faces a tremendous array of choices, but organizing relevant information into a matrix makes it much easier to look at critical elements. It is easy to arrange desired models in order by gas mileage, eliminate the gas-guzzlers, and then concentrate on the subset left for other desirable features. The learner begins to understand how smart shoppers succeed in getting the most for their money by letting reason replace whim. Such a lifelong skill works in all professions and in successful personal lives.

The second use of the matrix allows learners to look across a field or an issue to discern patterns and trends. For example, who has a stake in literacy in the public schools (federal, state, and local governments; teachers; professional associations; volunteer organizations)? How can these various groups collaborate to create a viable literacy program in our school? For any controversial issue, what stakeholders are there and what is their position on various elements within that issue? Because students have limited time to do research, the idea that they could digest what multiple groups have to say about various aspects of an issue puts them at a disadvantage and they are likely to be crushed under the sheer weight of ideas. By collaborating as a group to survey a complex landscape of ideas, all members of the group can begin to grasp the patterns that emerge when ideas are organized and categorized. We can begin to see how the various major religions line up on a variety of issues being discussed at the moment if those ideas are charted for easy comparison.

In the instance of decision making, the matrix is used to replace whim with judgments made upon sound data. Likewise, when looking at patterns and trends, personal preference or prejudice is replaced by thoughtful analysis.

The Research and the Product

The wonderful thing about a matrix for instructors is that once the problem is created and then the rows and columns of the matrix selected, the learning activity becomes a buzz of activity on the part of the learners. In the car buying example above, the columns are the traits of a good automobile that we think are critical: gas mileage, safety rating, number of passengers, cargo space, etc. The rows are the various models we wish to

consider: Camry, Taurus, Mini-Cooper, etc. Individuals or groups of students then do their research to fill in each cell of the matrix with as high a quality of information they can find. Such a matrix can be set up easily for any decision facing the group such as: Which reading textbook should the teachers of this school use? What company could supply the parts we need at the cheapest price and within the time frame we need? Which medical procedure is the least evasive, cheapest for the patient, and within the expertise of our current staff?

For patterns and trends, the matrix columns and rows may be a bit more difficult to set up. In the literacy example above, students need to understand what various organizations have to say about building literacy in the school. The columns are the traits or issues in literacy such as reading skill method, motivation of readers, access to materials, implications for cost, etc. In this example, students need to research the ideas of the various organizations and summarize their findings, complete with citations to fill each cell of the matrix. If the question is absolutely critical to success, students may be required to do a research paper from the cell rather than a summative paragraph.

For either type of matrix, most of the learning will begin once the matrix has been loaded. At this point, students must do a serious analysis of either rows or columns and then create a synthesis to enable a decision to be made or to recognize the implications of the various patterns or trends that appear. The final activity asks for some type of reflection to solidify deep understanding in not just in the particular exercise but in the process that has been used.

Examples

- An instructor wishes to help students choose a candidate in an election based on issues rather than upon the whim of how good looking the candidate is, what church they attend or don't attend, or how fancy they dress. The columns of the matrix are the various issues of the campaign and the rows are the names of the various candidates. Students research each candidate's position on each issue. After the research has been done, groups of students compare the various candidates on a single issue (column analysis) and also analyze individual candidate's stand across issues (row analysis). After a debate, comparison, and synthesis in class, each student is asked to write a person reflection pointing out a likely candidate to vote for given a personal value system.
- Senior citizens are trying to decide which company or organization to select as their drug benefit provider. As a workshop leader, you help the group set up a matrix of critical benefits (columns) and the competing providers (rows). Each senior receives personal assistance in evaluating which plan is best for them.
- Oil drilling in the Alaskan wilderness is a continuing issue. Your congressional representative is seeking input from the general public on this matter. Your class decides to prepare a comprehensive report on the matter with all the stake holders represented. A matrix of issues (columns) and groups (rows) is prepared as the basis for a white paper to be presented and discussed with the representative.

- Twenty proposals for a community grant have been received. Your class has volunteered to review the proposals and make a recommendation to the city council. Issues from the RFP become the columns of the matrix and the rows are the individual proposals. Each proposal is read independently twice and the results entered in independent matrices. New groups with representative readers compare the different readings and solve any discrepancies. When the final combined matrix has been constructed, the group as a whole analyzes the results and then makes a recommendation to the council.
- A science class is interested in charting the number of hurricanes in the Atlantic Ocean as far back as records go to look at as many factors as there are data for. Categories of data (columns) include number of hurricanes, number of hurricanes at various strength levels, water temperatures for various critical locations, number that have struck land and where, among others. The rows are the years since records began to be collected. After the data are assembled, the class is divided into three groups with the task of analyzing the data independently and coming up with some conclusions that might be presented on a science news show. When the reports are given before the class, discrepancies are noted. The entire class spends some hours resolving the discrepancies before preparing the script for the news show.

Tips for Analysis

To be a quality learning experience, there are some essential ground rules that must be observed if the matrix is to produce an accurate result.

- Each cell must be filled with the best and most accurate data available. Inaccurate or opinionated data in the cell will affect the results. For example, when President George W. Bush was trying to answer the question “Are there weapons of mass destruction in Iraq?” A matrix consisted of the types of weapons as columns and the various intelligence agency reports as the rows. The answer, probably a white paper, in the individual cell was a yes, a maybe, or a no. In retrospect, the Bush administration has admitted that there was bad data in the cells causing an incorrect answer to the essential question. Students must realize that their facts or answers for the cells must be authoritative and that this characteristic will affect the work of the entire group.
- As the loading of the matrix is completed, the analysis of rows and columns can begin. Students will need advice on the rules for analysis, comparison, and synthesis as they begin their task. Should they run into suspicious or improbable data, they may need to recheck the accuracy of that data before proceeding.
- As a first step in analysis, teach students to try and reduce the size of the matrix as a whole so that the result can be better handled. For example, in buying a car, if the car falls below 20 miles per gallon, that car is eliminated from our consideration making the matrix one row shorter. As obvious choices are eliminated, the matrix is reduced until there may be only three or four cars that are in competition for our final choice. At that point, given all factors being equal, personal choice preference

might be used – “I think that silvery tone to the bluish color appeals to me the most. I’ll take that one.”

Tips with Technology

- The most obvious computer software for a matrix is a spreadsheet. If cells are filled with numbers, then the spreadsheet can do the analysis, charts and graphs produced. If the cells are filled with facts, ideas, or research papers, then the rules for human analysis will need to be constructed.
- A wiki containing tables can be used for both short and lengthy ideas and provides a simple way for a group of students who are not together to create a matrix from anywhere in the world and on their own time.
- Low technology known as sticky notes are very handy. Each cell of the matrix is numbered in advance and as students do research, they record the answer, the source of information, the cell number, and their own name. When the class gets together, the instructor draws the matrix on the board and students then place their stickies in the appropriate cell. The instructor then divides the class into groups who are assigned to analyze either a row or a column. Results of the analysis are then shared with the class as a whole for the synthesis of a solution. The stickies can also be replaced back into the matrix and a second analysis of the matrix by rows happens. Finally, the big picture can emerge. Such a dual analysis is a very powerful learning experience.

Learning Skills

- Teach the principles of quality data collection through authoritative sources.
- Teach the principles of analysis and synthesis.
- Teach group skills so that everyone in the group is “pulling their weight.”

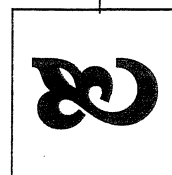
Resources

- Any number of Microsoft Excel guides is available for crunching numbers. We have not seen guides to that software that essentially use the program as a text storage and arrangement device. Excel is often used to store text because Access, the Microsoft database, was never packaged with the Office suite, so users tricked the spreadsheet into a practical tool.



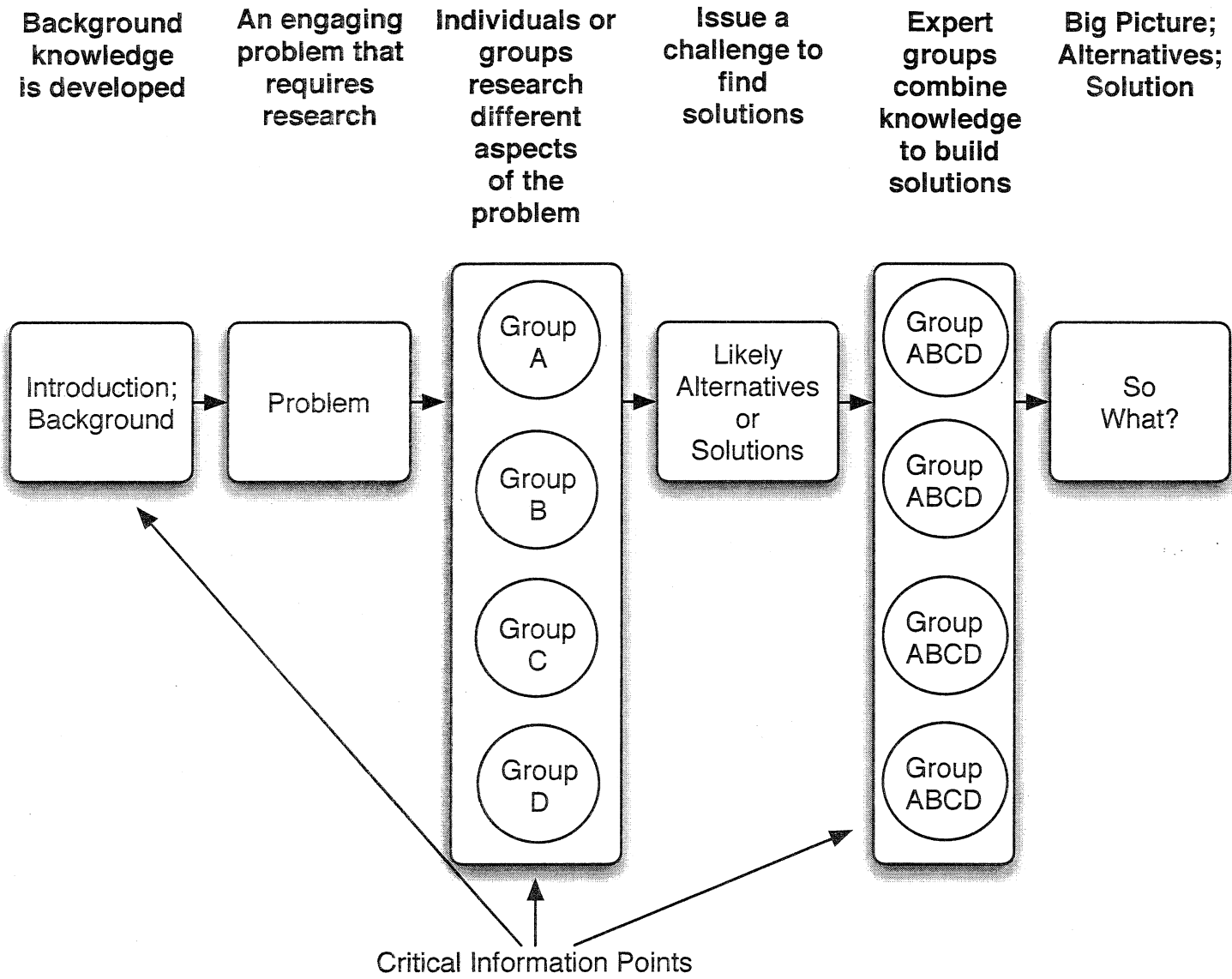
Think! Model #9

The Problems/Possibilities Jigsaw Puzzle Model



Think! Model #9

The Problems/Possibilities Jigsaw Puzzle Model



Why This Model?

- To learn real-world problem-solving skills
- Build group problem-solving skills
- A prototype of the real world of business and industry
- To stimulate each learner into making a contribution
- To encourage investigation, determination, and perseverance

Possible Topics

- Problems encountered at home, school, community, or national level
- Social problems such as poverty or health care
- Real problems created from learning experiences or projects

Critical Learning Skills

- Select relevant data
- Note making
- Collaborate
- Make connections
- Synthesize



Teaching with the Problems/Possibilities Jigsaw Puzzle Model

The Potential

The Problems Jigsaw model uses an identical structure to the Concept Jigsaw model – only the focus changes. The concept model concentrates on the understanding of ideas, issues, or issues across a sea of details. The problem jigsaw provides students with an actual task or challenge to confront. To accomplish the task at hand, the learners must first build a background in various aspects of the problem and then bring their expertise into a new group where the focus will be on a solution. In today's large corporate and global economy, the group or project team is an extremely common organizational pattern that works to solve problems or develop specific products or solutions. This pattern requires individual workers who have complementary expertise and have the skills to contribute to a collaborative. Such training can begin very early in a child's life and can extend across education and into graduate education.

For instructors, the concept problems/possibilities jigsaw puzzle model requires expertise in building two tasks. Once created correctly, learners will dedicate their time to the challenge and will often meet or exceed the original expectations. The instructor turns into a guide at the side and may be quite amazed at the level of work, the ideas, and the deep understanding that develops. One strategy that often works is to ask students to compete in the various groups to develop a solution to a problem. The culminating event then becomes demonstration of the varying solutions but also the combination of those solutions into a super solution that can actually be tested or put in place.

The Research and the Product

Two problems are created. The first requires learners to build expertise in one skill area so that when combined with other mini-experts their expertise will help solve the main or second problem. In other words, the first problem builds the background sufficiently to solve the second problem. The first problem requires teams or individuals to do research in the information-rich environment long enough until the instructor perceives that sufficient expertise has been acquired. Then the instructor has the confidence to form new expert groups that will have a chance to solve a larger and more complex problem. In advance, each member of the class knows that individual expertise will be critical to the main event. There can be no slackers. The more real or relevant both problems are, the more likely the students will be engaged and thus will learn more. Perhaps one way to form excellent problems is to begin with the time frame available. Given the amount of time available, what major realistic problem could this entire class or group solve? What expertise would be required and how much time would it take to develop that preliminary expertise in order to engage in the main event?

Examples

The examples outlined here assume that the best problems to solve are those in the real world. This does not preclude the creation of simulations or laboratory problems that can be handled in the time available.

- Groups of students spend one or several semesters of engineering principles developing their expertise. Then groups with complementary knowledge or skills team up to build competitive robot cars to compete in a race.
- A city council is concerned about the homeless during extreme weather. They ask your group to investigate and present several solutions. Individual groups spread out to investigate the places that the homeless use currently in the community such as public libraries, homeless shelters, church meal services, and other places currently frequented by the homeless. New groups with complementary expertise then form to build a proposal for the city council. The groups share their proposals with each other, critique them, restructure them, or merge the various solutions into a single master plan before making their presentation to the city council.
- Vandals have spray painted over a large mural that is valued by the community. Groups of students study various techniques for removing the paint and restoring the mural. Then complementary groups are asked to form a new solution and are given a one-foot square piece of the mural to test their new method. The entire class judges the result including the costs, a timetable, and a proposed RFP form for the organization to use to contract the work.
- A school board is most anxious to pass a levy election to fund school buildings that are in very poor shape. Your class has been asked to propose methods to inform every citizen of the problem and to attract the most voters. Small groups study the techniques used in surrounding communities, then reform with complementary expertise to form competitive proposals for the board. The class not only presents their varied solutions to the board, but follows the progress of the election as a case study.
- In a wellness class, a problem of exercise for persons of various lifestyles is presented. What exercise programs would meet certain standards known to be beneficial? Teams first investigate various exercise regimens then regroup with complimentary expertise to propose regimens for three different lifestyles that would not only produce results but would be likely to be used by real persons. Individual students then plan their own exercise regimen and begin its implementation as the project ends. Follow up over time is done if possible.

Tips for Analysis

The instructor will need to establish guidelines that help individuals and groups needed to first know how to develop expertise, and second, to be able to demonstrate that expertise before tackling a larger problem. Criteria will also need to be developed for assessing the success of the second or main event problem.

Tips with Technology

Numerous forms of technology will help groups develop their expertise as well as solve the main problem. Choose those that will make the groups and individuals the most efficient. When groups are floundering, the technology may be the problem, or skill in using the technology to their advantage may be lacking. The instructor should both select and instruct in the technology until that technology becomes transparent in the working of the group. That is, the group can get directly into the problem to be solved rather than spending a great deal of time trying to make the enabling technology work or deal with technology malfunctions. When frustration with technology rises, so will disinterest in solving the problem at hand.

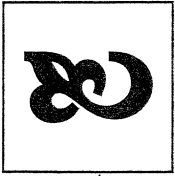
Learning Skills

- Group skills and collaborative behavior will be critical. How are these developed? “Experts” often bring egos into a group process. What strategies will propel the group toward success rather than conflict?
- Have several problem-solving strategies available. Time teaching or thinking about these strategies may save groups a great deal of time rather than expecting that the group will bring these strategies as a part of their background.
- The less time available to solve the two problems, the more help groups will need in structuring their work.

Resources

There are many books available that suggest problem-solving strategies for use by instructors or individual students or groups. Here are three examples:

- Jones, Morgan D. *The Thinker's Toolkit: 14 Powerful Techniques for Problem Solving*. Times Business, 1995.
- Higgins, Mames M. *101 Creative Problem Solving Techniques: The Handbook of New Ideas for Business*. Ne Management Publishing, 1994.
- Straker, David. *Rapid Problem Solving with Post-It Notes*. Fisher Books, 1997.



Think! Model #10

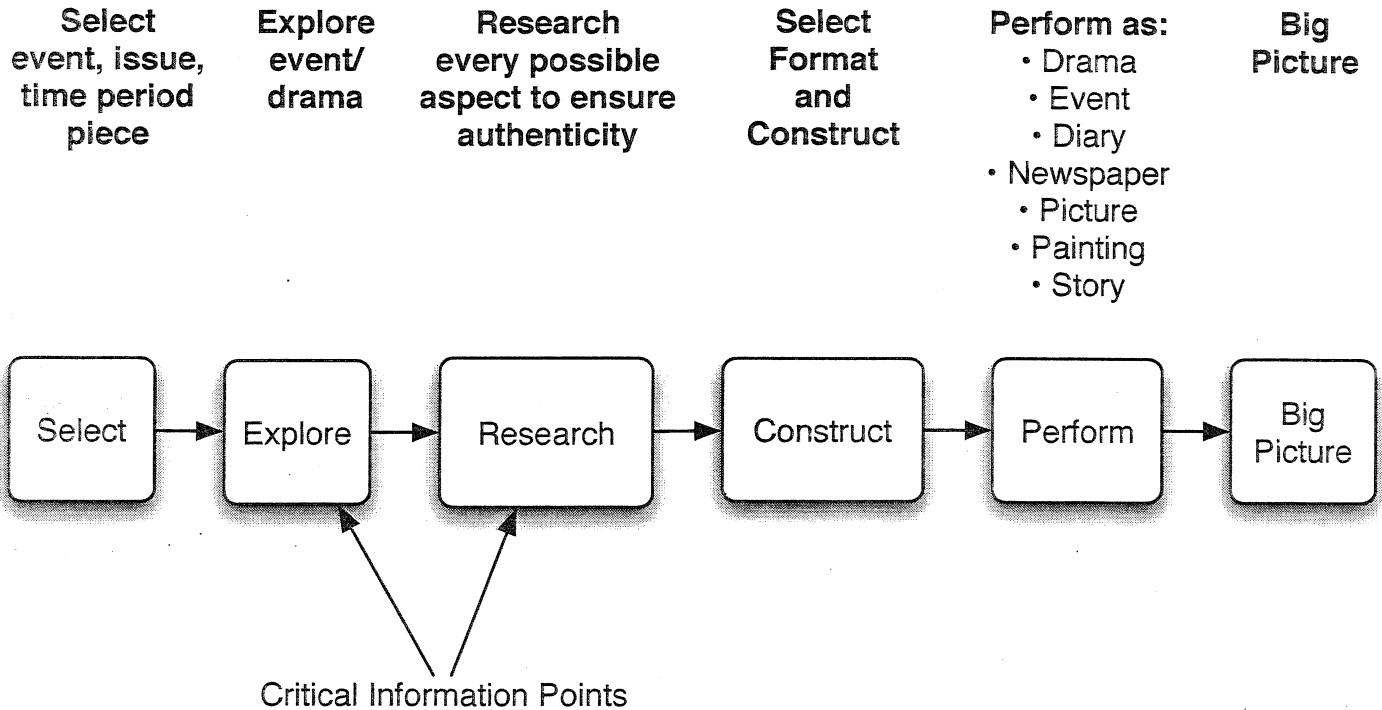
The Re-Create Model



Think! Model #10

The Re-Create Model

73



Why This Model?

- Why do things that seem strange make sense in context?
- What kinds of persons contribute or distract while a major event is unfolding?
- What can we learn from the unfolding of major events?
- How does excellence in the reconstruction of an event help in the understanding of that event?
- Can we develop empathy for people in their time and place?
- Can we walk in someone else's shoes?
- Can we judge the difference between fiction and realistic fiction?

Possible Topics

- Life in a place/time
 - Historical event
- Perform a play that requires authenticity
 - Slavery
- Interview a historical personality
- Recreate issues in a time or place

Critical Learning Skills

- Use primary sources
- Read pictures
- Make connections
- Interpret, infer, predict
- Reconstruct
- Authentic presentation



Teaching with the Re-Create Model

The Potential

Any one who has seen the documentary “March of the Penguins” narrated by Morgan Freeman can’t help but marvel about the life and struggles of these fascinating creatures in an environment so harsh and unfriendly. The beauty of the documentary film is its ability to take the viewer into a world that most could never visit. In today’s world of technology, there are so many ways to experience events, functions, phenomenon, historical events, or other experiences heretofore unavailable. We can see the beating of the human heart via camera technology, travel back in time to the signing of the Declaration of Independence, experience a piece of literature transformed into film where authentic settings, costumes, equipment, lifestyles, food, and culture are realistically portrayed. While there are so many of these vicarious experiences available to students and learners, being a spectator is still a passive learning experience, albeit a fascinating one. Yet, not all students attend well in such portrayals because of boredom, lack of interest, or plain reluctance or resistance.

Learners who have the opportunity to re-create an event, a time period, an original Thanksgiving dinner, or a performance of literature, drama, or musical works, benefit from an active learning experience – the opportunity to authentically re-create something. Authentic re-creation requires not only research but extreme attention to detail and thus deep understanding of the original. Then with that knowledge, learners can not only re-create the authentic piece but then also create a new and creative interpretation of the original.

The Research and the Product

The model is simple enough – decide on something to re-create, do the research, construct or re-interpret the event, perform, and finally, reflect. Such is easily said, not so easily done. Teachers, drama coaches, film directors, or musical conductors can spend a great deal of time coaching, cajoling, scolding, begging, and complimenting as a re-creation occurs. With the pressures of time, the instructor might abbreviate the research experience, but to eliminate it and resort to storytelling or lecture will create the passive learning experience with superficial learning as a result.

Instructors fortunate to have a librarian collaborator can scaffold research in such a way that learners dive in immediately to get authentic and reliable facts, directions, plans, and primary sources that will help in the re-creation. Old photos, blueprints, drawings, costume books, diaries, biographies, original documents, old books, ancient maps, and artifacts are but a few of the items learners will need to examine and the more authentic the source, the better.

Examples

- Students trying to construct a family history are presented with a family in colonial America who seem to “get lost” are discovered by the process of re-creating in the researcher’s mind the time and place where the family was. Researchers discover that the family is easier to track than anticipated when they realize that the rivers in early America were the highways. By charting the rivers, they are able to follow the family from the coast into the interior as children come along, are married, and settle in various locations. It all makes sense when re-constructed.
- A famous trial is re-enacted, but before doing so, learners must do extensive research to understand legal practices of the time period, the ability of investigators to collect evidence using the technology known at the time, understanding the culture of the time period, as well as the crime or issue being tried.
- A group of students is asked to assist a museum director in the creation of an authentic exhibit in a local history center. The students research the time period, find artifacts in the community, label the artifacts, and pass along their ideas for constructing an interesting exhibit.
- Students are challenged to perform a musical work as close to the composer’s intentions as possible. Extensive research both in print and audio sources provides major clues. Performance notes are written to accompany the concert.
- Students take the play “Othello” and research various recorded and film performances – both authentic and modernized. They are challenged to change the culture and rewrite the play using authentic elements yet reflecting the culture into which they are making the transformation.

Tips for Analysis

- Students will need to understand the difference between authenticity, literacy license, creative adaptation, and loose interpretation. In judging their products, the students should be able to label or describe any of the above elements in their work.
- Students will be able to reconstruct only as well as the quality of the information sources they use. Collaborate with librarians to see that the best and most authentic information is available.

Tips with Technology

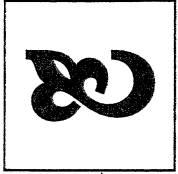
- Students are often most interested in mimicking the special effects they see in movies as they re-create an event or create a performance. Macintosh computer software such as iMovie or Adobe AfterEffects for creating movies or television have varying learning curves, but when students get involved with a project and are taught a few basic skills on the software, it is amazing what can be produced. Don't forget the use of Adobe Illustrator or Photoshop in creating graphics or touching-up photos. For example, one class manipulated Civil War photos and superimposed their own faces as soldiers in the battle. They flunked authenticity, but had a great time doing it.
- Digital cameras are invaluable in collecting photos in private collections of documents or artifacts and can be used in reports, term papers, and in creating authentic performance backdrops or props.

Learning Skills

- Teach the research skills to be able to identify quality information resources.
- Students may need help in basic acting skills as they try to create a persona.
- Skills with technology, creation of realistic artifacts, costume creation, etc. can boost authenticity.

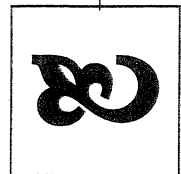
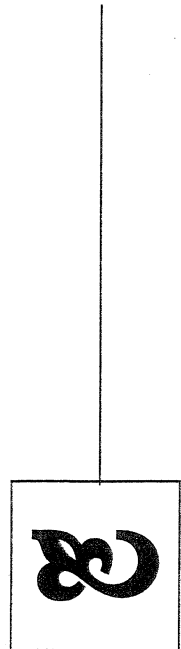
Resources

- Boleslavsky, Richard. *Acting: The First Six Lessons*. Routledge, 1987. A standard practical and humorous treatment.
- McIntosh, Jane. *Eyewitness: Archeology*. DK, 2000. A fascinating children's book for all ages showing many aspects of the search and reconstruction of artifacts.
- Rogers, Barb. *Costuming Made Easy: How to Make Theatrical Costumes from Cast-Off Clothing*. Meriwether Publishing, 1999.



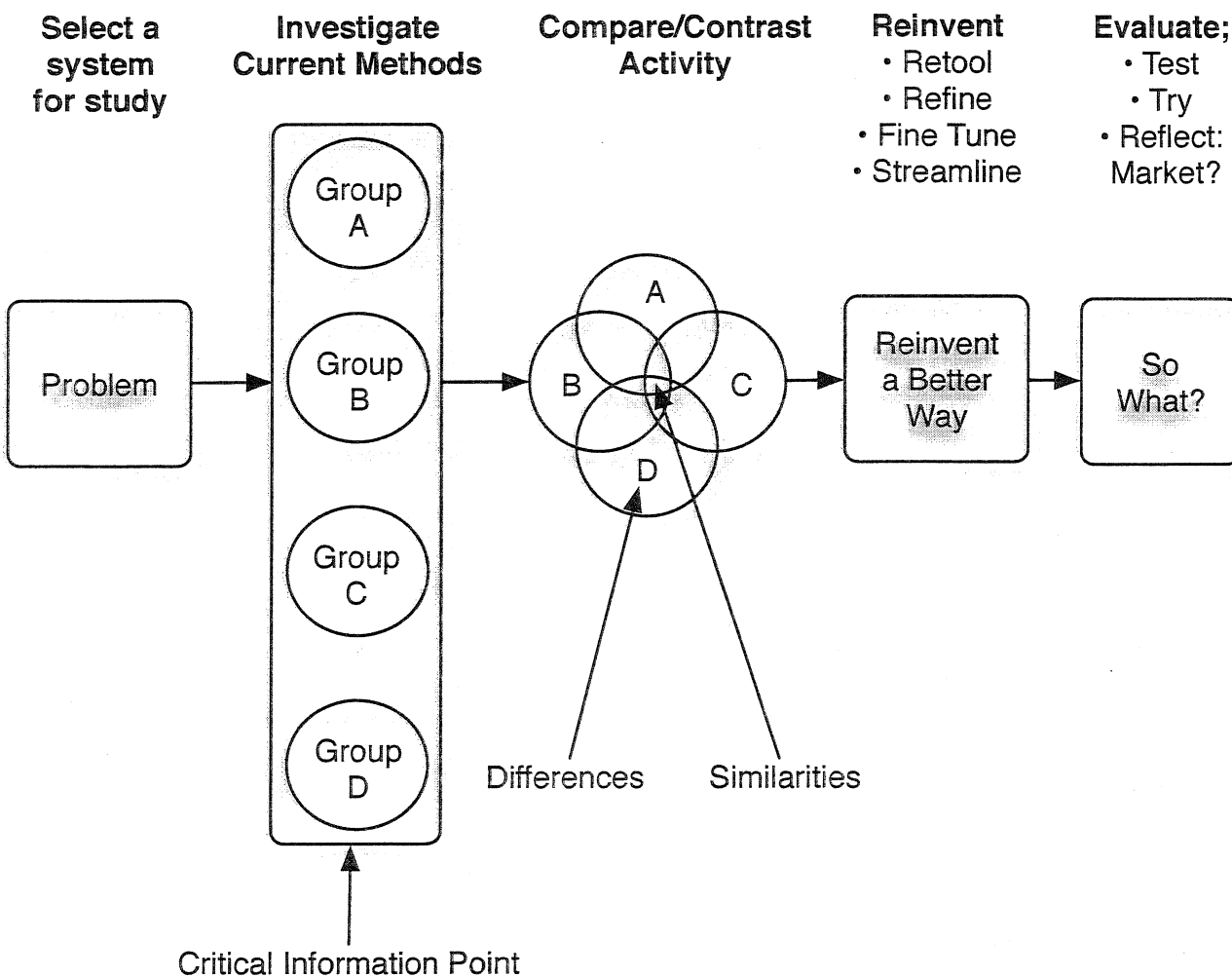
Think! Model #11

The Reinventing a Better Way Model



Think! Model #11

The Reinventing a Better Way Model (Systems Analysis)



Why Use This Model?

- Much of our economy depends on efficiency
- Prepares for competitions (best ideas)
- Production and marketing plans and patents
- Stimulates creativity
- Simulates authentic problems
- Builds group work skills
- Saves time, money, natural resources, and energy

Possible Topics

- Living within a family's means
- Ways to save money, time, and effort
- Create a labor-saving device
 - Solving a pesky real-life problem
- Streamline organizational procedures

Critical Learning Skills

- Use primary sources
- Make connections
- Use organizers and flowcharts
- Analyze
- Synthesize
- Reflect, transfer, and apply



Teaching with the Reinventing a Better Way Model

The Potential

Inventing and reinventing new ways to do something in medicine, science, organizations, almost any field, has been the foundation of the rise of the United States into a world leader. But there are also rivals. We think of Samsung Corporation who excels at taking principles already known and transforming them into new electronic products for a gadget hungry world society. There are also powerful forces that discourage new solutions—McDonalds who wants absolute uniformity in the food it cooks. No thanks to creative recipes unless it has gone through “channels.” Yet when asked, the world of business and labor continue to clamor for workers who can think outside the box, and some organizations have learned how to reward creativity and efficiency. Indeed, the gross national product portends to measure productivity/efficiency.

Invention is tied to the world of creativity. Reinventing a better way is systems analysis—the ability to devise more efficient ways of doing something. Legendary examples abound when the cry goes up: “Houston, we have a problem.” Students at all ages can benefit greatly from learning how to rethink traditional ways of doing anything as they learn how to analyze the old way (often using flow charts) and then creating a new system to accomplish the task in a new and more efficient way.

The Research and the Product

Present students with a problem that needs a better solution than one from the past. Ask them to re-examine some of the ruts we get ourselves into—the way we have always done something.

- How could we get five more minutes of sleep in the morning and still get to work on time?
- Hundreds of workers are trying to get into the parking lot at the same time, causing a traffic jam and many to be late for their job.
- Isn't there a better way to do less evasive surgery?

The problem can be presented as a challenge or a competition to groups or individuals, but the emphasis in this model is to build upon the strengths of an information-rich environment in search of “known” better ways rather than reinventing everything from scratch. Who else has encountered this problem and what was their solution? We found this solution in the literature, but isn't there an even better way?

The model asks students to investigate and chart the way something is done, often the way various people, organizations, or manufacturers do something; then compare how a problem is handled. Next, the students are challenged to invent a new method and test that

method to demonstrate that it is indeed a more efficient way of accomplishing the task. Finally students ask “So what?” Students must always reflect: “Is the new method actually better than the old one?” or, “Have we streamlined one thing but in doing so have we upset other things?”

Examples

- Students use a common software package online such as Blackboard to accomplish their work. Groups decide that Blackboard does not operate the way they want to use it. Groups then ask the instructor if they can do something quite differently online. The instructor turns the problem into a challenge, asking each individual to invent a “work around” so that the class can accomplish a task on Blackboard that the software engineers did not envision.
- In any field, students are studying various ways of doing a task. The instructor requires everyone to know the “textbook” way of doing the task. Then the class, individuals, or groups are challenged to create and test a new way.
- A local manufacturing plant is in trouble. They are trying to compete and hold jobs in the community as they manufacture air filters (or any other product). Their competitor sells the same product at 80% of what this firm can. They ask your group to do an analysis for them to see if some efficiencies or cost savings can be realized. Your strategy is to shadow workers on the line who know that their jobs are on the line. Can your class find cost savings from a bottom-up study?
- A city council, board, or government entity is trying to make the bidding process on its contracts more equitable. Your class has been asked to make a recommendation.

Tips for Analysis

- Learners will need guidance for finding information on the ways others have faced and solved various problems. Some information may be proprietary and difficult or impossible to obtain. Other information may have to be gathered in person through interview, inspection, or extended observation.

Tips with Technology

For flowcharting, Omnigraffle has excellent templates to use on either PC or Mac that are drag and drop with easy revision. Look for other technologies, such as wikis, where collaborative data can be lodged and analyzed by groups. Using the Skype software to link groups of learners with groups in an organization or business for conference call

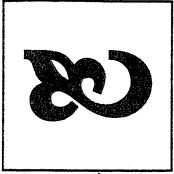
interviews would be very advantageous for collecting data or brainstorming ideas for new methods.

Learning Skills

- Teach learners how to flowchart a task or operation.
- Have learners try to assess the real impact of a change both on the task at hand, but also what other changes are triggered by that change. (Adding sawdust to the hamburger might reduce costs, but you could be out of business rather quickly).

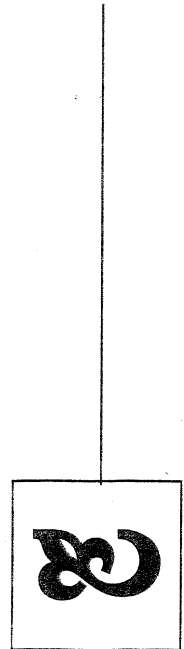
Resources

- There are a number of books about systems analysis – most are used as college textbooks and cost more than \$100. A search on Amazon.com will provide a number of these titles with reader reviews.
- Check out books on creativity since reinvention requires that skill. For example: Weisberg, Robert w. *Creativity: Understanding Innovation in Problem Solving, Science, Invention, and the Arts*. Wiley, 2006.



Think! Model #12

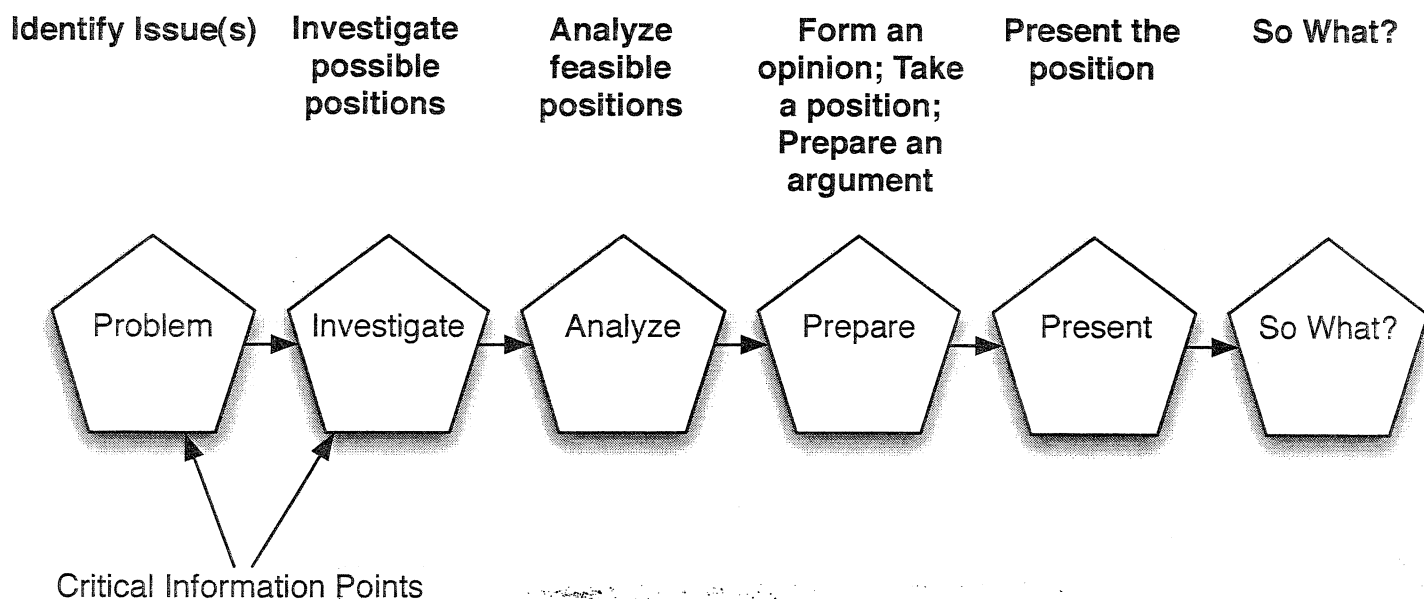
The Take a Position Model



Think! Model #12

The Take a Position Model

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Why This Model?

- Learn to take positions on sound ideas rather than on snap judgments
- Learn how to understand ideas very different than your own
- Develop critical analysis skills in the face of propaganda
- Build empathy for all positions, even as you take a stand
- Learn to articulate and defend a position taken
- Build the skills for living and participating in a democratic society

Sample Topics

- Political issues
- Controversial science problems
- Historical issues
- Moral issues
- Community problems
- Education's problems
- Literary critical issues

Sample Products

- Position paper
- Persuasive speech
- Video presentation
- PowerPoint presentation
 - Debate
 - Panel discussion
- Switch positions, then present
 - Action plan

Critical Learning Skills

- Actively read, view, and listen
- Select relevant data
- Determine fact and opinion
- Understanding perspective
- Build persuasive arguments via synthesis
- Presentation skills



Teaching with the Take a Position Model

The Potential

Thoughtfully taking a position on issues ranging from politics, to religion, to cultural or personal issues is a sign of maturity. What do you believe? Where do you stand on this issue? Do you recognize, or can you sort out the various positions speakers are taking? Learners of all ages can sharpen their skills in the new global information environment as they begin to encounter hundreds of ideas and positions on issues they may have thought quite narrowly about previously. Those learners embarking on a new career, higher education, or just as citizens of a normal community, will need to explore various issues in topical areas with which they have been unfamiliar in the past. For example:

- What are the current issues in the government's funding of stem cell research?
- Neighborhood parents have asked me to present their views to the school board. How can I present the case the most convincingly?
- Be prepared to argue both sides of global warming.
- How can we continue to fund Medicare and Medicaid? Or should we?

The Research and the Product

Spend time selecting an issue with learners and helping them recognize the various positions that various experts and the general public have already taken on the issue. Learners will need help selecting and evaluating the best spokespersons on a particular position dealing with an issue. There may be quite a difference between the eloquent speaker who uses propaganda techniques and a speaker that uses believable evidence. Teach the difference between supportable facts and passion including the wide range of perspectives that people take on an issue. Logic, perspective, and whim take a place as a position is built. And even when one knows what others say, how do individuals build their own position thoughtfully? Learners will need to know how to form an argument that can be presented and defended.

Examples

- Students in a current political issues class are asked to debate and take a stand on a proposed bill that sets clear expectations for homeowners and businesses in areas subject to regular natural disasters, such as lowlands close to a flooding river; homes built on beaches where storm surge is common; homeowners who build in forests or brushy hillsides commonly subject to fire. The students first do a brief study of government policy and the position of insurance companies. Next, they are divided into groups to study a particular disaster and its aftermath from the past five years. Third, they contact persons actually affected by a particular disaster some time after the event to get first person reflections on what happened after the disaster. Finally, they prepare positions based on what they have researched and their own creative ideas for dealing with disaster.

- Teams of learners are set at the task of studying a controversial issue, but they must be prepared to argue a course of action on either side. At a culminating event, teams are assigned (at random) to take a particular position at the beginning of the event.
- Learners are asked to investigate the “cures” or treatments for a particular disease as prescribed in western medicine, alternative medicine, and Chinese medicine. Is there evidence of success in the various types of treatments or does one approach tower above the others? When they are ready to present their positions, the instructor invites one or several experts to hear the positions and respond from their own learned perspective.
- Some parents in a school classroom are objecting to library books that their children/teens were encouraged or required to read. How should such situations be handled? Students first study school board policy, interview a variety of parents about the issues, read a controversial title, and finally hold a mock school board meeting where positions are presented and a vote is taken.
- A critically needed oil refinery has been proposed for the area adjacent to your city. Learners are asked to prepare white papers for the city council to consider on both sides of the issue. Using this opportunity, particularly if it is real and in proximity to where the students reside, the white papers are not only prepared but also presented to the governing council.
- A state legislature is struggling with the creation of a bill that would deal with sex offenders and their treatment after incarceration. What courses of action could your group recommend? Again, an authentic presentation and submittal of student work to an actual legislator, a legislative committee, or other expert would be quite appropriate as a culminating activity.

Tips for Analysis

Is there such a thing as an objective stand/position/opinion? When we think about the concept of information literacy, both the instructor and a partner librarian helping with the research will need to teach learners how to categorize the information they find into various opinion camps. Learners will need to learn the principles of objectivity insofar as experts try to apply those principles. Time may be well taken to study some of the techniques of propaganda and logic in the evaluation of ideas.

Tips with Technology

The use of a collaborative text space such as a wiki provides learners the opportunity to collectively gather, categorize, debate, and come to consensus over the various opinion camps as they begin to build positions upon which to take a stand. Make certain that arguments gathered are identified by their source and the person who contributed that source to the group. This provides not only ways of tracking and sorting ideas but, best of all, the conversation surrounding the placement of ideas. Low technology

such as large sticky notes can be used to sort ideas by individuals on a wall with labeled opinion categories. Then small groups can take a group of sticky notes in a similar category to check for overlap, duplication, and that the idea is clearly in the correct category. Then ideas that don't seem to fit in any of the predetermined categories can be considered. Perhaps the original classification of opinions need to be re-evaluated and a sort done all over again.

Learning Skills

- Teach information sources that already have pre-categorized ideas and opinions.
- Teach learners to evaluate the position of various websites or groups or editors who create information within their own idea camps.
- Teach how various opinion makers mask their opinions but have definite points of view.
- Teach what “spin” is and how it is created.
- Teach the difference between primary and secondary sources as evidence on one position or another is collected.

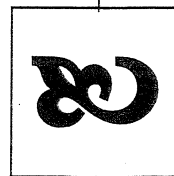
Resources

- Check out the Communication Circle website at <http://www.webwritingthatworks.com/BGuide.htm> where they have outlined guidelines for creating clear ideas, positions or arguments work display on the web.
- For fun and conversation about opinions and opinion makers take the Moral Politics test at <http://www.moral-politics.com/xpolitics.aspx?menu=Home>
- Sather, Trevor. Ed. *Pros and Cons: A Debator's Handbook*. 18th ed. Routledge, 1999. A basic handbook of creating arguments from solid positions.



Think! Model #13

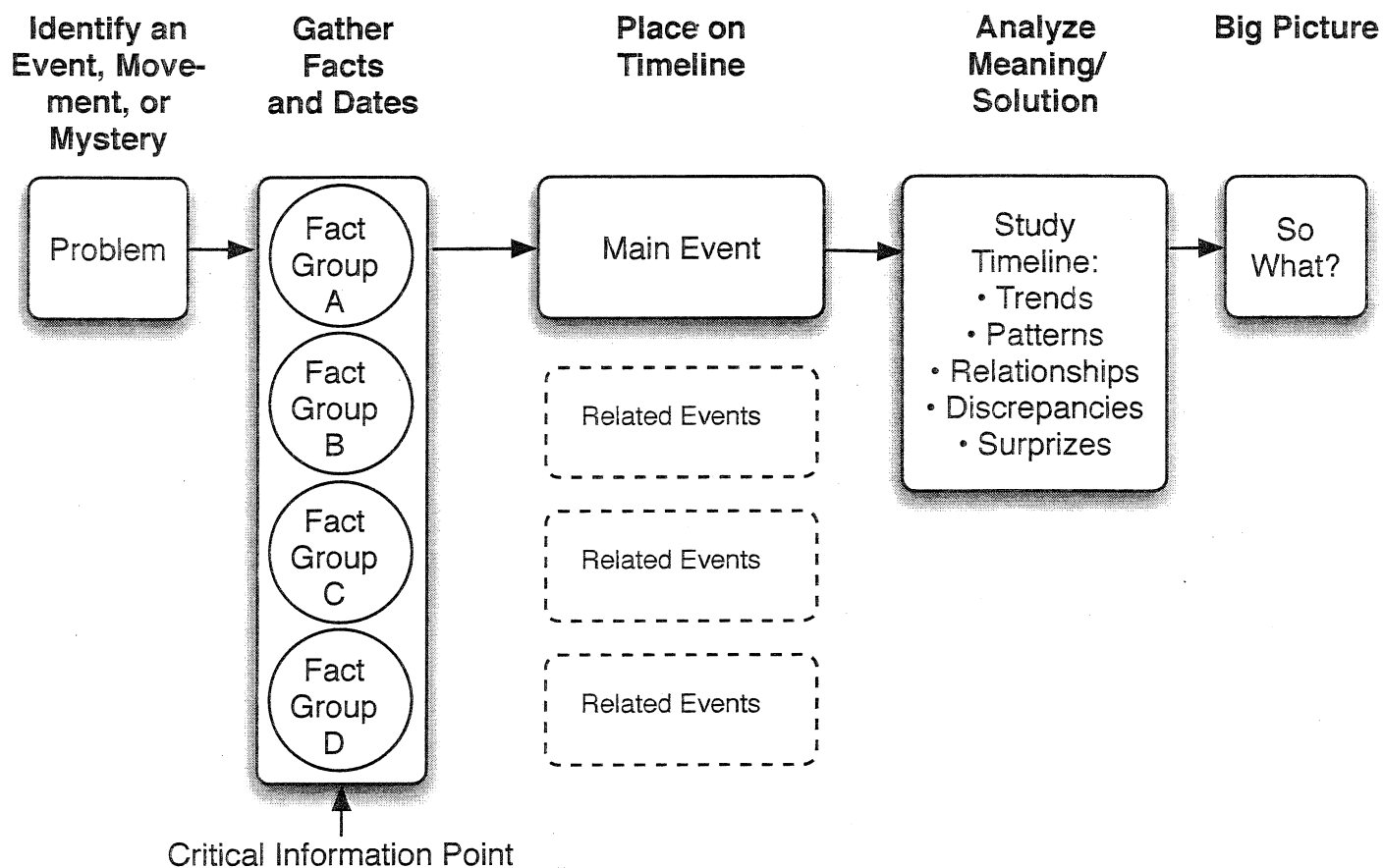
The Timeline Model



Think! Model #13

The Timeline Model

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Why this Model?

- Show changes over time
- Determine why something developed the way it did
- Understand how inaccurate information will distort the analysis of sequencing
- Make comparisons of the past and the present
- Put some events in a larger perspective
- Trace the background to explore cause and effect
- Understand sequence
- Visualize sequential patterns

Possible Topics

- Chart a political election
- Study a catastrophic event
- Compare various disciplines during a time period
- Reconstruct the events of a crime or event
- Study the rise of terrorism as warfare
- Chart the plot of a novel or story
 - Study the structure of a symphony
 - Put a period of art into its environment
- Study what made landing on the moon possible
- Chart the immigration of a family to the U.S.

Critical Learning Skills

- Select relevant data
- Sort
- Notemaking
- Identify and investigate patterns and trends



Teaching with the Timeline Model

The Potential

The sequencing of events is one of the major ways to understand and learn about something. We may sequence a crime; create more evidence for the Big Bang Theory; analyze an election for clues to winning and losing; trace the development of an idea, an issue, or a civilization; or understand the development of a great leader just to name a few. Timelines can be uni-dimensional or multi-dimensional depending on our need to reconstruct an event. For example, if we just look at the development of the music of Mozart, we miss the richness of the culture in which his genius developed. Or to really understand the chad phenomenon in Florida during the 2000 election, many developments up to that point need to be investigated before conclusions can be drawn. Politicians of all stripes keep reminding us of quotes they may have said at one time but have been taken out of context because the news reporter has not bothered to reconstruct a quote in its context.

Timelines can also be useful in the forecast of the future. What will happen to Social Security in the next 50 years? When these two weather systems collide, what will be the likely result? Given Enron's enviable profit record, how much should I invest in this rising star? Given our progress in Iraq to date, when should we be able to leave?

Timelines also allow us to study such things as the construction of literary, musical, dramatic, or artistic events. How does a great mystery writer capture attention from word one to the end of the book? How did Beethoven structure his 6th symphony and how does this pattern help us as budding composers?

The Research and the Product

Students are asked to reconstruct an event by examining or determining a chain of events. Data of the event may already be in existence, may have to be constructed, or existing data may have to be sorted, accepted, or rejected depending on its quality. Instructors will need to give learners both advice on collecting acceptable data as well as its sequencing in single or multiple dimensional arrays. At that point, a method of analysis will need to be explored to enable a clear solution, a probable solution, or several probable conclusions. At some point, an ah-ha, or insight, should begin to appear to individual students small groups or the class as a whole.

Examples

- The class has been asked to reconstruct a tragic event such as a shooting in a school, reasons for so much damage in a hurricane, the kidnapping of a child. The class tries to develop ideas for preventing such events.
- Many different accounts of 9-11 have been written. Which of all of them seem the most plausible given the facts we know from various intelligence agencies?

- Did Roosevelt really know that Pearl Harbor was going to be bombed? Did George W. Bush know about 9/11 before it happened? A class investigates both respected histories and conspiracy theorists in a major discussion of what constitutes credible evidence.
- A law class takes on the claim of a person on death row who claims innocence. They reconstruct both the crime and the various trials in search of evidence that might lead to a reversal of sentence. They have only 30 days to do their research.
- A day-by-day history of a wagon train of the 1850's is reconstructed by analyzing various diaries of the travelers. (David McCullough is a master at doing this in his book *1776*).

Tips for Analysis

- When collecting the information for a timeline, students should not only bring into the work the actual fact and its time, but the source from which that fact or date was drawn.
- Inevitably, there will be conflict of data causing both the instructor and the students to set up guidelines for the official placement of a fact on the timeline. Some of the best learning might occur as disputed facts or conflicting facts are analyzed and decisions made for acceptance or rejection.

Tips with Technology

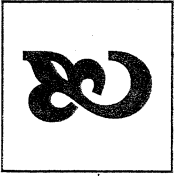
- Tom Snyder Productions makes software known as TimLiner that is commonly used in K-12 education (sold by Scholastic) but is very convenient for doing single or multidimensional timelines.
- If Excel or a wiki table is used to create a timeline, students need to know how to insert rows as evidence is put in sequence.
- Sticky notes are wonderful low-tech inventions for sequencing information.

Learning Skills

- Teach the judgment of quality information.
- Explore non-traditional sources of information or information sources that were not available when experts constructed original timelines.
- Teach the re-analysis of data given a new technology.

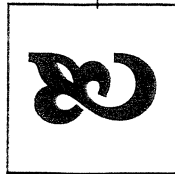
Resources

- Examine a number of chronologies that have been published in many fields for ideas in structuring your own timelines. One example is: Chrisholm, Jane. *Timelines of World History*. Educational Development Corp., 2001.

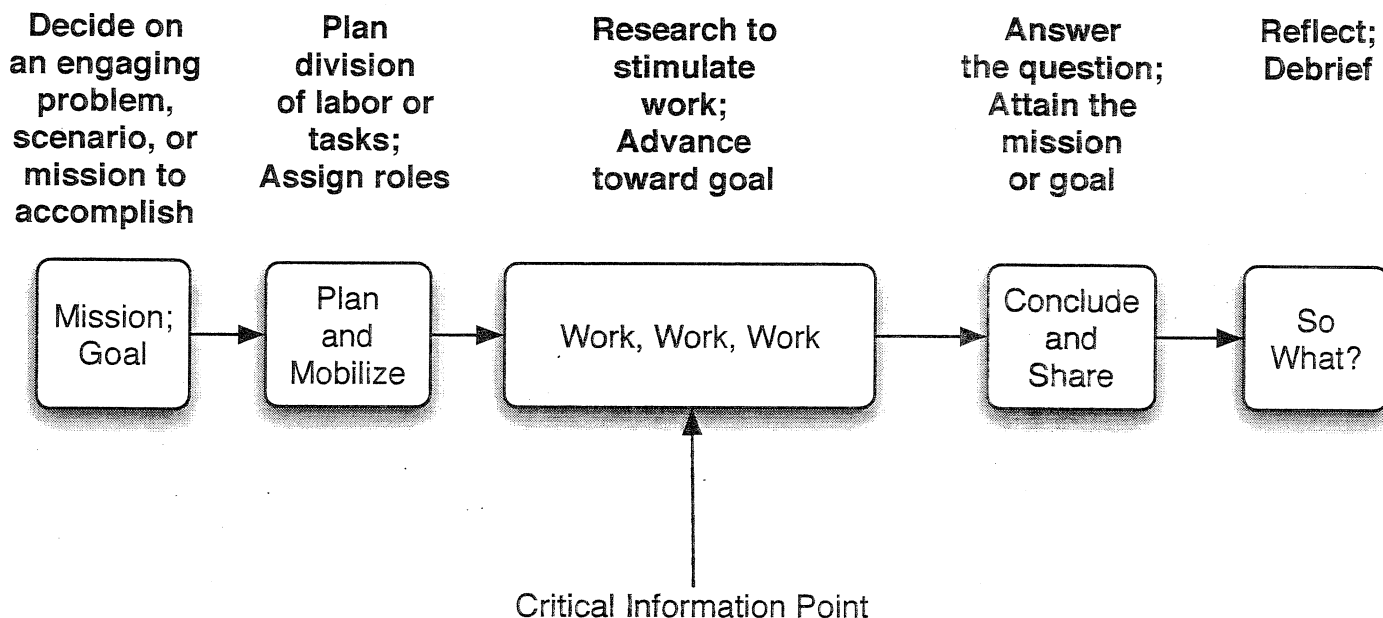


Think! Model #14

The Quest Model



The Quest Model (The Well-Designed Research, Experiment, or Project)



Why Use this Model?

- Capture realism; Build expertise
- Build responsibility and independence
- Prepare for advanced study or a profession
- Build a sense of achievement
- Capitalize on natural curiosities
- Make the curriculum relevant
- Develop deep understanding
- Provide experience using the scientific method

Possible Projects

- Formal Research Paper
 - Web Quest
 - I-Search Paper
- Simulation Game
- Scientific challenge/competition
 - Senior Paper
- Independent Study
 - Recital

Critical Learning Skills

- Define and clarify
- Locate and retrieve
- Select, process, and record data
- Analyze
- Synthesize
- Share and use
- Reflect, transfer, and apply
- Adding it all up



Teaching with the Quest Model

The Potential

The Quest model is the most traditional form of assignment that instructors of all-age students give. Students are asked to write a three-page report or a 20-page term paper. The intention is to have students build some in-depth knowledge about an aspect of the topic being studied with the assumption that if the student knows how to build a thorough understanding about a narrow topic connected to a larger body of knowledge, the student would have the ability to do so on any other subtopic. As discussed in the introduction to this book, such assignments, if not controlled carefully, will result in rampant plagiarism since students can usually find such reports, articles, or term papers on the web or for hire. Three forms of a quest are discussed below with suggestions for minimizing copying.

The Short Report

A short report, something in between a brief or a longer encyclopedia article, is best conducted in a narrow information space (relative) as compared with the Internet or databases as a whole. Students often come into a library and state that they must do something like “Write a three-page paper on the causes of the Civil War.” Such an assignment is often too broad to cover in the space (or, at least, it would take an expert with great writing ability to coalesce such a topic into a small space), or it could easily be found in a data bank of ready-made papers to be copied and turned in with the only revision being the name of the submitter.

If the instructor’s goal is to create a collage of papers done in class that would cover the causes of the Civil War, then that topic could be broken down into a number of subtopics. Individual students or groups would tackle the subtopics, then, using the jigsaw model, would put their various papers together to form a major picture of causes. Such a collage could then be tested through a reflective essay or other test covering all the contributions.

The best way to insure that students are doing original work is to ask unique questions not likely to be found easily on the Internet, in current periodical databases, or in some unique format not easily cut and pasted. Here are a few suggestions:

- Ask for a comparison of one event with another in a similar time frame or culture.
- Ask for a comparison of one event with another across a long time frame.
- Ask for a comparison across cultures.
- Ask for the paper to be written from the point of view of one of the players in the event at the time.
- Ask that the report be written not just in narrative, but in a different genre such as a poem, a radical opinion piece for that time, a commentary surrounding an artifact or original document, an analysis of an original photograph, a guide for a docent who might be giving a mini-lecture in a museum, a news report that would have been published in one type of newspaper or another, a readers theater that could be performed for the class.

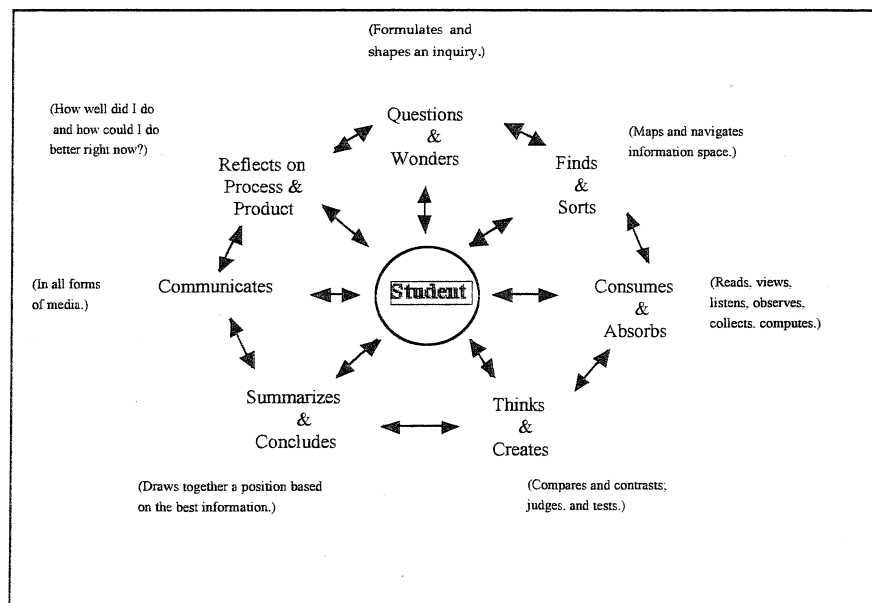
The problem with this type of assignment is that it will have to be varied across classes, semesters, or years so that a body of previous work does not grow into a pool from which current students can draw.

A second problem with short reports and their unique or narrow questions is that students will find it almost impossible to find information needed to use within the time frame. Librarians will be very helpful if instructors will clear sample topics beforehand. They can suggest topics to eliminate, topics to add, topics that will have a reasonable body of information available, and topics that will have overwhelming amounts of information likely to swamp the students.

After sharing topics with the librarian, ask that person to teach the class about various information sources that will be of high quality and cut their search and usage time. And, if the products are to be unique in some way, ask the librarian or other specialist to teach a mini-class on how to create the various acceptable products.

The Longer Research Paper

For longer research papers, instructors are wise to collaborate with librarians either in their institution or with public libraries. These people might do a quick term paper clinic for students that would cover the searching or utilization of materials on topics of particular interest to the class. But in recent years, librarians have expanded their efforts into the area of information literacy. In this area, librarians are anxious to teach the entire research process through an information literacy model. Both instructors and librarians can join together to teach each step of research and together can provide various checks along the way as students learn the rudiments of dealing with an information-rich environment in the current world of technology. This comprehensive instruction is particularly useful for novice researchers or for students who have not done much research recently. A sample information literacy model is printed below and shows not only the steps in the process but how non-linear the actual work actually is.



Technology to create a total working environment is rapidly developing. Imagine that a word processor occupies the middle of the screen, but around that space is a series of original sources that have been used by the learner to construct the research paper in the center. As the instructor reads the final copy electronically, clicking on any particular footnote or reference brings one to the original source instantly, showing both what has been used but also the context of that source. Such tools are emerging so that learners can show what's mine, what's theirs, and how I arrived at what I am learning.

While students can realize that the instructor could subject papers to such tools as "Turn It In.com" to see if the computer can detect plagiarism, a preferable method is to ask questions or make assignments in such a way that prepared research papers are not likely to be on the Internet. Refer to some of the ideas above in the shorter papers for a few ideas.

Other Types of Quests

There are a number of other in-depth investigations that can be considered in lieu of a formal research paper. Here are a few possibilities:

- **WebQuests.** WebQuests are group challenges where members jointly accept a challenge and each member of the group takes on a particular role in the joint solution of that challenge or problem. Much of the group's information comes from the Internet but can be supplemented from any other information sources. Bernie Dodge at San Diego State University invented the WebQuest and it is widely used in K-12 education but is easily adapted to adults. Its strength lies in the initial challenge that captures the group's attention and then either the competitive nature or group spirit that motivates each group member to contribute to the success of the whole. Bernie Dodge's webpage is at: <http://webquest.sdsu.edu/>
- **Fieldwork or practicum's.** Sending students into the field for a period of time to experience what really goes on often solves a common solution of the problem of theory vs. practice. Such experiences are short or long depending on the field of study and the time constraints. What would enhance such experiences would be a major culminating activity that causes learners to compare and contrast their field experiences and learn even more than just what happened to them as an individual.
- **Simulations.** These experiences are often substituted for fieldwork when time is at a premium. Instructors can also control what is encountered during the simulation so that major big picture issues are considered both individually and as a group.
- **Shadowing.** Sending students out into the real world for a day or a few hours to walk in the shoes of a professional allows a shorter glimpse of reality that can be compared by both individuals or groups in their quest to understand both theory and practice.

Culminating Events

The culminating event for a term or research paper assignment is critical if students are to learn anything. Often, research assignments are due at the end of the semester and either are presented orally to the class, or just turned in to the instructor for reading and a final grade. Theoretically, research paper presentations inform the entire class of what has been learned by individual students and it also becomes an easy solution for what to do during the last few classes or online sessions. In reality, such presentations are passive learning experiences and are mildly interesting at best and utterly boring and unproductive at worst.

Assume that every student has done some serious research on a subtopic of the class topic. At that moment, students are ready to engage on a sophisticated learning experience to help them see the big picture and to build deep understanding. What type of experience will push thinking? That activity will need certain characteristics.

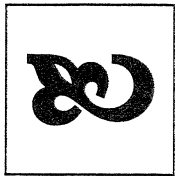
- It must be an active rather than passive learning experience.
- It must draw from individual expertise.
- Individual expertise must be combined with other's expertise in a "hard think" learning activity.
- All learners will have to reach beyond what they know to digest what others know.
- All learners will need to participate in the high think activity.
- The entire group will build new understanding on top of individual understanding – also known as "the big picture."
- All students will be prepared by the culminating activity to do a major reflection such as an essay, a demonstration, or an oral synthesis.
- Every student will go away from the culminating experience with mental exhaustion (at least a feeling that their thinking has been expanded and their understanding deepened).

What type of experience is likely to result in such deep understanding? Consider some of the following generic examples:

- Every member of the class did a paper on a particular individual (sports legend, King, President, religious figure, celebrity, playwright, composer, etc.). At the culminating event, groups of students compared their papers to build a list of characteristics across persons studied of their reasons for success, their leadership qualities, their handling of major life problems, the nature of their contributions, early preparation for the role they played, etc.
- Students spent a semester creating positions on an issue. During the culminating event, groups of students do an analysis of why each of them as individuals took the position they did. Was it on the basis of evidence? Previous value systems? Because of their parents? Influenced by the bandwagon effect? After this exploration, the instructor conducts an entire class discussion about why people take the positions they do and how, if a particular position is critical to a profession or to some necessary progress, how people in general could be influenced one way or another.

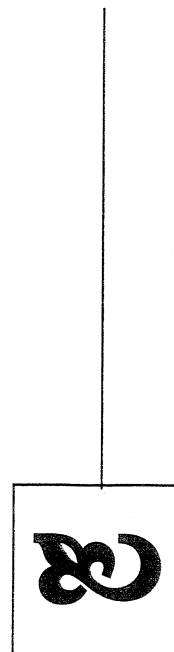
- Students studied and wrote about various aspects of causes of wars, marriage infidelity, disease outbreaks, etc. During the culminating event, logical groupings of the various causes are grouped together and these groups must synthesize their findings in a short time period for presentation to the group as a whole. The instructor then pulls the findings of the major subgroups together for a proposed “big picture” and lets the entire class discuss that view or some other view that draws all findings together.
- The class has studied various inventors and their inventions. At the culminating activity, small groups and then the group as a whole analyze the creative process. How do inventions happen? Is the creative process innate or developed? What could be done to develop the creative part of every person? This culminating activity works for any human quality of character or ability from sports to medicine, and on into the arts.

To develop a culminating activity, the instructor asks the question: “What is the big picture that every student should have about this entire research effort?” Once that question is clear, then the culminating activity can be structured in such a way to lead the students toward that picture.



Think! Model #15

The Mix It Up Model



The Mix It Up Model

(Be Creative in Combining/Modifying All the Models)

Appetizers:

Build Background Model
Sensemaking Model
Read, View, and Listen Model
Advice to Action Model
Compare and Contrast Model

The Main Course:

The Concept Jigsaw Puzzle Model
The Problems/Possibilities Jigsaw Puzzle Model
The Matrix Model
The Timeline Model
The History and Mystery Model
Take a Position Model
The Re-Create Model
The Reinventing a Better Way Model
The Quest Model

Desert:

Mix It Up

Examples

- Do a Major Background study before a Quest
- Do a Matrix before having to Take a Position
- Sensemake a problem before trying to Reinvent it
- Compare and Contrast as a History/Mystery Model unfolds
- Begin with a Jigsaw and then culminate with a Matrix



Teaching with the Mix It Up Model

The mix it up model encourages the instructor to mix and match any of the previous models or other good teaching techniques together to suit a particular learning experience that may not fall into any of the categories discussed in a single model.

Examples:

- Students who are too young to have lived through the Vietnam War do a background to question model before launching a concept jigsaw puzzle model looking at the role of the press and the military in the news reported in the United States about the war.
- Students studying the life of Leonardo da Vinci's painting of the Sistine Chapel first do a careful timeline not just of his life, but of artistic techniques known at the time, other painters using those techniques, and the other cultural and religious movements that were influencing the work that Leonardo was doing.
- Students creating a debate on a hot topic are required to take a position, but as the learning experience progresses, time is taken to line up evidence collected in a compare/contrast model activity to deepen understanding before individuals are required to commit to a particular position.
- Students are trying to decide which studies about the use of computers in education to accept into a major background study before proposing a dissertation topic. One of the factors in research dating back into the '60s is the use of the clunky old mainframe computers and early microcomputers from the current powerful and Internet-accessible computers. They decide to put all the studies on a timeline of various computer models used as one of the criteria for accepting a study as relevant to today's world or to a previous one.
- A school board asks your class to help it understand all the evaluative data that are collected about student progress. Over a period of a month, the students assemble, in matrix form, a considerable body of data that is already collected, data that could be collected easily without disruption to the organization, and data that would require organizational changes and major funding. This audit must be presented to the school board, so various student groups compete using the sensemaking model to structure the data in graphs and pictograms to make it understandable in a 15-minute presentation. As a class, the best representations are selected and modified until a very clear picture is made for the board and any parents who might be attending.

About the Author

David V. Loertscher has degrees from the University of Utah, the University of Washington, and Indiana University. He has taught at Purdue University, the University of Arkansas, the University of Oklahoma, and is currently a professor at San Jose State University in San Jose, California.

He has taught traditional face-to-face courses, course online, and mixed mode courses where classes meet only a few times face-to-face and the balance is online. He has done professional development and lecturing in almost every state of the United States and in a number of foreign countries.

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