

Overview for Teachers and Mentors

Why this course?

In the introduction to our *Investigating American History—A Systems Approach* (teacher/mentor version, page iii) we said:

“...Civilized life requires knowledge of the past, the insights into human nature which that knowledge provides, awareness of “the trends of the era,” and a basic grasp of the dynamics of change. Pushing historical study aside, or treating it as of less importance than math, science, or some other subject, is a recipe for societal disaster.”

Ignacio Carral, a young high school teacher in Argentina, laid the groundwork for this *Investigating World History* project. In emails, he told us:

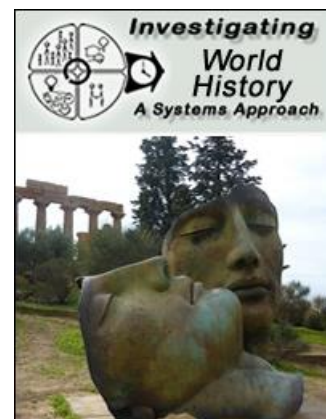
During the past few weeks I've been translating your [*Investigating American History*] to Spanish and creating new investigations for ancient, medieval and early modern history for the next year.

I've been teaching since 2011, mostly in private and public high schools of *** Province.

The schools are very different due to the social backgrounds. The quality of private schools is decent, with family support and enough funds. Public schools are inadequately funded, and are much deteriorated in Argentina. Many kids who attend public schools have a very hard life, with many stories of drug addictions, abandonment, poverty, etc. I have tried many different strategies before, but I didn't make much progress. When I started using [*your American history materials*] the change was huge, with many 'lazy', 'bored' students becoming interested. That's when I realized I had to dig deeper into the Model.

My supervisors became interested in the Model, as they are desperate. Teens are becoming increasingly apathetic and it's very hard for them to make their subjects interesting. I think that the thing that surprises them the most is that the knowledge students create using it can help them in their 'real lives'. That's when they stop being suspicious and start to become curious and interested.

Following our scheme, Ignacio began creating materials for his world history courses that: (a) focused on active learning, (b) used primary sources almost exclusively, and (c) employed General Systems Theory as the primary generator of questions and learner activities. We decided to translate and extend his work in English.



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As with our other materials, these are illustrative. We want to demonstrate an alternative to conventional textbooks and courses. The first unit introduces active learning, with learners interpreting historical data and generating their own conclusions.

Note: *Teaching soon-forgotten facts about past events and societies isn't our main objective.* We're primarily concerned with helping learners develop what they'll need and use every day for the rest of their lives—the ability to make sense of complex past, present, and future realities. Historical materials are used as *vehicles*—means to the end of learning how to process data and generate useful, transferrable knowledge. **We think these skills and abilities, not recall of answers to questions about historical facts, are what should be tested.** Words of wisdom from Alfie Kohn:*

1. Much of the material students are required to memorize is soon forgotten

The truth of this statement will be conceded (either willingly or reluctantly) by just about everyone who has spent time in school — in other words, all of us. A few months, or sometimes even just a few days, after having committed a list of facts, dates, or definitions to memory, we couldn't recall most of them if our lives depended on it. Everyone knows this, yet a substantial part of schooling — particularly in the most traditional schools — continues to consist of stuffing facts into students' short-term memories.

The more closely we inspect this model of teaching and testing, the more problematic it reveals itself to be. First, there's the question of *what* students are made to learn, which often is more oriented to factual material than to a deep understanding of ideas. (See item 2, below.) Second, there's the question of *how* students are taught, with a focus on passive absorption: listening to lectures, reading summaries in textbooks, and rehearsing material immediately before being required to cough it back up. Third, there's the question of *why* a student has learned something: Knowledge is less likely to be retained if it has been acquired so that one will perform well on a test, as opposed to learning in the context of pursuing projects and solving problems that are personally meaningful.

Even without these layers of deficiencies with the status quo, and even if we grant that remembering some things can be useful, the fundamental question echoes like a shout down an endless school corridor: Why are kids still being forced to memorize so much stuff that we know they won't remember?

Corollary 1A: Since this appears to be true for adults, too, why do most professional development events for teachers resemble the least impressive classrooms, with experts disgorging facts about how to educate?

2. Just knowing a lot of facts doesn't mean you're smart

Even students who do manage to remember some of the material they were taught are not necessarily able to make sense of those bits of knowledge, to understand

* Kohn, Alfie, "Ten obvious truths about educating kids that keep getting ignored." *Washington Post*, "The Answer Sheet" blog by Valerie Strauss, January 21, 2015.

connections among them, or to apply them in inventive and persuasive ways to real-life problems.

In fact, the cognitive scientist Lauren Resnick goes even further: It’s not just that knowing (or having been taught) facts doesn’t in itself make you smart. A mostly fact-oriented education may actually *interfere* with your becoming smart. “Thinking skills tend to be driven out of the curriculum by ever-growing demands for teaching larger and larger bodies of knowledge,” she writes. Yet schools continue to treat students as empty glasses into which information can be poured — and public officials continue to judge schools on the basis of how efficiently and determinedly they pour.

Course Conceptual Sequence

The sequence of units have been selected to mesh, approximately, with conventional expectations of world history content. However, the primary focus is the introduction and use of a Model for systemic analysis of historical events and cultural change.

Unit	Focus
1 Paleoanthropology	Active learning
2 Agriculture and the City	Organizing knowledge & Model introduction
3 Muddy Rivers	Model component: Setting
4 Mesopotamia	Model component: Patterns of action
5 Ancient Egypt	Model component: Demographics
6 Ancient Israelites	Model component: Shared ideas
7 Early India	Model application
8 Early China	Model application
9 The Persian Empire	Model component: Systemic relationships
10 Sparta	Socialization patterns
Y2 Phoenicians (Supplementary)	Optional 2 nd year reintroduction to Model
11 Athens	Decision-making patterns
12 Early Rome	Systemic relationships: Autonomy
13 Hellenistic Period	Systemic relationships: Bureaucracy
14 Roman Culture Change	System change: Cumulative causation
15 Two Religions	System change: Religious conflict
16 Medieval Society	Model application/complex system change
17 Medieval Monastic Life	Insiders, outsiders, boundary maintenance
18 Islam’s Rise	Causes of rapid societal change
19 Yuan Dynasty China	Civilization-enabling subsystems
20 Aztec-Spanish Conflict	Value conflict and aroused emotions

In-depth investigation of primary sources that form the core of *Investigating World History* tends to go more slowly than use of conventional narrative history, so some may choose to split the course and use it over two years. The supplementary second-year introductory unit on the Phoenicians acts as a Model introduction to any learners who start the course at this point, and as a reintroduction for others. The unit may be inserted prior to any unit that follows Unit 6 – Ancient Israel.

Not all the conventional content expectations will be met by materials in these units. For example, one conventional expectation in world history courses is some coverage of the Protestant Reformation. In our opinion, the events and their causes related to this part of history are simply too complex for adolescents to analyze, and cannot be used effectively—at least within the limits of our ability—to illustrate some significant principle of historical change. Someone out there may have some approach or idea that would make this material accessible to adolescent learners. If so, we'd welcome your input.

The same principle applies to any part of this course. If any reader believes that a unit on the Roman Republic could illustrate some important principle, and wishes to generate the course materials, a “Unit 13a or 13.1” could be added to the list. We'll give full credit to the creator of any materials, and credit to anyone who makes useful suggestions regarding any aspect of the course or an individual unit. Go to <http://www.marionbrady.com/> and select “Contact.” Comments on individual units may also be made on comments pages listed/linked on the website world history course page.

Active learning and study of the past

We've recently been looking at some of the latest commercial history textbooks used by adolescents, and it's abundantly clear that the bulk of classroom activity expected is still passive reading and listening, driven by conventional historical narrative. What we're proposing is radically different.

Most history teachers love the subject—enjoy stories that shed light on the past and want to share them with students. However, evidence shows that many (maybe most) learners are unlikely to share that love, and any interest they show will be short-lived. One important reason for this is the passive role imposed on learners by traditional textbooks and teacher talk.

Standard world history textbooks perpetuate the problem of learner passivity, presenting a narrative account of the past that requires little of the learner except reading and remembering it until test time. Very little of the factual or conjectural information gleaned from ancient times and distant places is knowledge so essential that kids need to remember it, but institutional inertia and bureaucratic expectations keep the standard approach to the subject in place.

The challenge, then, is to make better use of the learner's time and mind, and active learning is the means to that end. Active learning applied to history (1) uses *unprocessed* primary sources instead of conventional historical narrative as the main learning resource, and (2) requires learners to analyze, interpret, compare, contrast, generalize—the full

range of cognitive skills that lie beyond simple recall. **Note that these two are interdependent.** Having learners move beyond passive modes of learning, into actively using the full range of cognitive processes requires either “unprocessed” reality as the learning resource, or the “residue” of reality—primary sources that require mental processing.

The advantages of using active learning are *not* because it allows the details of history to be preserved in memory (although it might), but because it helps the young develop information processing skills and understanding of analytical concepts they’ll use for the rest of their lives. When learners are involved deeply and actively in investigation, the concepts and skills they are learning are grasped much more effectively and permanently, compared to traditional learning. Passive listening and reading simply aren’t very effective.*

The first unit, “Paleoanthropology,” is designed to introduce some of the processes associated with active learning. **Active learning presents learners with puzzles that require real thought to solve, developing their abilities to find valid answers to significant questions.** For a quick summary of the major characteristics of active learning, check out Slideshow #3, “Passive or Active Learning?”

<http://www.marionbrady.com/SlideShows.asp>

Active learning has other advantages, of course. Traditional passive learning is at odds with the basic nature of young people, and active learning provides far greater levels of engagement and satisfaction for the learner.

There are other significant uses for the study of past civilizations. We’ll take note and develop them as we move through later instructional materials.

Facilitating active learning

Major assumptions shaping the instructional activities in *Investigating World History*:

- Supra-disciplinary academic instructional aims are essential—improving sense-making skills; clarifying mental models of reality; exploring the systemic nature of reality; tracing the dynamics of change; reducing ethnocentrism; enhancing understanding of causal sequences; respecting the holistic and integrated nature of knowledge; steadily increasing conceptual complexity; developing the relating process by means of which new knowledge is created; increasing perceived options for adaptive social action.
- Small group work and dialogue maximize efficiency in the pursuit of these aims, as does sharing, comparing, and defending small-group work.
- Every activity should continue as long as it’s being productive.

* Active learning, as we’re using the term, has been called “discovery” or “inquiry” learning in the past. The technical term in present use is “constructivism.” It is the underlying basis for project based learning, as well.

Some teachers may wish to use these materials to augment a conventional world history or ancient history text, taught conventionally. *This must be done with some caution.* Investigations will fail if concepts and skills needed to process the data have not been developed adequately during previous investigations. Proper sequencing of activities helps learners construct and make productive use of a comprehensive, coherent, systemically integrated descriptive-analytical mental model of realities past, present, and future. See “Cognitive Structure and the Model,” (page 8).

Note: Commercially produced instructional materials will always lag behind current scholarship, perpetuate the curricular status quo, privilege standardization over effectiveness, limit user flexibility, fail to reflect overarching curricular aims like those noted in the first assumption above, and cost a great deal of money. Classroom teachers are far better positioned to develop and maintain effective instructional materials. Given a focus for their efforts—specific activities—and the means and encouragement to communicate, they’ll produce superior instructional materials. And, in the effort, will grow professionally. *Investigating World History* is offered in the hope that it will encourage those closest to the work to develop instructional tools that continuously evolve and improve. We welcome feedback:
<http://www.marionbrady.com/ContactingUs.asp> .

Procedures

1. As noted above, we believe small group dialogue is most productive, not least because it allows participants to “think out loud” in a minimally threatening environment. It should be used routinely.
2. In the student materials, primary sources are the major focus of attention. They are enclosed, e.g.:

Frames surround material (text or graphics) that will be “processed” by learners.



3. ***“Do this” instructions for learners are in bold-face italics.***

4. Learners should keep journals or portfolios on computers, in loose-leaf notebooks, or combinations of the two, with entries corresponding to the activities. (If computers are used, make sure you are given access to the learner’s files in some way.) Because traditional evaluation and grading lean so heavily on learner ability to recall “covered” information, and the activities in *Investigating World History* make little or no use of recall, the journals/portfolios will likely be the most comprehensive source of information about learner performance. Encourage their extensive use not only to record information but to air difficulties and frustrations, note insights, advance arguments, express feelings, etc.
5. *Investigating World History* requires teachers and mentors to play a non-traditional role—not delivering information or serving as expert sources but as askers of occasional questions that prompt deeper learner about the task. Volunteering information usually short-circuits learner thought processes. See “Some Ramifications of Active Learning” (page 6).
6. Each unit ends with an investigation that applies the principle investigated in the unit to the learner’s own “here and now” world. ***In a recent review of these materials, co-author Ignacio Carral said that he’s had improved success with poorly-motivated learners by inverting the sequence, and beginning the unit with the present-day application before moving to the historical materials.***

Illustrations

In many parts of the course, color photos and other illustrations are used as data for analysis by learners. We recognize that it may be difficult to supply individual hard copies of color photos to each learner. The alternatives are to supply one hard copy of learner materials (printed on a color printer) to each work team, or else to display the illustrations via a digital projector or smartboard. **Image files for each part of the course are available from links at <http://www.marionbrady.com/worldhistory.asp>.**

Getting started

The transition from conventional narrative textbook-based learning to active learning may be difficult for some students—particularly the ones that coped with passive learning effectively. We’ve heard students ask, “Why don’t you just tell us what you want us to know?” To ease this transition, consider using one or both of the introductory activities suggested in: <http://www.marionbrady.com/Americanhistory/AdditionalNotes.pdf>.

*Primary Sources and Complex Thought**

Most people already know that active learning increases understanding and motivates. Observe the very young, watch them poke and prod, put things in their mouths, stare at

* Adapted from *Investigating American History—A Systems Approach*, p. 11

an ant, open a closed box, climb on a chair to see or reach, try to take something apart, and it's obvious they're thinking and learning—infering, hypothesizing, generalizing, relating, synthesizing, making value judgments, and so on. The young do, of course, learn by asking questions and remembering answers, but that's not how they learn most of what they know.

We all learn from firsthand experience—facing situations, problems, conditions, dilemmas, mysteries, difficulties in daily life, and figuring out what to do. The process is so routine we're rarely even conscious of it.

Unfortunately, traditional schooling generally ignores the main way the young learn, instead places the greatest emphasis on secondhand information. The widely shared view is that, “We learn to read, then read to learn.” That's true, of course, but traditional education's emphasis on narrative textbooks has been a major obstacle to other ways of learning, emphasizing recall to the neglect of other thought processes.

What's handed to the young in the typical textbook is a collection of conclusions. When there's an inference to be drawn, the author draws it. If there's a significant relationship to be noted, the author points it out. If a generalization seems appropriate, the author generalizes. There are no loose ends, no problems, situations, dilemmas, difficulties, or incomplete analyses. The textbook is as refined as the author is capable of making it—but the *author*, not the student, does the thinking.

It's a great deal like handing a kid a crossword puzzle with all the squares filled in.

This isn't a difficult problem to solve. Lacking a time machine, it isn't possible to put kids into ancient Sparta or in a medieval monastery so they can learn through firsthand experience, but that's not the only option. What happened "back then" is out of reach, but it often left a "residue"—primary data—that can be analyzed, dissected, interpreted. The fictional detective Sherlock Holmes modeled the process, as did the characters on the television series "Crime Scene Investigation."

Give kids something real, something tangible left over from what happened—a personal letter, political poster, tombstone epitaph, bill of sale, child's toy, tool, coin, sermon—and it puts them in an intellectual maze and challenges them to think their way out. That's what we try to do throughout *Investigating World History*. If active learning about the past is to occur, primary sources are the richest possible resource.

This isn't a new idea:

“Bare facts and dates may perhaps be obtained and even the memory developed under the old textbook system, but it is impossible to get into the spirit of the period studied, or to develop the reason, judgment, imagination, by any such process. Some more stimulating influence is needed.”

Emma M. Ridley, in Preface to A. B. Hart, *Source-Book of American History*. New York: Macmillan, **1899**, p. xxix. [A book of primary sources]

Obviously, use of primary sources in historical study isn't new. Thoughtful teachers have long made use of them. But too frequently they're used merely to legitimize the narrative, or reinforce the story the textbook is telling.

We're advocating something more advanced and intellectually demanding—analyzing primary sources to focus on important principles of history and historical change that are applicable in many contexts, past, present, and future. Having students search for such things as the motivations of the people involved in an event, or tracing the historical effects of population movement, for example, moves them to real learning. Our goal is to make sense of experience, and primary sources are essential to the process.

“Making the past come alive” is an old goal of history teaching. Learning turns out to be even more effective when we help *students* come alive—when we move them from passive recall-oriented education into active modes of learning using a wide range of thinking skills. An activity that requires deep thought can be an educational experience students will remember for the rest of their lives. There's no better way to motivate.

Three essential and interrelated elements of effective learning are basic to the course material we've prepared:

- **An active rather than a passive role for learners**
- **Using reality or its residue (un-interpreted primary sources) as learning resources**
- **Using a general-systems based model of interrelated concepts to generate the analytical questions learners used in investigating.**

*Some Ramifications of Active Learning**

Role of Teacher and Student

In traditional history classrooms, the teacher, backed up by the textbook, is “the voice of authority.” Superior knowledge is a source of power and personal satisfaction. “Standards” establishing what students are expected to know imply “higher authority with particular expectations.” Standardized tests do the same. Bureaucracy reinforces the teller-listener relationship in myriad subtle ways. Even the design and arrangement of classroom furniture can reinforce the “sit-down, shut-up-and-listen” message.

Active learning requires a major change in the teacher's role. (This change is less of a problem for those who see themselves as mentors.) The teacher must no longer be an “answerer”—a source of information—because giving students answers short-circuits the learning process.

Students are often as reluctant as teachers to switch from the “remember” task to work demanding the use of all thought processes. Not many really like the traditional game, but they know how to play it, and abandoning it can trigger insecurity. “Just tell me what you want me to know,” some may say. Others—often “A” students—may be critical. Accustomed to schooling's usual emphasis on memory work, and having been successful in it, they may sincerely believe they're not learning anything.

* Adapted from Appendix A of *Investigating American History*, p. 101

These issues should be addressed. A thoughtful discussion of the necessity of complex thought, and traditional education's neglect of it, may be necessary.

Pacing

Active learning may seem less efficient than “read and remember” learning. Using a conventional textbook, it's possible to go from the Neanderthals to the Renaissance, or Columbus to the 21st century in a school year. Active learning goes more slowly because students must be given time to ponder, discuss, move down intellectual blind alleys, and find for themselves answers to difficult questions.

If you're trying to help learners understand something really important, there's no point in moving on to a second idea until they understand the first, even if that takes days, weeks, months. When dealing with genuinely significant ideas, there's no good reason to rush.

If not “covering” something brings discomfort, remember how little most adults can recall of what they once “learned.”

Evaluation

When playing the “read and remember” game (“Who became Roman emperor in 37 CE?”), keeping score is easy—a simple matter of counting right and wrong answers. There's little room for argument, bureaucracy-generated blanks can be filled in, and public expectations are met.

But when the game changes to “investigate and think” (“What might explain differing Spartan and Athenian attitudes toward teaching the young?”), keeping score is harder, and arriving at a precise, meaningful number is impossible. Concern switches from the *quantity* of recalled “right” answers, to the *quality* of a whole range of thought processes, and subjectivity becomes unavoidable. Is one “good” hypothesis equal in value to two or three “fair” hypotheses? To a half-dozen poor ones? What *is* a “good” hypothesis? A “logical” inference? A “valid” generalization? A “defensible” value judgment? These are questions of fundamental importance that too few educators address.

Subjective evaluation of student performance by teachers is necessary, even inevitable. However, using active learning investigations in the manner we suggest produces much student-generated material. This material, even without the traditional supplementary quizzes, will generally provide ample evidence of the quality of student thought for evaluation by teacher or mentor.

Abandon the read-and-remember game, and school becomes far more like the real world.

Cognitive Structure and the Model

Conventional Chaos

Learners in most classrooms are bombarded with chaotic information beyond their ability to cope. See Slideshow #2, “Taming the Fire Hose,” at <http://www.marionbrady.com/SlideShows.asp>.

The first problem is the fragmentation built into the traditional “core” curriculum—the conventional division of schooling into disciplines and courses. This problem is pointed out by [many eminent scholars](#), but otherwise usually ignored:

John Goodlad: “The division into subjects and periods encourages a segmented rather than an integrated view of knowledge. Consequently, what students are asked to relate to in schooling becomes increasingly artificial, cut off from the human experiences subject matter is supposed to reflect.” *A Place Called School*, McGraw-Hill, 1984, p.266

David W. Orr: [Formal schooling] “...imprints a disciplinary template onto impressionable minds and with it the belief that the world really is as disconnected as the divisions, disciplines, and subdivisions of the typical curriculum. Students come to believe that there is such a thing as politics separate from ecology or that economics has nothing to do with physics.” *Earth in Mind*, Island Press, 1994, p.23

One advantage of history as a subject is that it has the potential to overcome this fragmentation, at least within its own highly-flexible boundaries. Historical study can point out the relationships between technological development and the evolution of ideas about nature, or the effects of communicable disease on population statistics, without being inhibited by conventional disciplinary boundaries.

However, history (as conventionally written and taught) has its own built-in chaos. The amount of information about the past is limitless. There is, then, no such thing as an objective account of it. The story that gets told reflects the assumptions and values of the teller. That so many history textbooks tell very similar stories is mostly attributable to the market. Textbook selection committees expect to see some version of what they’ve seen before.

Most writers of histories don’t elucidate their criteria for selecting content. The late Carroll Quigley, an extremely popular history teacher at the Georgetown School of Foreign Service, said this in the introduction to his book *The Evolution of Civilizations*:

“...it should require only a moment's thought to recognize that the facts of the past are infinite, and the possible arrangements of any selection from these facts are equally numerous. Since all the facts cannot be mobilized in any written history because of their great number, there must be some principle on which selection from these facts is based. . .

“If historians are not explicit, at least to themselves, about their principles of selection among the facts of the past and among the many possible arrangements of these facts, all histories will be simply accidental compilations that cannot be justified in any rational way. Historians will continue to write about some of the events of history while neglecting others equally significant or even more significant, and they will form patterns for these facts along lines determined by traditional (and basically accidental) lines or in reflection of old controversies about the pattern of these facts.”

What happens, of course, is the conventional history book is perceived by the learner as “one damned thing after another,” a mass of “facts” with little linking between them except chronology and occasional statements or implications that “this caused that.”

“The world is stunningly complex, and man can only deal with a limited amount of information at a time. But if I have an internal model of the world, I can ‘chunk’ information into manageable packets. I can use this model to guide my search for and processing of information.” Jerome Bruner, *States of Mind*, British Broadcasting System, London, 1983

Bruner’s main works point out the necessity of structuring information—organizing it hierarchically, with important concepts subsuming related but less-important concepts—to give it context or meaning. Without this structure, “facts” in any discipline cannot be used as tools to develop true understanding, and will soon be forgotten.

Order from Chaos

Organizing information—finding relationships between important concepts, and interrelating them hierarchically—is essential. *We learn not by amassing facts, but by understanding relationships between facts.* Overcoming the fragmentation inherent in conventional disciplines requires us to find overarching “supra-disciplinary” concepts to unify knowledge.

We propose that the single most important concept that can unify all knowledge is “system.”

Focusing on systems, six or seven main organizing questions guide learner’s investigation: **What system is this? What are its significant parts? How do the parts relate and interact? What major forces drive the system? What is the system environment? How do changes in each of these system elements (parts, interactions, forces, environment) affect other parts of the system? How is the system changing across time?** (The last two questions are closely related, of course.) Each of these main questions may be expanded with myriad subsidiary questions to drive the inquiry process.

The most important systems our young must understand are those in which humans are central. If we’re to deal effectively with any of the myriad problems faced by humans today—ethnic strife and terrorism, climate change, political and economic instability, corruption, decaying infrastructure, and poverty (just to begin a list)—it’s essential to ferret out and comprehend the systemic relationships that underlie complex reality. There’s no other path to sanity.

Making sense of experience—an event, situation, condition, episode—we set that experience off from other experiences. We locate it in physical space, assign it time dimensions, identify the participating actors, describe the action, and assume or attribute cause for the action. This process is intuitive, built into language and culture, and reflected in the traditional “news story” questions (Who? What? When?...). These are also the traditional elements for analysis of drama (setting—time and place, actors, action, plot), and work for much else. Amplified, they become a powerful tool for analyzing all that’s significant—not just events, but also societies and other human groups and everything that affects them, the essence of historical change.

This is our master mental model of reality. All knowledge “fits” within one or another of its five general categories, and individual and collective knowledge expands as relationships between and within the five categories are explored.

General systems

- Environment
- Components/structure
- Interactions
- Motive Force
- Change across time

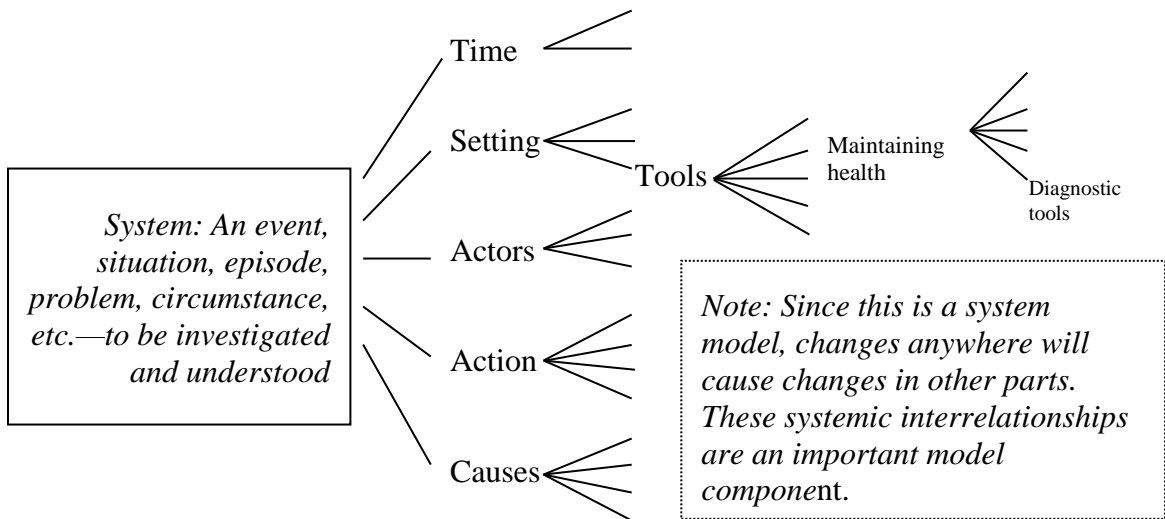
Human-based systems

- Setting (primary/secondary habitat)
- Actors (demography/sub-groups)
- Action (patterns)
- Cause/Plot (shared ideas/values)
- Change across time

Relationships between system elements are generally shown by change over time.

There can be no acceptable general education without a general education discipline, and there can be no coherent general education discipline without a framework of logically related organizing ideas such as this one. Each of its major categories may be elaborated with sub-categories, sub-sub-categories, and so forth to any desired level of detail, forming this model into a powerful “supra-disciplinary” analytic tool.

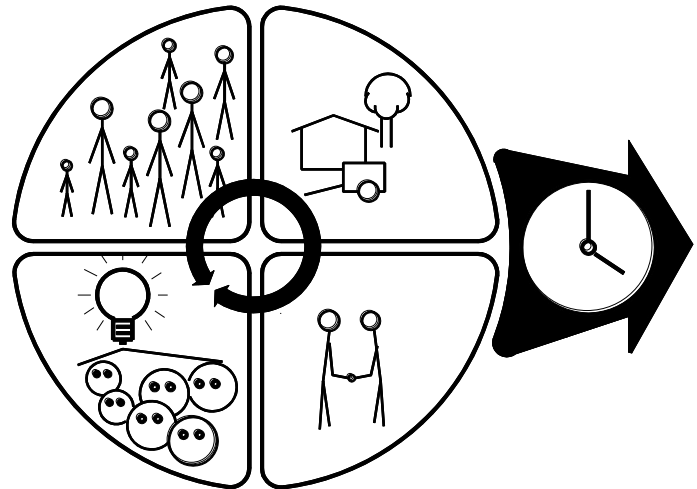
Here’s a symbolic representation of category elaboration, with an example at each level:



An elaborated version of this Model is in Unit 9: The Persian Empire, page 2.

<http://www.marionbrady.com/worldhist/09PersianEmpire.pdf>.

This Model, or a conceptual framework very much like it, is the foundation upon which a general education curriculum can be built. It encompasses all knowledge. Unlike the traditional disciplines, its five elements relate systemically. It calls attention to presently neglected areas of study and to future possibilities. It provides criteria for content selection and emphasis. It makes clear the mutually reinforcing nature of the traditional academic disciplines (but also their conceptual randomness). It's an extraordinary aid to memory. It facilitates the expansion of knowledge by facilitating the mental juxtaposing of possibly related aspects of reality. It automatically adjusts to learner ability. Being conceptual rather than factual, it adapts to change. Not inconsequentially, it raises the level of sophistication of the curriculum beyond the easy reach of well-meaning but ill-informed politicians and other education policymakers. For a comprehensive discussion of the Model, and its application to education in general, see *What's Worth Learning?* <http://www.marionbrady.com/Books.asp>.



Once developed and presented, the Model becomes the core of all subsequent study, and will become a lifelong tool for learners.

Note that a systems approach is central to real scholarship in virtually any field. To see this in one historical context, we recommend viewing <https://www.youtube.com/watch?v=bRcu-ysocX4>.

Use It or Lose It

The phrase “Use it or lose it”—usually used in other contexts—is perhaps the most apt principle in all of education. A few days before this was written, an on-line [video](#) went viral on Facebook, showing Texas Tech college students unable to answer questions about knowledge assumed to be the most basic learned in school, such as “Who won the Civil War?” and “Who did we gain our independence from?” (The video called it a “hilarious sad commentary on the country’s school system.”)

Educated adults are expected to be appalled at this apparent “failure of education,” but there’s no real surprise here, simply verification of the “use it or lose it” principle, and evidence of the effects of passive learning and the inevitable chaos created by “covering” the material.” As far as the interviewed college students know, these pieces of American history knowledge have had little or no impact on their lives. Having no perceived use for the information, it was seen as irrelevant and soon forgotten.

Providing cognitive structure for what’s learned helps learners retain information, but that doesn’t offset the ‘use it or lose it’ principle. It’s probably inevitable that the details of

historical accounts will be forgotten by most learners, so we focus instead on transferable skills and principles that can be used, over and over, in everyday life.

To this end, every unit in *Investigating World History* ends with “Follow-Up” investigations in which learners apply whatever skills or principles are emphasized in the unit to “right here, right now.” For further emphasis, the skills and principles are used (and elaborated) in subsequent units. Thus, the ability to identify systemic relationships between setting and patterns of action, for example, becomes part of the intellectual tool kit each learner takes away from the course.

As Ignacio Carral said: “I think that the thing that surprises [students] the most is that the knowledge students create using it can help them in their 'real lives'. That's when they stop being suspicious and start to become curious and interested.”

World history unit links: <http://www.marionbrady.com/WorldHistory.asp>.

(HLB) Feb. 2016, Rev. Mar. 2016, minor revisions May-August, October 2016. Alfie Kohn quote (pp. 2-3) added November 29, 2016.