

Taking Humanities Problems in Bytes



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Focus of Session

- What are Digital Technologies?
 - What is Information?
- How do they impact the Humanities?
- What are Digital Humanities Projects?
 - Examples?
- Students and Digital Projects
 - How can I use this stuff with students?
 - (Most examples are oriented to students)

Slides:

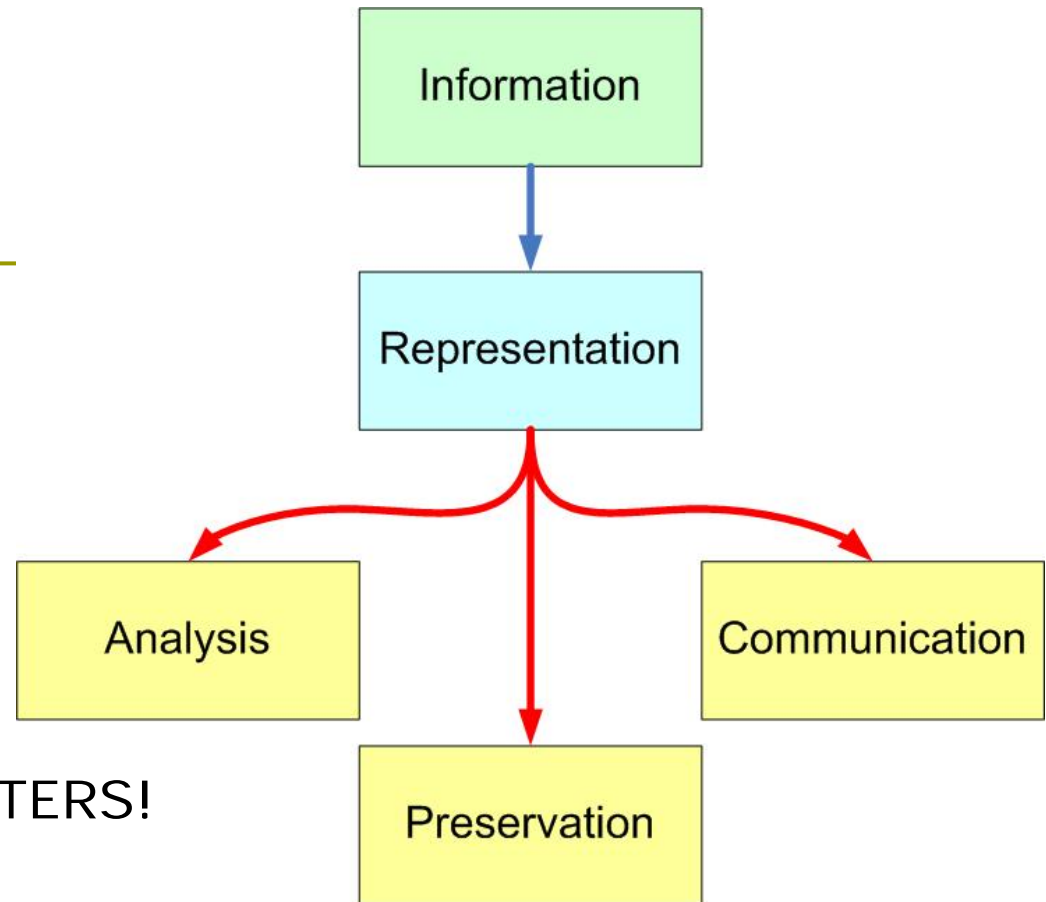
<http://aria2.rsl.wustl.edu/bennett/iteach.ppt>

What are Digital Technologies?

- Simple answer:
 - computer-based technologies
- Examples:
 - World Wide Web
 - Text Encoding
 - Geospatial Information Systems
 - Audio/Visual Systems
 - Computer-based Modeling and Simulation
 - Digital Archives
- Fundamental answer: INFORMATION

Information

- ❑ Ideas, Facts, Concepts, Relationships, etc.
- ❑ Purpose:
 - Communication
 - Preservation
 - Analysis



❑ REPRESENTATION MATTERS!

- ❑ Traditional Humanities Approach:
 - Text-Based
 - Linear
 - 1 to 1 or 1 to many Communication
 - Limited alternate representation (ex. Maps)

Information Representations

- Text-Based
 - Linear (Prose, Poetry, etc.)
 - Non-Linear/Hypertext
 - Encoded/Interleaved
- Visual
 - Charts, Graphs
 - Images
 - 3D Models
- Spatial
 - Maps
 - Diagrams
- Temporal
 - Timelines
 - Animations
- Sensor-Based
 - Video/Audio
- Mathematical
- Static
 - Fixed Representation
- Dynamic
 - Changing Representation

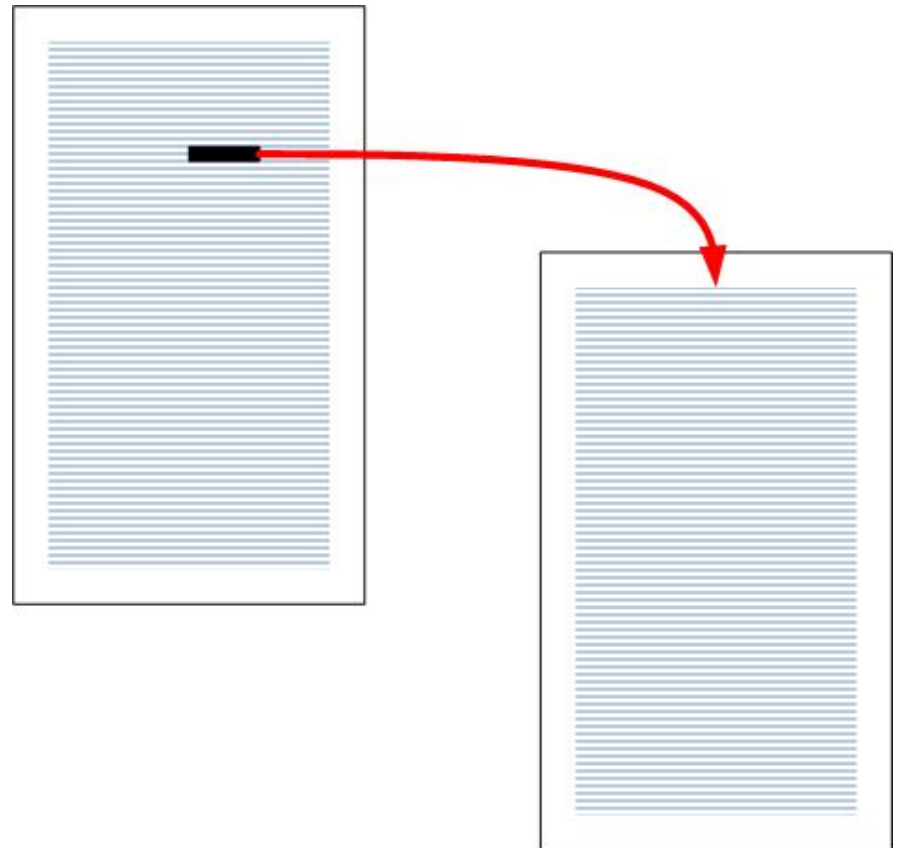
Information Complexity

- Complexity of Representation
 - Explore information in multiple ways
- Complexity of Use
 - Expanding to many to many communications
- Information Volume
 - Primary Sources

- This is where computers and digital technologies come into play!

Digital Technologies – Text-Based

□ Non-Linear/Hypertext



Digital Technologies – Text-Based

- Demo of XML/HTML Project

Digital Technologies – Text-Based Analysis

- Textual Analysis (Linguistic Analysis)
- Range from simple to complex
 - Concordances
 - Word Lists/Counts
 - Automatically Generated Indexes
 - Manuscript Comparisons and Patterns
- Search Capabilities

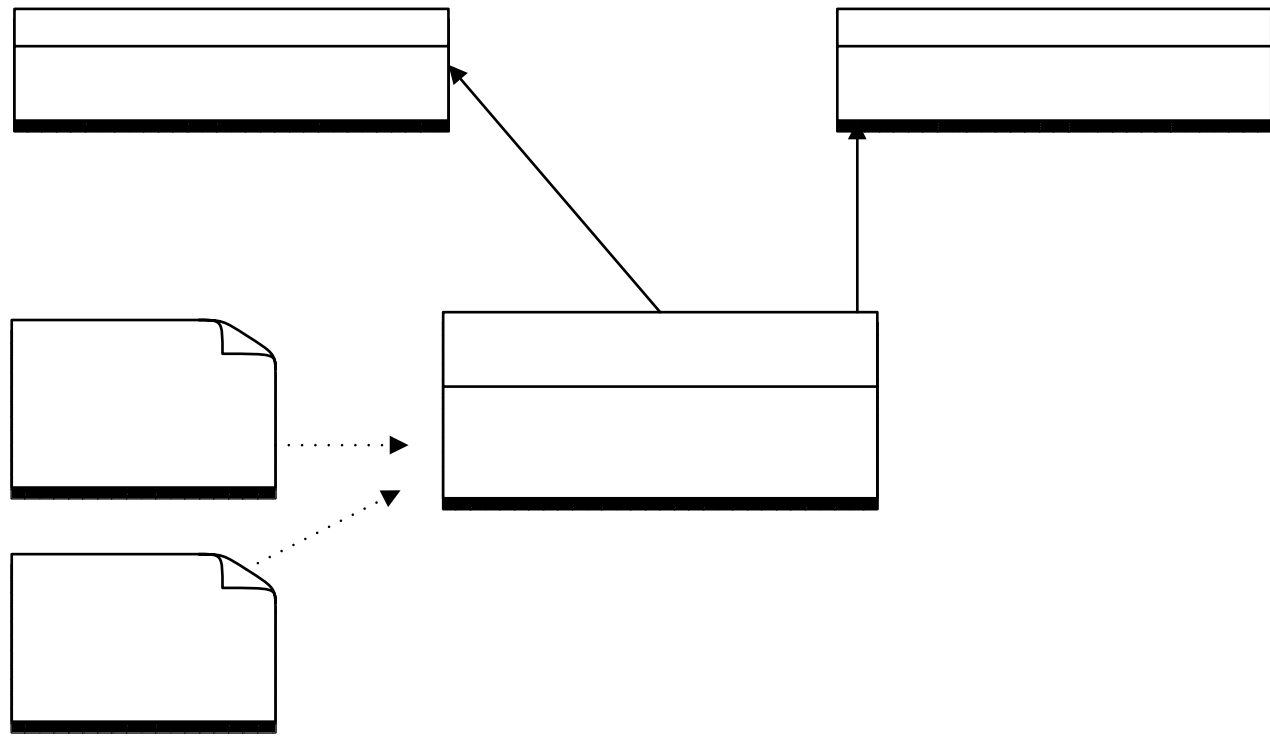
Digital Technologies – Visual Based

□ Visual

- Charts, Graphs
- Images

□ Graphical Models:

- Alternative ways of representing information
- Range from informal to formal



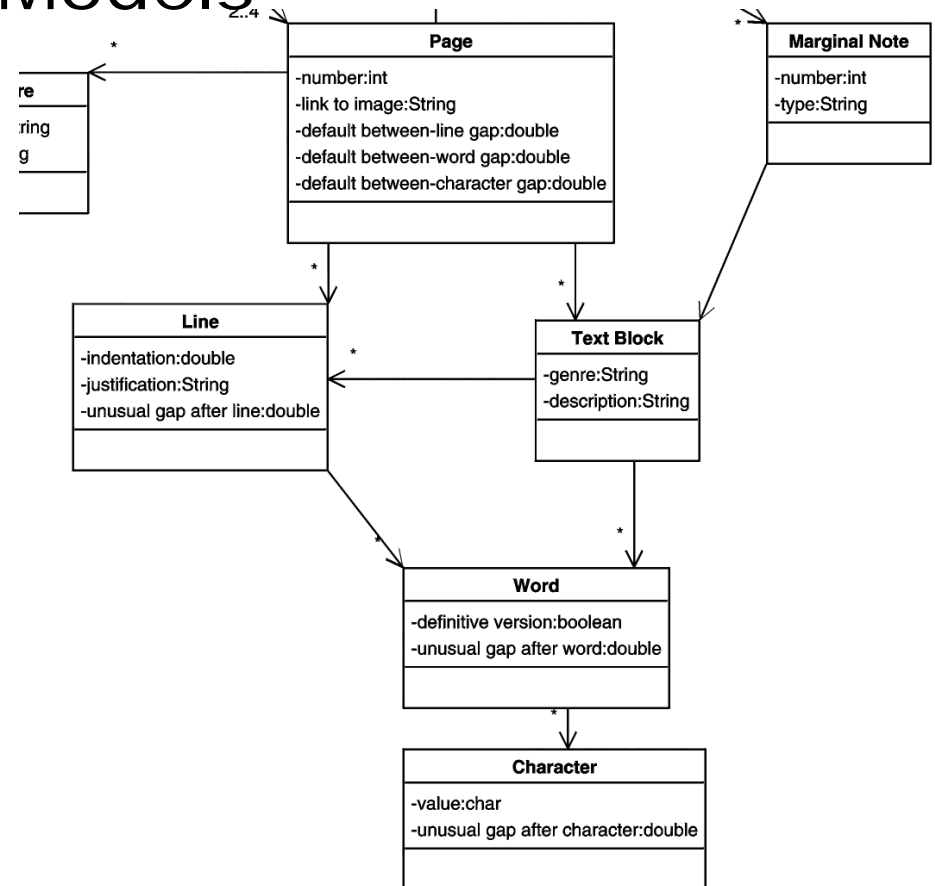
Graphical Modeling

- Models Entities, Relationships
- Networks, UML, ER Models

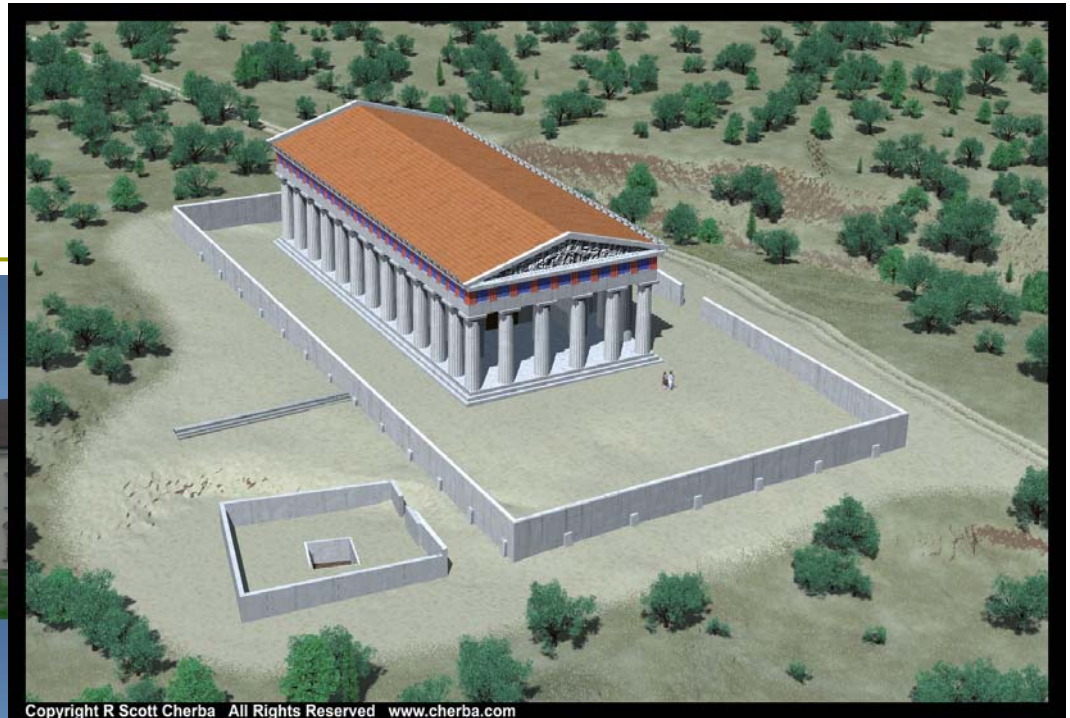
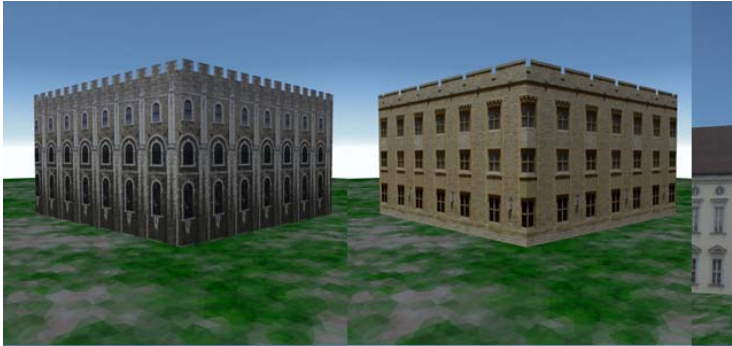
-Model of Edmund Spensor
Printed Works:

-Good for capturing facts,
ideas, etc. and showing
their relationships

-Example: Characters
in a book



3D Modeling



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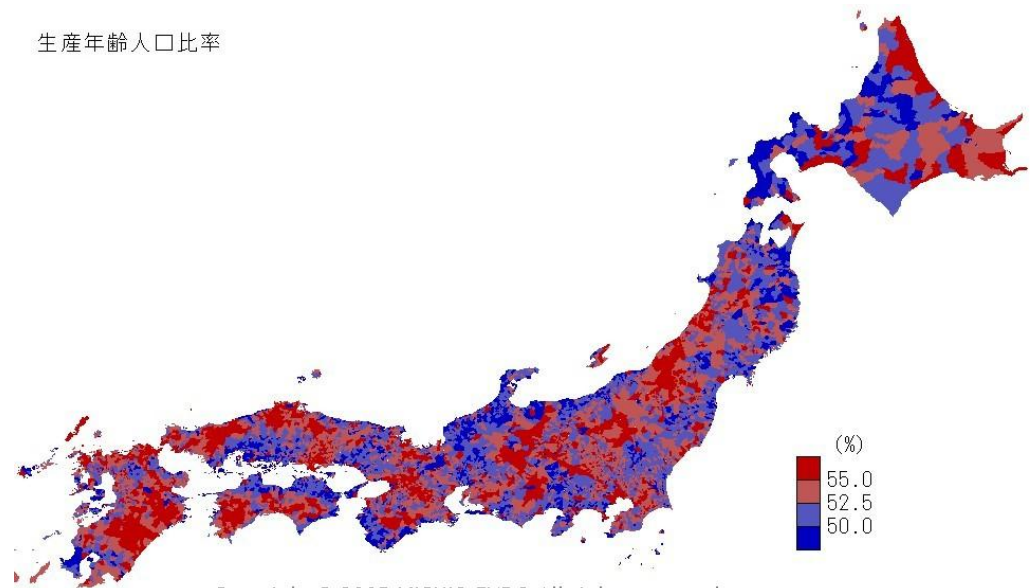


Digital Technologies – Space and Time

□ Spatial – Maps and GIS

生産年齢人口比率

**Example: Portion
of productive age
population, 1920**



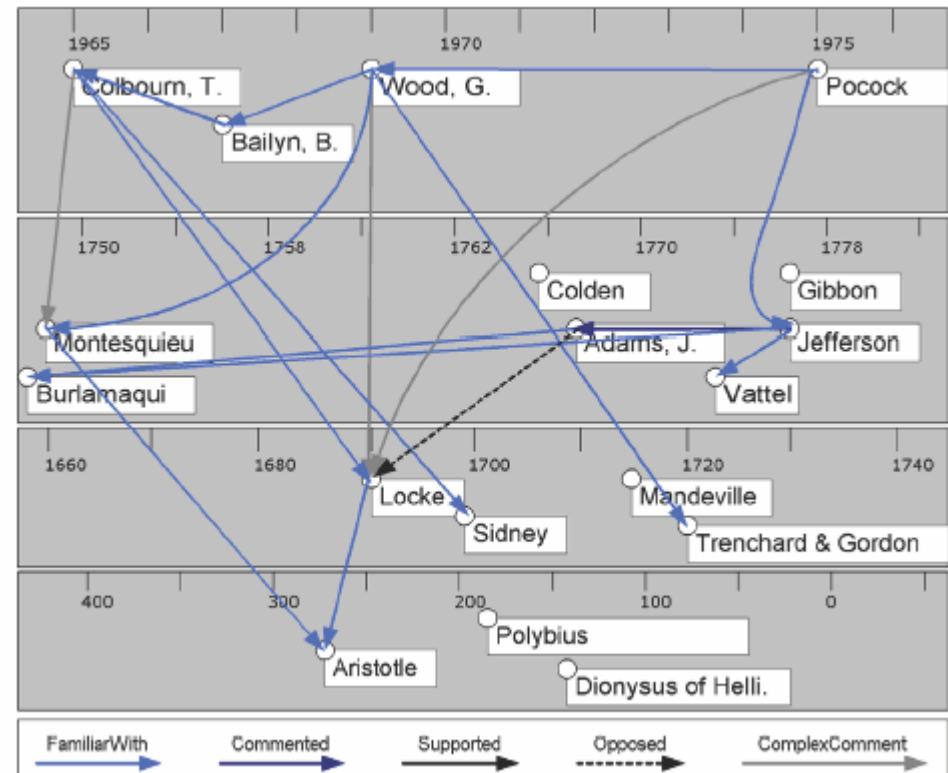
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Image:

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Time

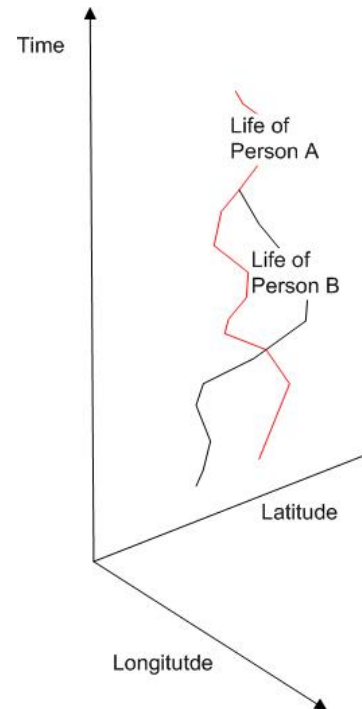
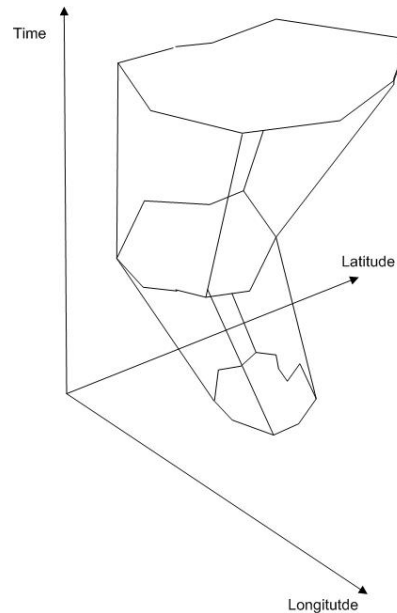
- Timelines
- Animations



Demo Temporal Modeling Project

Space and Time Together

- Animations
- 3D Models



Demo Vietnam

Demo Bagdad

Digital Technologies – Dynamic Modeling and Simulation

- Wide range of approaches
 - Mathematical-Based
 - Agent-Based
 - Population-Based
- Examples:
 - Wide-Range of “Game” Simulations
 - Purpose-built simulations

Demo Stella Models



Impact on Humanities

- Improved Communication(?)
- Network of Scholars
- Access to wide range of materials

- New Understandings:
 - New ways of seeing information
 - *Act of creating improves understanding!*

Digital Projects

- What are digital projects?
 - Focused Effort with a Goal (Akin to a Book)
 - Application of Information (Technology)
- What makes successful digital projects
 - Clear goal(s):
 - Communication, Analysis, Preservation
 - May have multiple goals but...

Student Digital Humanities Projects

- Similar to other student activities:
 - Individual or Group
 - Varying is scope and effort
- Different from other student activities:
 - Goals (Subject, Tool, Problem Approach, etc.)
 - Tools (and expected student knowledge)
 - Faculty knowledge
 - Gap between tools and concepts
 - “Ok, I know how to create a TEI encoded document, but I don’t know why I want to or what I can do with it?”
 - Information Precision
 - Many tools/techniques require higher information precision than many humanities students are use to.
 - Multiple Instructors with different expertise

Student Project Goals

□ Options

- Explore a topic
- Support a paper
- Learn to think in an alternate way
- Create a presentation
- Create a digital tool
- Create a web site
- Analyze a hypothesis
- Learn to work as a team
- Become comfortable with a technology

□ Projects may have multiple goals

- VERY IMPORTANT THAT YOU KNOW WHAT THEY ARE!

□ Can be complicated by multiple instructors

Teaching Underlying Concepts

- ❑ What are the underlying concepts?
- ❑ Tie task back to the fundamental humanities problem
- ❑ Not:
 - “Make a map of the population distribution in 1920”
 - WHY?
 - What benefit does the map have?
 - What is the concept of spatial relationships?

Information Precision

- ❑ Digital tools often require more “precision”
- ❑ Example:
 - Draw a diagram vs a CAD drawing
 - Or create a map in GIS
 - ❑ Example: saying “X is near Toledo” in text but putting it on a map forces the questions like “how near”? “What direction?”
- ❑ Particular problem with modeling and simulation
 - Gulf of Tonkin Simulator Experience
- ❑ Concept of errors and uncertainties
 - About 1500 vs 1500+/- ?

Project Scale

- Small
 - Typical assignment
 - Paper exercises
 - Tools students already comfortable with
- Major
 - Multi-week to semester long
 - Allows greater range in new concepts and tools
- Multi-Semester
 - Use of different students over time
 - Requires greater communication
 - Can be a great experience in the impact of communications
- Tie projects to research

Individual vs Team Projects

- Team projects
 - Use students with difference skills
 - Use students from different disciplines
 - Greater emphasis on communications
- Multi-Instructor projects
 - Technology vs Topic

How to support Projects?

- Develop support plan
- Identify specific tools to support
- Use of on-line materials
- Availability of professional help personnel
- Student to student mentoring
 - Past students
 - Current students
 - Students from different disciplines

Example Student Projects

- Gulf of Tonkin Resolution Simulator
- African History Tool
 - Geotemporal Representation
- Andrew Galen's English Working Class Simulator
- Shepheard
 - Edmund Spenser
 - Digital Collation

Possible Student Projects

- General Discussion

Contact Information

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Sources

- Tools
 - Text Analysis
 - <http://users.ox.ac.uk/~ctitext2/enquiry/tat01a.html>
 - <http://www.kdnuggets.com/software/text.html>
 - Space and Time
 - <http://www3.iath.virginia.edu/time/time.html>
 - TimeMap: <http://www.timemap.net/>
 - EAC: <http://ecaimaps.berkeley.edu/clearinghouse/>
 - Stella
 - <http://www.iseesystems.com/>

Session Abstract

- ▣ This session presents a broad look at emerging digital technologies, their underlying concepts, and how these concepts and technologies can change the way students think about and understand problems in the humanities. We'll explore how simple concepts of information representation and modeling can allow students to see problems in a new light. We'll look at previous digital humanities projects and what lessons were learned. Finally, we'll explore how to get students involved through their own individual and team projects. Attendees will be exposed to a wide range of digital technology concepts including information modeling and concept visualization. Attendees will also be exposed to ideas for student digital projects.