

Introduction and Evaluation of a New GIS-based Learning Tool for the Classroom

A Work in Progress

Is Third-Party GIS Map Customization a Viable Alternative for Teachers?

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Presented at:
ESRI International Education Conference
San Diego, CA
August 3, 2008

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How GIS is Used

- This study DOES NOT teach anything about GIS
- This study DOES use:
 - GIS data
 - In an interactive map
 - Over the internet
 - To support teacher's content (much like a wall map, paper map, overhead transparencies, etc. – but with added interactivity that students can control)

3 Case Studies using Maps

- The maps are programmed/customized by me (not by the teachers)
- Maps cover various age groups and subject matters
 - Elementary – Cultural history *History of St. Cloud, Florida*
 - Secondary – Economic geography *Brazil's Changing Coffee Frontier*
 - Higher Education – History *Origins of the Ottoman Empire*

Obstacles to GIS Cited

- Teacher issues (GIS training, time to prepare lessons, hardware/software expense)
- Student issues (needing to know GIS to use the map)
- Interface is not always age-appropriate; too many buttons can distract

3 Case Studies

How This Study Works

- Make a customized map for a teacher's specific lesson plan.
- Publish the map over the internet.
- Test maps in classrooms
- Gather feedback from teachers and students on Effectiveness, Ease-of-Use, Overall Usability (does not test actual learning or improvements in spatial thinking)

My Motivation for this Study

- Most GIS usage depends upon a teacher's mastery of GIS technology
 - Is this fair to the teachers? Is this effective for school systems?
- What if the technology obstacles could be removed?
 - Conversation could move from mastering technology to "If you could have whatever you wanted, what would you ask for?"

Goals

- To show that obstacles to GIS can be overcome
- To gain information on usability for future projects

Comparing 2 Mapping Approaches

Responsibility	Traditional	Customized
Hardware, software expense	School system	Educational group
GIS Training	School system pays cost; teacher performs labor	Educational group
Time to prepare lesson	Teacher	Educational group

Usability	Traditional	Customized
User Interface	Teacher has little control. Too many options may interfere with lesson content.	The interface can be age-appropriate, uncluttered.
Knowledge of GIS	Teacher needs good understanding to make maps. Students need to know some GIS to use the maps.	None required by either teachers or students.
Subjects Taught	Usually limited to geography and environmental sciences.	Opens the door to other subjects: history, religion, economics, etc.



Click a point on the map to see St. Cloud's history

St. Cloud, FL - Saint Cloud Hotel - Microsoft Internet Explorer

Saint Cloud Hotel

1000 New York Avenue



Original St. Cloud Hotel, built 1909 from the material scavenged from Disston Sugar Mill
Fisk Collection

1909



2007

The first St. Cloud Hotel was built in July and August 1909 in a total of 30 days by Frank Bass of Kissimmee. The lumber came from that salvaged from the famous sugar mill. It had 20 rooms, a kitchen and dining room and was two stories high with porches on the front and north side.



Map Credits

Content: Mary Lawson, Mary Ellen Adlam.
 Photography: Bob Fisk Collection, Stephen Veliz.
 Programming, GIS, and Graphic Design: Wes Palmer.

ORIGINS OF THE OTTOMAN EMPIRE

THE FIRST OTTOMANS, 1281-1481

The Rise of the House of Osman

The House of Osman (pronounced OT-man) was the smallest and weakest of the many Turkish tribes in a 300-year battle for dominance.

The underdogs managed to win control through geography, good luck, and wise leadership decisions. The resulting Ottoman Empire dominated the area for 600 years.

Click the sultans below to see their territorial gains and the reasons for success.



The Early Sultans

Original Lands	Osman, Orkhân	Murâd I	Bâyezîd I	Mehmed I, Murâd II	Mehmed II
	1281-1324, 1324-1362	1362-1389	1389-1401	1413-1421, 1421-1451	1451-1481

This demonstration map is being developed for secondary school history class.

[Credits](#) | [Contact](#)

Map Credits

Programming: Erik Hazzard. GIS: Wes Palmer.

Cartography: Wes Palmer. Graphic Design: William Strode.

Brazil's Coffee Frontier

Map Credits

Content: Dr. Mort Winsberg
Cartography: Peter Kraft
Programming: Otmar Olsina
GIS: Wes Palmer
Graphic Design: William Strode

Brazil's Changing Coffee Frontier

Since the 1800s, Brazil has held the title of the world's #1 coffee producer.

Brazil's coffee frontier has shifted from what it was in the 1970s. Originally located in more southern regions, the growing area is moving north into warmer lands -- into lands previously considered unsuitable for coffee.

Coffee requires the following subtropical environment:

- Elevation - 1800 to 3600 feet
- Temperature - 15-24°C (59-75°F)
- Rainfall - 1500-2500 mm per year
- Soil Quality - organic materials

This map will show that some of the new lands might not meet all of the physical criteria listed above.

Explore this map by clicking the map layers in the boxes below and discover why the new coffee regions are producing record amounts of coffee in spite of environmental shortfalls.



Map Layers

Click on a subject to toggle the map layer.

Growing Regions	
1970s	Today

Environmental Qualities			
Temperature	Rainfall	Elevation	Soils

Conclusions

- Preliminary results look promising
 - Third grade St. Cloud, Florida map has been classroom-tested:
 - Teacher is happy and is encouraging other teachers to pursue this type of media
 - Students claimed to be more interested in their town's history

- Secondary and higher education maps to be tested Fall 2008

Florida Geographic Alliance's New Initiative for Fall 2008

LOGIN

SEARCH

Search  **Advanced Search**

Brazil

Country Information

Following three centuries under the rule of Portugal, Brazil became an independent nation in 1822 and a republic in 1889. By far the largest and most populous country in South America, Brazil overcame more than half a century of military intervention in the governance of the country when in 1985

MAPPING THE AMERICAS

Selected: Identify

This map is an index of lesson plans and learning activities. The database is searchable by keyword and/or map click.

(Viewing lesson plans require teacher log-in.)

Questions and Recommendations?

- Please visit my table
- Test the maps (Brazil coffee, Ottoman Empire are on my laptop)

Thank you!

For more information on “Mapping the Americas”:

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For more information on technology used for this project:

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