



# **Sociospatial Thinking GIS and Adult Learners**

***Presented at the annual Esri Education  
Annual Meeting***

*June 25, 2016, San Diego, CA, U.S.A.*

**Dr. Sheila Lakshmi Steinberg**  
**Professor, Social & Environmental Sciences**  
**Brandman University- Chapman University System**  
**Irvine, CA**



# Agenda

- **Define what is meant by the term Sociospatial**
- **Explore the role that sociospatial thinking can play in curriculum and learning for adult learners**
- **Different Educational Models for Adult Learners**



# Introduction to Brandman University

- 1861 to 1958 (Orange to El Toro CA)
- WASC accreditation
- – focused on adult learning formats
- Chapman University to Brandman
- More than 50 accredited
- undergraduate and graduate degrees
- Over 25 locations
- Blended / Online / Competency Based





# Sociospatial Defined

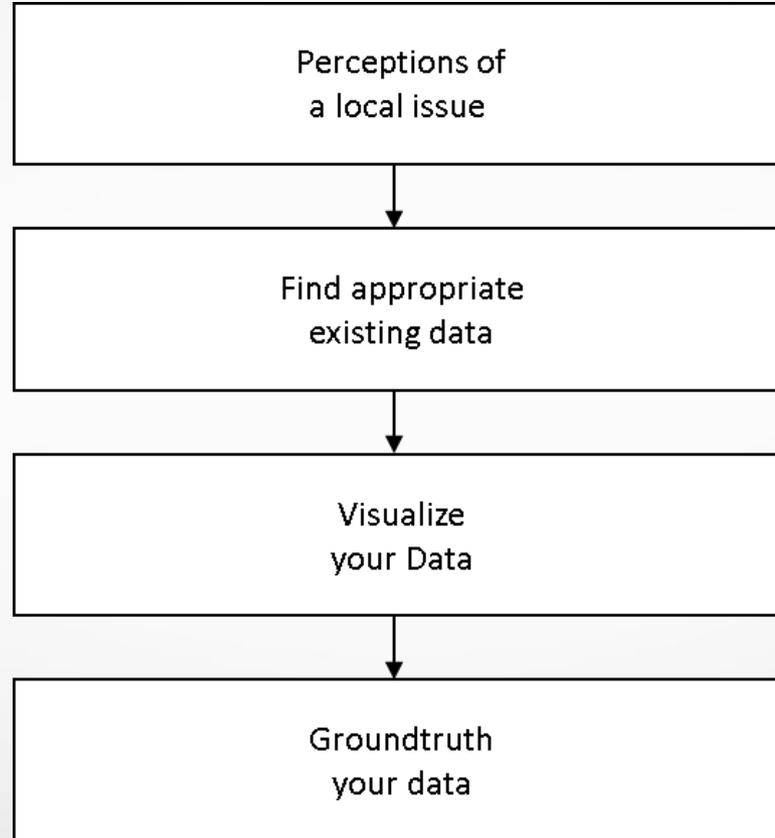
## **Definition:**

Sociospatial is an integrated examination of space, place and social indicators in a holistic fashion.

(Steinberg and Steinberg 2009; 2015)

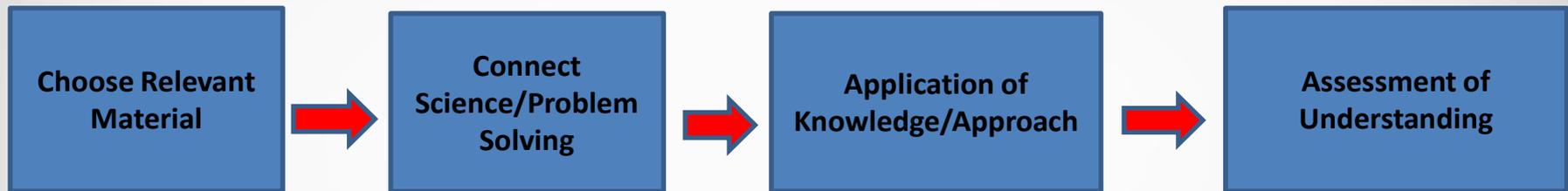


# Sociospatial Thinking





# Model for creating relevant educational material for adult learners





## KEY IS TO ROOT IN “PLACE AND SPACE”

- ▶ **Choose examples that enable students to geographically bound their work.**
- ▶ **Helps students to see the breadth, depth and components of a problem when you can sort it out SPATIALLY**
- ▶ **Consider the students understanding of both PLACE and SPACE**
- ▶ **Enables the student to draw upon their own navigable knowledge related to the local environment that they have familiarity with.**



# Brandman CBE BBA Program

## Degree Structure

N= 27 Competencies Total

- 13 General Education Competencies
- 14 Core Business Competencies



## Brandman CBE program

# Final Assessment Types

- **Level 1 competencies:**
  - Multiple-choice objective test
  - 75 to 140 questions
  - Students must score 80% or higher for Mastery
- **Level 2 competencies:**
  - Performance-based project
  - Ex: Paper, presentation, capstone, etc.
  - Students must score Exemplary or Proficient for Mastery



# Systems-based approach- CBE Creation

- ▶ **Considers the big-picture problems or issues addressed by topic (WHAT ARE SOCIETAL NEEDS?)**
- ▶ **Breaks down the topic into various components**
- ▶ **Establish linkages between components**
- ▶ **Seeks to develop viable solutions to problems or issues**



## ▲ **Competency objectives**

- ▲ **1. Identify a real world problem**, which can be solved using the principles, concepts and methods of natural sciences
  
- ▲ **2. Apply the steps of the scientific method** to real world problems.
  
- ▲ **Assessment:** a 14-16 page written report that addresses real-world problems connected to natural sciences
- ▲ E.G. water scarcity, air quality, reduced carbon emissions for businesses



# Place-Based Student Engagement Model

- ▲ **Context/Place:** What is the context of the student-where is the student geographically, socially, economically?
- ▲ **Interaction:** Shared natures of exchanges between people. Two-way flow-speech, email, other communication.
- ▲ **Community and Trust:** Sense of holistic oneness based on trust.
- ▲ **Student Engagement:** Active Participation of Students in Learning Process



# Images of Real World Problems Tied to Science





## Methods and Applications- Level 2 –Scientific Method

- ▶ **Introduction**
- ▶ **Literature Review and Hypothesis**
- ▶ **Methods**
- ▶ **Results**
- ▶ **Analysis and Discussion**
- ▶ **Conclusion and Recommendations**

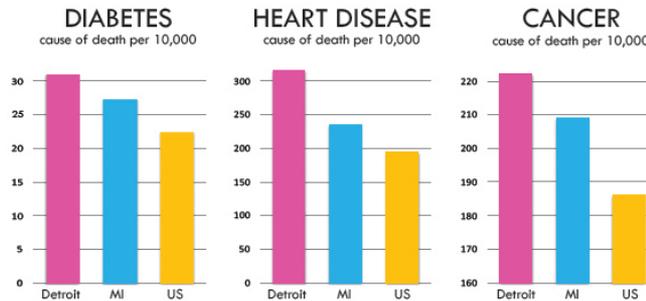
**Summary:** It's about using science and the scientific method-as a way of thinking- to try and develop feasible solutions to a real-world problem.



# Data-driven problem solving

- The problem solving analysis and assessment HINGES on FINDING RELEVANT and EMPIRICALLY SOUND DATA

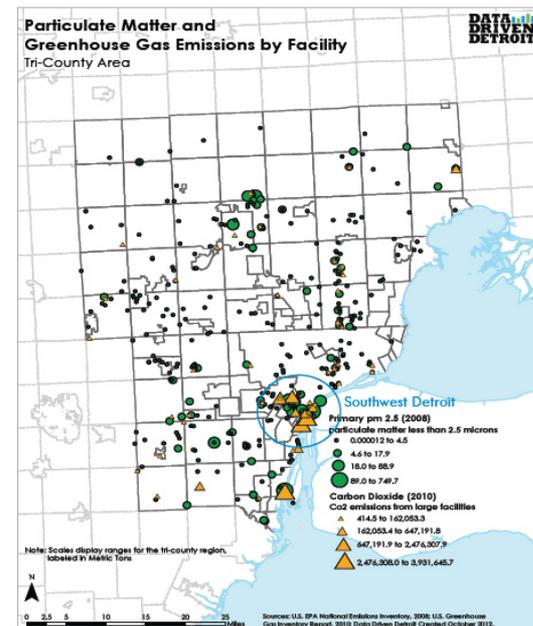
## ENVIRONMENT & PUBLIC HEALTH



Heart disease, cancer and diabetes are bigger causes of death in Detroit than they are statewide or nationally.

Source: Center for Disease Control, 2010

Health starts where we live, learn, work, and play. We know that race and income contribute to health disparities, but it works the other way, too. Poor health can impair educational attainment and job opportunities. While gender, genetics, and access to health care play a contributing role in a person's health, socioeconomic status and environmental conditions are key factors. For example, Detroit's child asthma and lead poisoning rates are several times higher than the state or national rates. Asthma is a leading chronic cause of missed days for students and workers. Even low levels of lead poisoning in children have been shown in multiple studies to lower IQs, increase aggression and ADHD, and are linked to juvenile delinquency. Air pollution called PM<sub>2.5</sub> (which comes from vehicles, power plants, and other combustion activity) has been linked with mortality and heart problems. While we can take individual actions to reduce these health risks, it is our policy-makers' responsibility to make and enforce regulations that protect air, water, and land quality.





# Social Systems – Level 2



 [Dashboard](#)

 [My Competencies](#)

 [My Toolkit](#)

 [mshukla](#) ▼

[← Exit View of Competency Content](#)

## Social Systems

Using a social systems perspective, investigate global problems and develop possible solutions.

### Competency Activities

Use the Competency menu buttons to navigate through the different parts of your competency. Clicking the different buttons will reveal different competency content.



[Overview](#)



[Final Assessment](#)



[Activities](#)

**Objective 1: An Integrated Social Systems Perspective/Model** ▼

**Objective 2: Global Economic Problems and Globalization** ▼

**Objective 3: Political and Social Issues Created by Contemporary Globalization** ▼

**Objective 4: Ecological Challenges Related to Globalization** ▼



## Using Sociospatial Approach for problem solving

- ▲ Establish *physical spatial boundaries* for the example
- ▲ *Find data within these boundaries* that explains the problem (e.g. poverty rates, arrests related to human trafficking, etc).
- ▲ Describe the *people living in the place* (what are their characteristics)?
- ▲ What are the *economic conditions*?
- ▲ Create a conceptual framework
- ▲ What is at the *root of the problem* or issue?
- ▲ What are *solutions*?
- ▲ What are your *sources*?



# Sociospatial Problem Solving

## Engagement Exercise:

Please break into groups of 4-5 people

Use the sheet provided to document your answers

1. How do you define problem-solving in your course?
2. Do place and space play a role in this problem solving?
3. Please share a story of how you use spatial thinking to help your students to solve a problem.



# Social Systems-Level 2 Competency

## Competency Objectives

- ▲ 1. **Present an integrated social systems perspective/model** that can be used to study global issues.
  - ▲ 2. **Investigate global economic problems**, focusing on globalization and develop possible solutions.
  - ▲ 3. **Identify political and social issues** created by contemporary globalization and develop possible solutions.
  - ▲ 4. **Identify ecological challenges** related to globalization and develop possible solutions.
- ▲ **NOTE:** *Success in this competency hinges on creative thinking and the ability to see the interdisciplinary connections between various aspects of a problem/issue in society.*



# Social Systems

- ▲ Assessment involves a 22-25 slide social **Systems/Global Analysis Presentation**
- ▲ Enables students to learn how to approach topics with **visual** and as well as **contextual information**.

## ▲ **Problem solving requires systems thinking:**

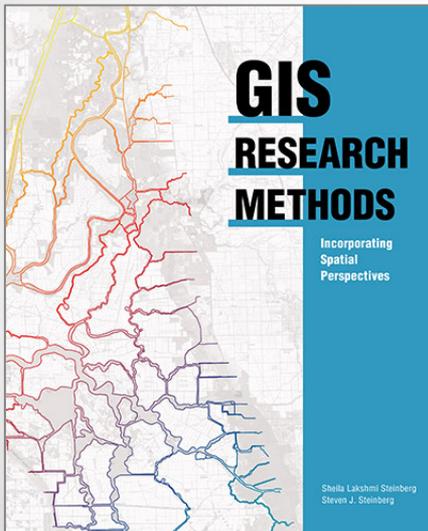
### SAMPLE PROBLEMS

E.g. How to solve the problem of hunger?

- ▲ Or poverty?
- ▲ Or human trafficking?
- ▲ Immigration/Migration?
- ▲ Environmental Inequality?
- ▲ Free Trade?
- ▲ Terrorism?



# GIS Research Methods: Incorporating Spatial Perspectives



Dr. Sheila Lakshmi Steinberg  
Professor, Social Sciences  
Brandman University – Chapman University  
System  
Irvine, California  
Email: [ssteinbe@brandman.edu](mailto:ssteinbe@brandman.edu)

Dr. Steven J. Steinberg  
Principal Scientist, SSWRP  
Costa Mesa, CA  
Email: [steves@sccwrp.org](mailto:steves@sccwrp.org)

Esri Press (2015)

**Follow on Twitter:**

[@steinbergspace](https://twitter.com/steinbergspace)





## Presenter Contact Information

▲ Dr. Sheila L. Steinberg

[ssteinbe@brandman.edu](mailto:ssteinbe@brandman.edu)



**Thank You**

**Questions?**