

## **Politics 295: GIS and Redistricting**

**<http://itl.wlu.edu/gis/2006>**

Politics 295 is a unique offering of technological instruction in the context of an important political phenomenon: the redistricting process.

As a final project, students work with current census and electoral data to develop a new State Senate district map for Virginia. Along the way, we learn how to use the ArcView GIS technology package to draw and edit district maps. As well, we engage in some basic analysis using Microsoft Excel. In addition to the lab aspects of the course, we also conduct a seminar in which we read and discuss political science literature on voting, representation and the redistricting process in the United States.

### **Administering the Course, Spring 2006**

Our primary course objective was for students to learn the many ways that politics, law, topography, demography, statistics, and personal relationships interact in an almost unimaginably complex process. Rather than simply reading the scholarly literature and case law on the subject, our aim was to make the learning process active and creative as well, with each student working to balance the multitude of considerations as they conceived and executed their own redistricting plans.

With help from the ACS Technology Fellows program, we were able to purchase two Toshiba Tecra M4 Tablet PCs. These two, along with six already purchased by the university, allowed us to give a Tablet PC to each student. This allowed each student constant access to the ArcGIS software and associated data sets. In addition, students used the “inking” capabilities of the tablets to take notes, complete homework assignments, and to make their final presentations. Student surveys of the effectiveness of this technology are included in this report.

Students were divided into two teams in which they completed and presented their final projects, a new legislative district map using multi-member districts. Our conclusion was that their ability to work very well in teams, as well as their competitive instincts, made this team approach very effective and engaging.

### **Reflections and Lessons Learned**

As a result of their intellectual and personal investment and engagement with their own plans, students enjoyed this course enormously and surpassed our expectations in how

much they learned about both the subject matter and GIS. We found that the students were quick to gain confidence with the technology, once they had a clear idea of how they would use it to complete their projects.

Our principal challenges were technological. We experienced slowness and instability when carving districts out of the highly granular Census block level data, which many students found unnerving and tedious. In addition, student teams ran into some difficulty in sharing their work, as the ArcGIS districting software was conceived as a stand-alone application, rather than a collaborative tool.

Still, software and hardware issues notwithstanding, this experimental course was a resounding success. Our students responded enthusiastically to the opportunity to address a real-world problem. Their idealism and competitive drive pushed each to strive for an outstanding solution to this important issue impacting individual liberties. They thrived in the academic setting of a politics lab, which encouraged their creativity, as did regular instructor feedback and peer collaboration, both formal and informal. Our experiences demonstrated that the right combination of intriguing, cutting-edge political analysis, combined with equally cutting-edge GIS technology, provides students with a uniquely rewarding and often intense learning experience.

**Tablet PC Pilot Project  
User Survey  
May 2006**

**Please respond to the following questions, recording your answers in one of three ways: 1.) open this document in Word and type your answers, 2.) open this document in Word or OneNote and use your stylus to write your answers in longhand or 3.) print this out and complete the questionnaire using an ink pen.**

1.) Hardware

On a scale of one to five (one being least or worst and five being most or best), how useful did you find the Tablet PC format (i.e., the stylus pen input directly onto the screen) to be? Please circle one.

1      2      3      4      **5**

*Explain:* I found having the tablets available with the stylus/one note very easy and made taking notes a lot easier in class. Also being able to have notes/readings/papers available when working on a paper easy.

2.) Software

On a scale of one to five (one being least or worst and five being most or best), how useful did you find the Tablet PC-specific software, notably OneNote? Please circle one.

1      2      3      4      **5**

*Explain:* I found one-note to be extremely helpful/easy. I plan on looking into getting a tablet P.C. for the future.

3.) On a scale of one to five (one being most difficult/time-consuming and five being most intuitive, easy, and quick), how difficult was it to become proficient using this device? Please circle one.

1      2      3      4      **5**

*Explain, making note of specific skills or insights or problems that played a role in your process of getting up and running with the Tablet PC:* I thought the P.C./software seems very intimidating at first, but then after fiddling around with the software showed how easy it was.

4.) Which features or capabilities of the Tablet PC did you find most useful in your work?

Stylus/Wireless internet/ArcGis

5.) What problems or technical glitches most frustrated you during your use of the Tablet PC?

The data sets/ArcGis were easy to crash and often froze, which made it frustrating.

6.) Would you consider making a Tablet PC your sole computer? Why or why not?

I am looking into one, I think the Stylus/One note is an incredible feature making notes easier to take. Also cutting down on the amount of notebooks/books/laptops that you have to take to class.

*Please return this survey to John Blackburn before May 24, 2006.*

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1.) Hardware

On a scale of one to five (one being least or worst and five being most or best), how useful did you find the Tablet PC format (i.e., the stylus pen input directly onto the screen) to be? Please circle one.

1    2    3    **4**    5

Explain:

It is much more easy to take notes and read PDFs on.

2.) Software

On a scale of one to five (one being least or worst and five being most or best), how useful did you find the Tablet PC-specific software, notably OneNote? Please circle one.

1    2    **3**    4    5

Explain:

Not bad, though my handwriting is still tough to recognize.

3.) On a scale of one to five (one being most difficult/time-consuming and five being most intuitive, easy, and quick), how difficult was it to become proficient using this device? Please circle one.

1    **2**    3    4    5

Explain, making note of specific skills or insights or problems that played a role in your process of getting up and running with the Tablet PC:

I picked up on it pretty quickly. The right-click function took some getting used to.

4.) Which features or capabilities of the Tablet PC did you find most useful in your work?

The ability to change orientation and read PDFs, the ability to use the cutting tool and mark things up.

5.) What problems or technical glitches most frustrated you during your use of the Tablet PC?

THE DATA SETS!!!!

*It's simply not fast enough.*

6.) Would you consider making a Tablet PC your sole computer? Why or why not?

*Yes. It offers all the advantages of a laptop plus more.*

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1      2      3      4      5

*Explain:*

My favorite part of using the stylus was for scrolling while doing the reading in Adobe. Writing in One-Note was also somewhat useful.

2.) Software

On a scale of one to five (one being least or worst and five being most or best), how useful did you find the Tablet PC-specific software, notably OneNote? Please circle one.

1      2      3      4      5

*Explain:*

I did like One-Note, but would still prefer using paper and pen to take notes.

3.) On a scale of one to five (one being most difficult/time-consuming and five being most intuitive, easy, and quick), how difficult was it to become proficient using this device? Please circle one.

1      2      3      4      5

*Explain, making note of specific skills or insights or problems that played a role in your process of getting up and running with the Tablet PC:*

I had no problems with the Tablet PC – it was easy to adapt to.

4.) Which features or capabilities of the Tablet PC did you find most useful in your work? Being able to move and fold the screen was especially useful for doing the reading.

5.) What problems or technical glitches most frustrated you during your use of the Tablet PC? ArcMap!!!!!!!!!!!!!!!!!!!!!! No Excuse.

6.) Would you consider making a Tablet PC your sole computer? Why or why not? I probably would, if I didn't already have another laptop. My only concern before buying one would be whether or not the tablet has any glitches, but from my experience with the PC, there don't seem to be any.

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*Explain:*

2.) Software

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1      2      3      4      **5**

*Explain:*

3.) On a scale of one to five (one being most difficult/time-consuming and five being most intuitive, easy, and quick), how difficult was it to become proficient using this device? Please circle one.

1      2      3      4      **5**

*Explain, making note of specific skills or insights or problems that played a role in your process of getting up and running with the Tablet PC:*

Didn't really have any problems

4.) Which features or capabilities of the Tablet PC did you find most useful in your work?  
I really liked One-Note

5.) What problems or technical glitches most frustrated you during your use of the Tablet PC?

The problem I encountered with the tablet was in classrooms on the colonnade, the desks are too small to comfortably use the tablet and have books out.

6.) Would you consider making a Tablet PC your sole computer? Why or why not?  
Probably not, because I don't spend a lot of time outside of my room working on the computer.

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1      2      3      4      5

*Explain, making note of specific skills or insights or problems that played a role in your process of getting up and running with the Tablet PC:*

4.) Which features or capabilities of the Tablet PC did you find most useful in your work?

I found the ability to rotate the screen and read documents without printing them to be the most useful function. The tablet PC would even be more useful if adobe reader allowed the user to highlight certain documents.

5.) What problems or technical glitches most frustrated you during your use of the Tablet PC? The freezing of the Tablet PC while using ArcMap was the most frustrating aspect of the Tablet PC.

6.) Would you consider making a Tablet PC your sole computer? Why or why not?  
I think the Tablet PC could function as my sole computer. It has all the functions of a normal computer plus one note which can help with taking notes in class. The battery life would need to be improved in order to use one note successful in all classrooms.

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