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Using open source software in gis training and education

Can open source be used...?

The question troubling us was “Can Open Source Software be put to good use in GIS Education and Training in our Department?”

**the short
answer is
YES!**

So far...

Up until now...

- AutoDESK AutoCAD Map 3D
- ESRI ArcGIS
- Intergraph Geomedia Professional
- Manifold
- ...



Large Installed and Client Base
Huge Support System
Wide Acceptance



Cost
Closed Architecture

The bet

Adding to the curricular circle Laboratory Sessions using Open Source GIS Software such as:

- QGIS
- uDig
- PostGIS
- GRASS
- MapGuide Open Source
- MapServer
- etc

What did we use...

In 2006 we introduced in our undergraduate “GIS Applications” course, GRASS GIS. The students were given the following choices in order to complete the Laboratory Session Exercises:

- AutoDESK AutoCAD Map 3D
- ESRI ArcGIS 9.x and
- **GRASS**

FAIL!

Most of the students used ArcGIS. A few used AutoCAD Map and none chose GRASS although the personnel responsible for the training and lab sessions were equally knowledgeable in all the software packages and were able to assist the students.

But why

What “scared” the students was the not so friendly GUI of GRASS but mostly the notion that if it is unknown in the Market then “I will not be able to get a job...”

We changed our approach and provided the students with all the available details on Open Source Software through other courses – mainly other geoinformatics related courses in order to boost up the morale when they came to take the “GIS Applications” course.

We also removed the GRASS choice from the undergraduate courses and used it in the Graduate and Postgraduate Studies Programs.

Success

During the Graduate and Postgraduate Studies Programs the students were required to use GRASS, QGIS, PostgreSQL / PostGIS in a variety of applications:

- GRASS
 - Network Analysis
 - 3D Visualization
 - Image Analysis
- QGIS
 - Thematic Mapping
 - Geocoding
 - GRASS UI Support
- PostgreSQL / PostGIS
 - Spatial Databases
 - Manage Spatial Data
 - Network Management

Success #2

After the success with the graduate and postgraduate programs Open Source Geospatial Software was reintroduced to the undergraduate program in the form of QGIS and PostGIS:

- QGIS
 - Data Viewing
 - Spatial Analysis
 - Image Transformation
 - Thematic Mapping
 - Digitization
- PostGIS
 - Spatial Database Management
 - Spatial Queries
 - Analysis
 - On the fly coordinate transformations

How was the software used?

Undergraduate Courses:

The students were required to create a GIS Application using PostGIS and QGIS, for the University:

- QGIS
 - Image Registration - Transformation
 - Vector Digitization from Raster Image
 - Spatial Data Input
 - Thematic Mapping
 - Spatial Analysis and Querying
- PostGIS
 - Spatial Database Creation
 - Spatial Queries
 - Transformation from Reference System to Reference System
 - Descriptive and Spatial Data

How was the software used?

Graduate and Postgraduate Courses:

The students were required to create GIS Applications or test various components of the proposed software:

- QGIS
 - Thematic Mapping – Symbol Creation
 - Spatial Analysis and Querying
 - Geocoding and Network Analysis
 - Various Plugins
 - Extendibility
 - GRASS Frontend
- PostGIS
 - On the fly transformations evaluation
 - LRS functions evaluation
 - Network Support evaluation
- GRASS
 - 3D Visualization (NVIZ) and Image Analysis
 - Network Analysis Support
 - Thematic Mapping

How was the software accepted?

Graduate and Postgraduate Courses:

The students reported that:

- QGIS
 - Easy to use
 - Very Friendly
 - Very Good Support
 - Very Fast and Reliable (minus some glitches)
 - Plugin Friendliness, Usability and Extendibility (extra points)
 - Excellent Frontend for GRASS (faster work results through QGIS)
- PostGIS
 - Fast
 - Stable
 - Reliable
 - Easy to use
 - Friendly GUI
 - Professional Software
- GRASS
 - Very fast and Reliable
 - Extremely well documented

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To use or not to use...

- Support from the Academic Community
- Support from the Market
- No cost to acquire
- No legal details and entanglements
- Less managerial effort
- Generally less hardware power
- No need for frequent upgrades
- Community Support (Free or Professional)
- Train the trainer

Thank you