Graduate Seminar

Department of Geodesy and Geomatics Engineering
University of New Brunswick

The Design Of A Usability Testing For A Public Participation Geographic Information System

Jianfeng Zhao

The study of Public Participation Geographic Information Systems (PPGIS) focuses on the use of GIS by non-experts and regular citizens. The general public is a very heterogeneous group of users, which requires that a PPGIS is accessible and easy to use. In this networked society, the use of Information and Communication Technologies (ICT) and Geographical Information Systems (GIS) has helped citizens to have a more active role in collaborative decision-making process. A recent review of PPGIS literature reveals, however, there is a lack of documented research on how non-expert users and general public are using PPGIS tools. Without empirical evidence, it is difficult to evaluate whether or not these advances in technologies will actually lead to increased public participation

Usability evaluation and Human-Computer Interaction (HCI) are fields of study that focus on how to make computer systems more accessible, while focusing on users needs and requirement. By applying usability analysis methods from the field of HCI, the author evaluates the usefulness, ease-of-use and the users' satisfaction with the functionality of a PPGIS prototype - GeoDF. Users' interactions with GeoDF and their comments are video-taped and analyzed at the end of the evaluation period. The preliminary evaluation shows that the users are generally satisfied with the functionality. Nonetheless, the users' acceptance of PPGIS technology is largely determined by their motivation and other human factors. The preliminary result shows that PPGIS tools can enhance citizens' participation, provided that people are already interested in a given planning issue, and the cost of using such PPGIS tools is relatively low.

Integration Of Spatial Data Sets On The Web

Edward Kowalyk

Web-Maps can be created by linking to distributed data sets. The use of linking technology to publish web maps requires the Web-GIS server to resolve discrepancies in coordinate reference. In an effort to minimize the size and complexity of Web-GIS applications many developers have implemented a limited number of transformation algorithms. As a result, users rely on best-fit solutions that may or may not meet their specific needs.

A methodology for evaluating the degree to which a Web-GIS application accurately combines data sets of differing coordinate reference is developed and presented in this paper. ArcIMS was chosen as the Web-GIS software for this trial. First, a criterion on which to evaluate the results was established. Second, test data sets were created. The test data was calculated based on Canadian Base Network (CBN) positions and software (NBGeoCalc 3.0) was used to compute equivalent coordinate values in other reference systems. Third, the data was integrated using ArcIMS software. Offsets of greater then 4.0 metres were observed and no transformation parameters were available to process ATS77 data.

The future of Web-GIS will eventually bring an environment where the sharing of information will be completed in an efficient, distributed manner. In the near term, regions, governments, and companies will continue to use different coordinate reference systems and integration of data will remain an issue. With minor refinement of Web-GIS applications, the ability to integrate geospatial data will be greatly enhanced.