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A useful workflow to compare different 2D and 3D visualizations of an alpine region

Introduction and Main goal

Nowadays, the map-designers have no evidence on which method could be easily implemented and give better results. The shortness of user testing on cartographic visualizations, either on 2D or 3D visualizations, and the need to find new easy methods to handle them are identified. The main goal of this project is to develop and provide an easy-to-handle and useful workflow for a comparative user evaluation between two different visualizations, especially a 2D map and a 3D perspective view of an alpine region.

Implementation

In the present master project, a new workflow is proposed to be implemented. The design of a 2D visualization of an alpine region, the creation of the 3D visualization of the same alpine region and the creation of polls with new formulated questions for an effective comparison between the two different visualizations are implemented. The integration of the new created modules on a website is realized for user testing each one of the two visualizations by test-users. For the conduction of map-user-tests, the created website is consisted of a map-user-test on the 2D visualization, a map-user-test on the 3D visualization and an introduction page offering the possibility to the test-users to select which visualization they want to evaluate first. The map-user-tests are conducted in the sense of a pilot-study.

Conclusions

The main goal is achieved; a new easy-to-handle and useful workflow is developed. Although the design of the 2D visualization can be easily designed by a map-designer, the 3D visualization requires expert programming skills for the integration of more functionalities. Additionally, the creation of the website and the integration of the preformed polls with the formulated questions on it are easy steps to be implemented.
Concerning to the user testing, the sample is not carefully selected and the number of the test-users is not sufficient. Therefore, the results are not really representative. The test-users gave more correct answers evaluating the 2D visualization, which may be because of the deficiencies of the 3D visualization. However, the comparative evaluation is possible even if the two visualizations are evaluated separately and the submitted answers lead to some general, but important conclusions concerning to the comparison between the two visualizations.

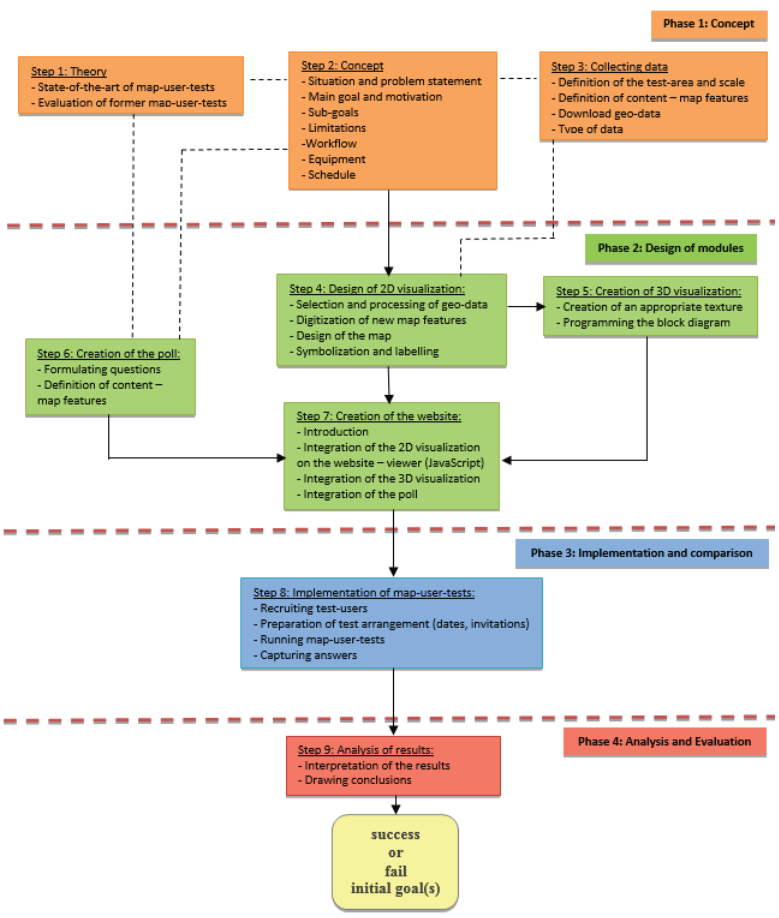

Figure 1: the new proposed schematic workflow

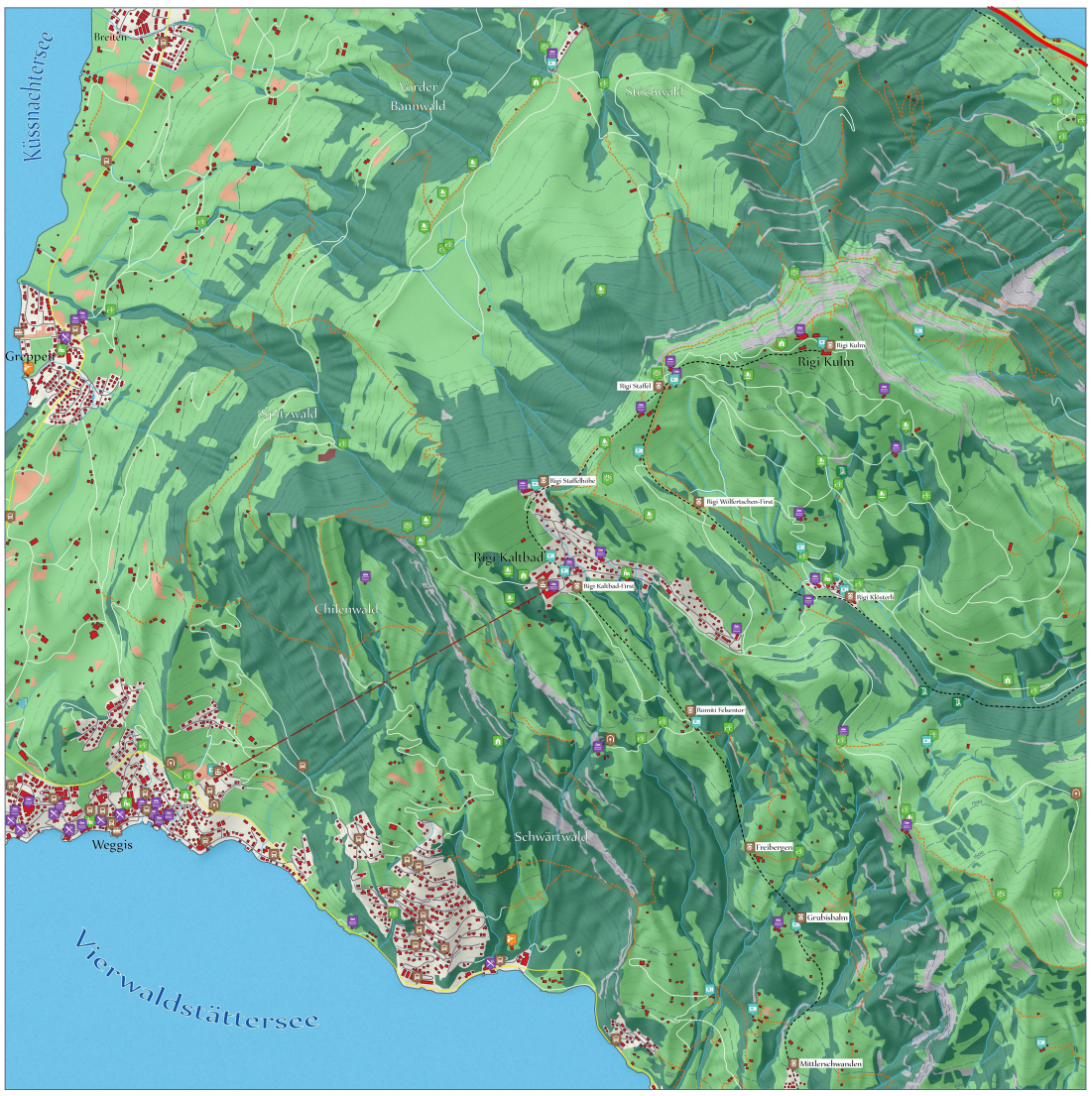

Figure 2: the 2D visualization of the region Mt.Rigi, Switzerland

Outlook

The proposed workflow is a basic skeleton and it has multiple prospects for adjustment and improvement.
Other visualizations, either 2D or 3D, may be integrated on the web-pages for their comparative evaluation. More interactivity is possible to be implemented on the 2D and 3D visualizations and the graphical user interface of the web-pages may be improved significantly. Additionally, further functionalities on the 3D visualization may be added.
Concerning to the user testing, the questionnaires may be formulated examining more specific aspects on cartographic visualizations and more optimal data collection techniques may be used for the answers' gathering. Last but not least, careful selection of the sample should be done depending on the kind of the examining subject of the map-user-tests.

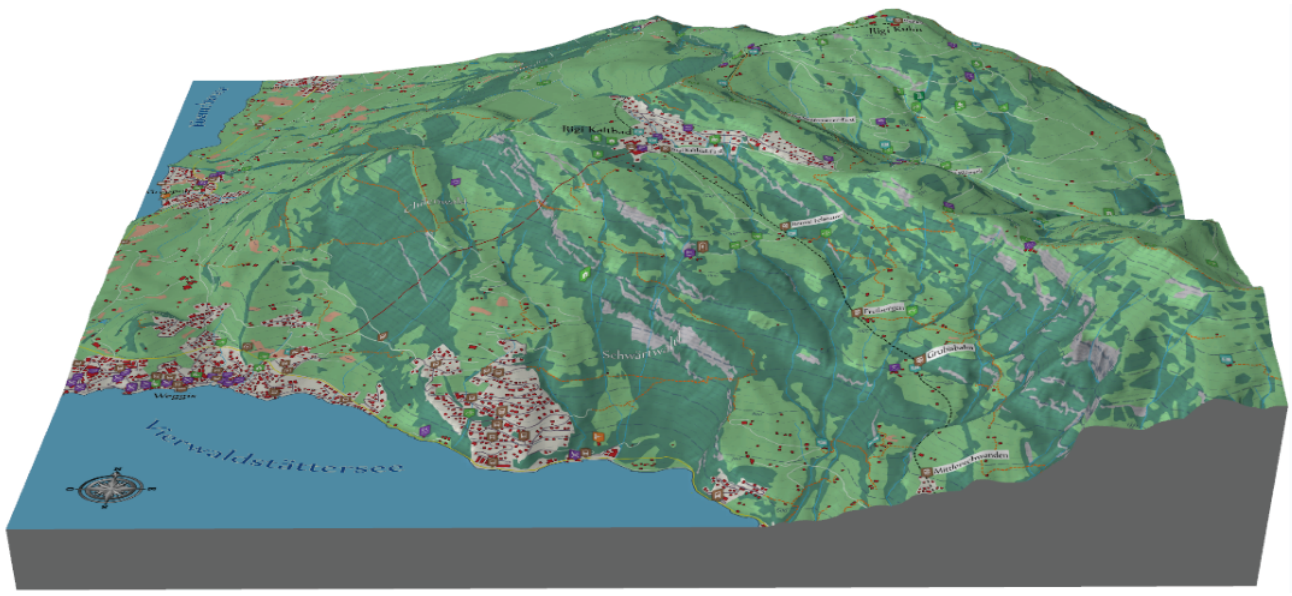

Figure 3: the 3D visualization of the region Mt.Rigi, Switzerland

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