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WHAT DO PEOPLE PREFER AND WHAT IS MORE EFFECTIVE FOR MAPS: A DECISION MAKING TEST

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Traditional paper maps maybe have been losing popularity and being less used by general audiences, since the delivery of easy available geospatial data through the internet and mobile media for an increasing number of users is a reality. Besides the massive shift from paper maps to internet and mobile applications, both digital and traditional maps support most of the expected map uses. As a consequence of the internet and ubiquitous era, maps and other visual displays are moving to a higher level of impact in daily human activities. Despite user-centered approaches which most of the time seems to be taken into account to build maps, the success of cartographic products depends on a well-done combination of meeting what user needs, what user want (and what would make its usage an enjoyable experience) and its capabilities. Since the role of intuitions and affection in map use and the relationship between these processes and effectiveness in activities supported by maps have not not been completely measured, this paper intends to bring a contribution to the discussion about the intuition of a positive correlation between subjective preference and objective performance. This debate seems to be interesting for cartography, since knowing the user is part of the map design work and the whole process of understanding the user experience with maps can enhance and extend the effectiveness of an analytical process. This can lead to map design principles which encompass the attractiveness as an important factor related to performance. In order to accomplish the objective, a series of experiments was carried out with graduation students asking them what they would prefer as a desirable type of map to use for an analytical decision-making process and then measuring their performance for this process. To ensure the experimental validity, maps were designed using a social background as theme, with analysts being asked to decide where to invest public funds, considering locations (area units corresponding to catholic parishes in a municipality) that lack of good health indicators. The same experiment was conducted first using a subset of paper maps (1st stage) and then using interactive web maps (2nd stage). Three types of subsets of thematic maps – choropleth, range-graded proportional circle and dot maps - were assigned randomly among the analysts. The subsets included maps for different years, expecting that the analytical decision would take into account the evolution of health indicators over the years. Performance related to direct – and most basic – map reading was measured by 15 True/False statements while performance about reasoning was measured by the priority ordering of parishes to receive money investments, in order to combat health problems such as children mortality. Statistical tests were applied and correlation between preference and performance for this experiment was measured. Also observations about the test were taken, based on commentaries or conversations during the experiments, in order to raise up more information about the way students dealt with the whole activity. Results for the 1st step show that there is no significant variation due to the technique used in the performance tests, and for this specific subject, there is insufficient evidence to guarantee that user's preference among map techniques can lead or is related to better performance. Also it was noted that performance decreases for reasoning related task, and this could be related to the need of a deeper analysis of data evolution through time. If the assumption is correct, this factor is supposed to be minimized by the introduction of animated maps, built for this experiment's 2nd stage. This continuation is expected to produce results related to differences between computer displays and paper maps, taking into account a discussion of their advantages and disadvantages for decision-making process supported by spatial data visualization.