

Annotated Sources

Author: Larry V. Hedges, Richard D. Laine, Rob Greenwald

Title: An Exchange: Part I: Does Money Matter? A Meta-Analysis of Studies of the Effects of Differential School Inputs on Student Outcomes

Venue(Conference, Booktitle): Educational Researcher

Year: 1994

Aim: Research on educational production functions attempts to model the relation between resource inputs and school outcomes such as educational achievement. Over the last decade a series of influential reviews of this literature have suggested that there is no systematic relation between resource inputs and school outcomes when controlling for student characteristics such as socioeconomic status. The inference procedure used in these reviews, vote counting, is known to be problematic. This study is a reanalysis of data from these earlier reviews, using more sophisticated synthesis methods. It shows systematic positive relations between resource inputs and school outcomes.

Conclusion: Analysis with more powerful analytic methods suggests strong support for at least some positive effects of resource inputs and little support for the existence of negative effects. Effect magnitude analyses suggest that these effects are large enough to be of real importance. Moreover, these findings seem to be robust against obvious threats to their validity. While the pattern effect sizes is most persuasive for global resource variables, the median effects are positive for most resource variables, with the clear exception of teacher education.

How does what they're saying inform how we design interventions / feedback for people?

We know more about the relationship between economy and education from this paper, which will help us make some deeper analysis.

Author: Gennady L. Andrienko, Natalia V. Andrienko

Title: Interactive maps for visual data exploration

Venue(Conference, Booktitle): International Journal of Geographical Information Science

Year: 2010

Aim: Descartes is a software system designed to support visual exploration of spatially referenced data, e.g. demographic, economical, or cultural information about geographical objects or locations such as countries, districts, or cities. Descartes offers two integrated services: automated presentation of data on maps, and facilities to interactively manipulate these maps. Automated mapping is enabled by incorporating generic knowledge on map design into the system. Exploratory data analysis requires highly interactive, dynamic data displays. They strive to develop various interactive techniques for map manipulation that could enhance the expressiveness of maps and thus promote data exploration. They are convinced that a technique can be made especially productive if it is directed towards a particular presentation method: it can utilize peculiarities of this method and support those analytical operations that best fit to the method.

Conclusion: Map authors have always been struggling to increase map expressiveness. For this purpose, such expedients as various colour schemes, classification strategies, non-linear encoding functions, etc. were developed. However, in static presentations the use of these practical aids often results in partial loss of information, distorted perception, or/and imposing some pre-interpretation of source data. Dynamic, interactive displays allow users to achieve necessary expressiveness without significant sacrifices, and may neutralize undesirable consequences.

How does what they're saying inform how we design interventions / feedback for people?

This paper inspired us to make a Choropleth map with interaction which can show more information and details to the audience.

Author: Ann SloanDevlin, Jason Bernstein

Title: Interactive way-finding: Map style and effectiveness

Venue(Conference, Booktitle): Journal of Environmental Psychology

Year:1997

Aim: Within psychology and other disciplines, the study of way-finding, or how humans navigate from an origin to a destination, has produced a variety of approaches. The advent of computer-based formats for way-finding has stimulated research about the effectiveness of navigational information that is presented via computer simulation and interactive means. From both a theoretical and practical standpoint, there is concern with the comparability of map versus real-time environmental experiences as a form of environmental learning. It is important to investigate how to present effectively dynamic information.

Conclusion: Only miscellaneous information was varied in the high vs low detail conditions. Varying this kind of additional information does not seem to affect the way-finding variables assessed in this study. Rather, it seems that presenting locations keyed by number, requiring additional steps in locating a particular site, may impede the speed of that process. Designers of maps for tourist attractions may want to consider incorporating label names within the body of the map to the extent it is possible.

How does what they're saying inform how we design interventions / feedback for people?

This paper inspired us to make a Choropleth map with interaction which can show more information and details to the audience.

Author: George Robertson, Roland Fernandez, Danyel Fisher, Bongshin Lee, John Stasko

Title: Effectiveness of Animation in Trend Visualization

Venue(Conference, Booktitle): IEEE Transactions on Visualization and Computer Graphics

Year: 2008

Aim: Animation has been used to show trends in multi-dimensional data. This technique has recently gained new prominence for presentations. The paper evaluates the three visualizations for both analysis and presentation and try to compare them.

Conclusion: Trend animation may be successful in presentations in practice. However, in this study, users appeared to find the movement confusing, even when guided. Presenters showing animated data should strongly consider ensuring that their data tells a clean story: this can be confused by having too many data points, by data points that reverse their tracks over time, or by having points that do not move in synchrony.

How does what they're saying inform how we design interventions / feedback for people?

We know that we shouldn't use too much animation which may affect our project.

Author: C.G. Healey

Title: Choosing effective colours for data visualization

Venue(Conference, Booktitle): Proceedings of Seventh Annual IEEE Visualization '96

Year:2009

Aim: Thier goal is a systematic method for maximizing the total number of colours available for use, while still allowing an observer to rapidly and accurately search a display for any one of the given colours.

Conclusion: In the process of color selection, they achieve this by controlling color distance, color linear separation and color category similarity. They found that a single, equally bright slice in a display's color gamut can produce up to seven different colors, any of which can be quickly and accurately determined even in the presence of all the other colors. Each color requires minimum color distance, linear separation, and color classification to ensure good performance. In their study, the perceived intensity of each color remained constant to eliminate the possibility of visual interference. Perhaps by controlling the brightness we can increase the number of colors we can display at the same time.

How does what they're saying inform how we design interventions / feedback for people?

Help us select appropriate colors to make our website look more aesthetic and give audience a better experience.

Author: Weiwei Cui, Xiting Wang, Shixia Liu, Nathalie H. Riche, Tara M. Madhyastha, Kwan Liu Ma, Baining Guo

Title: Let It Flow: A Static Method for Exploring Dynamic Graphs

Venue(Conference, Booktitle): 2014 IEEE Pacific Visualization Symposium

Year: 2014

Aim: Research into social network analysis has shown that graph metrics, such as degree and closeness, are often used to summarize structural changes in a dynamic graph. However there have been few visual analytics approaches that have been proposed to help analysts study graph evolutions in the context of graph metrics. They present a novel approach, called GraphFlow, to visualize dynamic graphs. In contrast to previous approaches that provide users with an animated visualization, GraphFlow offers a static flow visualization that summarizes the graph metrics of the entire graph and its evolution over time.

Conclusion: In this paper, they addressed the problem of exploring a dynamic graph with a static method. Accordingly, they introduced a novel flow-based visualization design for summarizing high-level evolution patterns in a dynamic graph. The key idea is to convey changes in the structure of a graph through the evolution of a number of graph metrics computed on its nodes/edges. Although we used degree and closeness as examples throughout this paper, GraphFlow does not depend on any particular graph metrics. Other metrics, such as cluster coefficient and triangle number, can also be directly applied in their system.

How does what they're saying inform how we design interventions / feedback for people?

We learned more about dynamic data.

Author: F. van Ham, H. van de Wetering, J.J. van Wijk

Title: Interactive visualization of state transition systems

Venue(Conference, Booktitle): IEEE Transactions on Visualization and Computer Graphics

Year: 2002

AIM: A new method for the visualization of state transition systems is presented. Visual information is reduced by clustering nodes, forming a tree structure of related clusters. This structure is visualized in three dimensions with concepts from cone trees and emphasis on symmetry. A number of interactive options are provided as well, allowing the user to superimpose detail information on this tree structure. The resulting visualization enables the user to relate features in the visualization of the state transition graph to semantic concepts in the corresponding process and vice versa.

Conclusion: The proposed interactive options allow quick access to detail information on demand. Although this method performs well for large graphs (up to approximately one million nodes) with fairly low connectivity, clusters in highly connected graphs tend to become too large, resulting in a less effective overview.

How does what they're saying inform how we design interventions / feedback for people?

We learn more about interaction which can help us choose a better way interact with audience.

Author: Alan MacEachren, John Krygler

Title: Animation and the Role of Map Design in Scientific Visualization

Venue(Conference, Booktitle): Cartography and Geographic Information Science

Year: 1992

Aim: Scientists visualize data for a range of purposes, from exploring unfamiliar data sets to communicating insights revealed by visual analyses. As the supply of numerical environmental data has increased, so has the need for effective visual methods, especially for exploratory data analysis. Map animation is particularly attractive to earth system scientists who typically study large spatio-temporal data sets. In addition to the "visual variables" of static maps, animated maps are composed of three basic design elements or "dynamic variables"—scene duration, rate of change between scenes, and scene order.

Conclusion: Visualization provides cartographers with an opportunity to play a creative role in the “grand challenge” of global change research. Cartographers’ ability to express data and concepts in multiple complementary forms will be more valuable than suggestions on how to select a single optimal form. Map animation can be used to visualize spatio-temporal data in both realistic and abstract form.

How does what they're saying inform how we design interventions / feedback for people?

This paper told us how can animation improve our data visualization and presentation. In combination with static maps, graphs, diagrams, images, and sound, animation enhances analysts' ability to express data in a variety of complementary forms.

Author: Walt Haney

Title: The Myth of the Texas Miracle in Education

Venue (Conference, Booktitle): education policy analysis archives

Year: 2004

Aim: Analyse the education aspect of the Texas. Find out the reason that the state of Texas had made near miraculous progress in reducing dropouts and increasing achievement.

Conclusion: Not only focus on the NAEP to improve the grades, the dramatic gains apparent also by results of other testing programs and quite apart from test scores, surely one of the main outcomes of pre-collegiate education is how many students finish and graduate from high school. By this measure of success, surely the Texas system of education is a miracle.

How does what they're saying inform how we design interventions for people?

Due to high education performance of the Texas, try to find some relation between education and other factors, including economy.

Author: Audrey Amrein-Beardsley David C. Berliner Arizona State University

Title: Re-analysis of NAEP Math and Reading Scores in States with and without High-stakes Tests: Response to Rosenshine

Venue (Conference, Booktitle): education policy analysis archives

Year: 2003

Aim: find the relation between high-stakes tests do or do not improve academic achievement.

Conclusion: The extent to which states with high-stakes tests outperform states without high-stakes tests is, at best, indeterminable.

How does what they're saying inform how we design interventions for people?

Here we address the criticism of our NAEP analyses by them. On the basis of his thoughtful critique we redid some of the analyses on which he focused. Our findings are consistent with his. Understanding of the relationship between high-stakes testing and classroom practice by identifying contradictory trends.

Author: Audrey Amrein-Beardsley David C. Berliner Arizona State University

Title: Re-analysis of NAEP Math and Reading Scores in States with and without High-stakes Tests: Response to Rosenshine

Venue (Conference, Booktitle): education policy analysis archives

Year: 2003

Aim: find the relation between high-stakes tests do or do not improve academic achievement.

Conclusion: The extent to which states with high-stakes tests outperform states without high-stakes tests is, at best, indeterminable.

Conclusion: Half part of ELL students are behind in math and half part are behind in reading when compared with their white counterparts. The report also compares scores for ELL students to those of black and Hispanics students and finds smaller but still substantial gaps.

How does what they're saying inform how we design interventions for people?

Here we address the criticism of our NAEP analyses by them. On the basis of his thoughtful critique we redid some of the analyses on which he focused. Our findings are consistent with his. A test is high-stakes when its results are used to make important decisions that affect students, teachers, administrators, communities, schools, and districts.

Author: Linda McSpadden McNeil Eileen Coppola Judy Radigan Julian Vasquez Heilig

Title: Avoidable Losses: High-Stakes Accountability and the Dropout Crisis¹

Venue (Conference, Booktitle): education policy analysis archives

Year: 2008

Aim: Analyse the accountability policy in operation in high-poverty high schools in a major urban district under standardized, high-stakes test-based accountability education system.

Conclusion: A direct effect of high-stakes accountability is the loss of thousands of youth, particularly students of color, from our public schools. And, leaver codes, another official policy component, obscures the scale of these losses.

How does what they're saying inform how we design interventions for people?

Understand the high-stakes test-based accountability education system in our conclusion. Understand this policy to analyse the result of our own project. In very specific terms, highstakes tests are a part of a policy design that "links the score on one set of standardized tests to grade promotion, high school graduation.

Author: Jing Miao Walt Haney

Title: High School Graduation Rates: Alternative Methods and Implications

Venue (Conference, Booktitle): education policy analysis archives

Year: 2004

Aim: Compares graduation rate estimates yielded from alternative methods, and estimates discrepancies between alternative results at national, state, and state ethnic group levels.

Conclusion: (1) five of the six methods yield reliable results and similar trends, yet differences in the graduation rate due to estimation methods are substantial at times; and (2) the Greene method, despite its conceptual advantages, yields empirically unstable results at the national level.

How does what they're saying inform how we design interventions for people?

Due to the Range of State Estimate and Mean State Estimate data support our project theme, that the huge education difference does exist in the U.S.A.

Author: John Robert Warren

Title: State-Level High School Completion Rates: Concepts, Measures, and Trends¹

Venue (Conference, Booktitle): education policy analysis archives

Year: 2005

Aim: Develop a state-level measure of the rate at which incoming 9th grade students complete public high school by obtaining a state-certified diploma

Conclusion: Review state-level measures of high school completion rates and describe and validate a new measure that reports these rates for 1975 through 2002.

How does what they're saying inform how we design interventions for people?

Have some background information on how to find the appropriate parameter to measure education level. The state-level high school completion measures the rate at which people earn any secondary education credential consistent with the rate at which people succeed in obtaining a public high school diploma or not. The goal of education is to be succeed.

Author: Henry Braun

Title: Reconsidering the Impact of High-stakes Testing

Venue (Conference, Booktitle): education policy analysis archives

Year: 2004

Aim: Find that contributions of High-stakes Testing to increasing test scores and, more importantly, to improving student learning.

Conclusion: For each grade, when we examine the relative gains of states over the period, we find that the comparisons strongly favor the high-stakes testing states.

How does what they're saying inform how we design interventions for people?
Understand the background information of high-stakes test-based accountability education system performance. This test-driven curriculum and teachercentered instruction good for students, grades in general.