



## CPS Paper

### Teaching Statistics for Social Good: conceptions, resources and assessment

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#### Presentation File

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#### Brief Description

The paper presents a conceptual framework to describe the knowledge needed to comprehend and critically evaluate societal issues.

It offers an overview of extensive teaching resources based on dynamic visualisation tools and open-source software packages, and offers tools for exploring the alignment of curriculum intentions, classroom teaching practices, and assessment methods.

See Ridgway, J.(ed.).

(2023).

Statistics for Empowerment and Social Engagement: teaching civic statistics to develop informed citizens.

Springer.

#### Abstract

Evidence about social issues is provided to the public in a wide variety of ways, and a great deal of data is accessible both as aggregated summaries and as individual records. However, for many people this evidence is inaccessible and/or incomprehensible. A major focus of 'statistical literacy' has been to increase public knowledge about fundamental statistical ideas, such as variation, relative versus absolute size, and so on. Statistical literacy has enjoyed widespread advocacy, and a stream of well-crafted popular books have been published which highlight common misconceptions, accidental and (sometimes) deliberate media misrepresentations, along with heuristics for everywoman (and man).

Increasing statistical literacy is an honourable goal. However, many conceptions of statistical literacy fall short of what citizens actually need to function effectively in modern societies – in part, because they emphasise passive critique of the information presented, rather than active engagement. Citizens do need to acquire sophisticated skills in deconstructing arguments and evidence presented in the media. However, they also need to develop skills in accessing and exploring evidence, and in the construction and critique of rival accounts of phenomena for themselves. Such skills include knowing about, and being able to access, high-quality sources of data (e.g. from the OECD, Our World in Data) and critique (such as fact checking organisations). Requisite skills include creating clear descriptions of 'what is', and both constructing and critiquing (informal) models of causality, and 'what if' and 'what if not' scenarios. Few contemporary curricula are designed to develop such skills.

This paper sets out the rationale for, and resources to support, Civic Statistics. Civic Statistics sets out to engage with, and overcome well documented and long-standing problems in teaching quantitative skills. Concepts and teaching ideas (for tertiary and high school instruction) are discussed, based on a long-standing collaboration between an international group of experts from ten countries. The core idea is to promote and improve the critical understanding of quantitative evidence by engaging students with contemporary burning social issues – such as epidemics, climate change, poverty, migration, natural disasters, inequality, employment, and racism.

Effective citizen engagement with social issues requires active participation and a broad understanding of data and statistics about societal issues. However, many statistics curricula are not designed to teach relevant skills nor to improve learners' statistical literacy. The paper presents a conceptual framework to describe the knowledge needed to comprehend and critically evaluate societal issues. It offers an overview of extensive teaching resources based on dynamic visualisation tools and open-source software packages, and offers tools for exploring the alignment of curriculum intentions, classroom teaching practices, and assessment methods.

Ridgway, J.(ed.). (2023). Statistics for Empowerment and Social Engagement: teaching civic statistics to develop informed citizens. Springer. [ISI - International Statistical Institute](#)  
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