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*From Data to Canvas: Integrating Art and Science to
Address Social Stratification and Inequality*

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1. Introduction

Leaders in the scientific community are urging scientists to actively engage with the public, aiming to strengthen the relationship between science and society (Dudo and Beasly, 2016). One way to foster that relationship is to improve the scientific communication skills among scientists so the general public can understand better what how public money is used, the importance of investing in research and innovation and to combat disinformation about critical issues we are facing.

Data Visualization (DV) is the process of creating visual representations of information, which has been crucial for communicating scientific discoveries and understanding phenomena. Traditionally, DV has transformed abstract data into visual forms using elements like shapes, colors, and textures to facilitate comprehension by both specialized and general audiences. It's a formal "construction of meaning" (Legrady & Forbes, 2017).

Since the 1990s, DV has increasingly intersected with artistic practices, shifting its primary function towards aesthetic exploration. This hybridization has led to a distinction between "Functional Information Visualization" (FIV) and "Aesthetic Information Visualization" (AIV). FIV aims to reveal patterns in data for easy and quick understanding, while AIV seeks to evoke an emotional response, prioritizing visual appeal over quick data interpretation (Gaviria, 2008). This way of using data can be merged into the interaction of Art and Science (SciArt). The rapprochement of art and science started early in the twentieth century and took form in the 1950s and 60s, giving rise to many cross-overs from art to science (Eeckels, 2017). Today, the European Commission (EC) is encouraging this interaction. For instance, the SciArt Strategy Report investigates the SciArt movement from various points of view, artistic, scientific and epistemological (Eeckels, 2017). The EC acknowledges that SciArt can be a very powerful tool to develop public policies with the interactions of scientists, artists and society (Austen, 2023). Art residencies such as the S+T+ARTS residencies are a good example, although it didn't address sociological data.

On the other hand, it is well known that SciArt initiatives have preeminently used hard and natural sciences data while it remains less common with social sciences data. Within social stratification and inequality, only a few examples have been explored, even less so when addressing more specialized sub-disciplines such as intergenerational social mobility research. Social mobility examines how an individual's social position is affected by family background and the opportunities for moving up or down the social ladder in comparison to their parents.

Social mobility indicators and parameters, such as odds ratios, measure the likelihood of movement between social classes over time. These indicators can reveal periods of greater social fluidity, where opportunities for movement between classes were more equitable.
The metaphor of a 'social lift' is often used to describe social mobility, but it's overly simplistic. The reality is more nuanced, with complex patterns of movement between social classes, across generations and among countries, that require sophisticated visualization methods to accurately represent the data.

The visualization of social mobility data has not evolved significantly since the early works of sociologists like Robert Erikson and John H. Goldthorpe (Erikson and Goldthorpe, 1992). Their attempts to represent the relative probabilities of mobility between classes highlighted the complexity of the phenomenon but lacked a dynamic element. Modern DV techniques offer the potential to create more dynamic and insightful representations of social mobility, reflecting the intricate ways in which people move within the social structure across generations.

2. Evidencies

The increasing complexity of statistical techniques has made it challenging to communicate and educate students and society about these results effectively. This complexity has also led to a disconnect between these specialized academic forums and society around a topic of crucial consequences.

In order to bridge the gap between academia and general public, we developed the STRAT-ART initiative, using cutting-edge DV and SciArt proposals.

Different Proof-of-Concepts (PoCs) were developed to compare intergenerational social mobility data between countries and genders: STRAT-ART Generative, STRAT-ART 3D and STRAT-ART Circle. All of them are being used to further develop a prototype. The PoCs were developed in collaboration with 3D motion designer and artist Teresa Rofer, and the Director of the Visualization Lab of the University of Amsterdam, Dr. Rob Belleman, along with the BSc Information Science student Jelmer Kuijt.

For instance, the STRAT-ART 3D PoC can be seen in the following link: https://youtu.be/hFw4w4na5agc

3. Recommendations

Based on the experiences and reviewed literature, some recommendations for policy makers can be done when addressing the possibilities of the Art and Science collaboration within the social stratification research field:

- **Promote Interdisciplinary Collaboration**. Encourage joint projects between artists, scientists, and policymakers. Establish artist residencies in scientific institutions and projects such as INCASI2.
- **Evaluate Impact.** Develop new evaluation methods for long-term impacts. Conduct different ways of measuring the impact of SciArt initiatives with social stratification and inequality data, including scientific experiments to test the usability and acceptability of such initiatives.
- **Enhance Communication**. Use art to make complex data accessible and raise awareness of the topics. Publish and disseminate SciArt results out of the ordinary academic mediums and forums such as exhibitions, art fairs and side events in scientific conferences.
- **Support Transdisciplinary Projects**. Fund initiatives integrating multiple disciplines. Create specific funding schemes for Art and Science collaborative projects with social stratification and inequality data.
- **Facilitate Dialogue**. Organize events for artists, scientists, and policymakers. Engage policymakers as active participants in art-science projects.

4. Conclusion

In the age of big data and open science, the intersection of art, science, and policymaking offers a unique opportunity to enhance public understanding and engagement with critical social issues.

Policymakers and researchers must collaborate to develop innovative communication strategies, support interdisciplinary projects with artists, and evaluate long-term impacts. By fostering these connections, we can create more effective and inclusive policies that address social stratification and inequality.

5. Referencies

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