Exploring the Integration of Data Visualisation Through Self-Quantification: Insights from School Education

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The article explores the integration of data visualization in school education through the lens of self-quantification, emphasizing its dual role as both a *product* (e.g., visual representations) and a *process* (e.g., exploratory data analysis) (Arcavi, 2003). We highlight the potential of big data and self-tracking technologies (e.g., wearable devices) to engage students with real-time, personal data, fostering deeper statistical reasoning. However, challenges such as interdisciplinary curriculum demands, teacher preparedness, and the complexity of real-world data hinder effective implementation.

A framework for data visualization is proposed, distinguishing between presentation-focused graphics (for communication) and exploratory graphics (for analysis). The article underscores the need for curricula to incorporate non-traditional data (e.g., image data) and dynamic visualization tools, moving beyond conventional graphs. Self-quantification (Maltseva & Lutz, 2018), whether through digital or manual methods, is presented as an authentic context for students to collect, analyse, and visualize data, bridging theory and practice.

A practical example illustrates how students can explore interpersonal connections by tracking and visualizing personal data, emphasizing the iterative nature of data science. The authors call for further research, teacher training, and curriculum development to fully leverage data visualization's educational potential, advocating for a balance between technical skills and critical engagement with data in K-12 education.

References

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