DataPBL: Contextualizing Data Education via Project-Based Learning

OVERVIEW

How can we ensure that learners gain sufficient "data acumen" to be equipped for life and work in a world steeped in data, and how can we help them build positive identities toward work with data? Learners need opportunities to develop agency and acumen in using data as a means of understanding and addressing relevant societal issues. The DataPBL project seeks to provide these opportunities through partnership with middle school teachers who embed data practices into their existing PBL-based disciplinary content.

YEAR 1 STORY

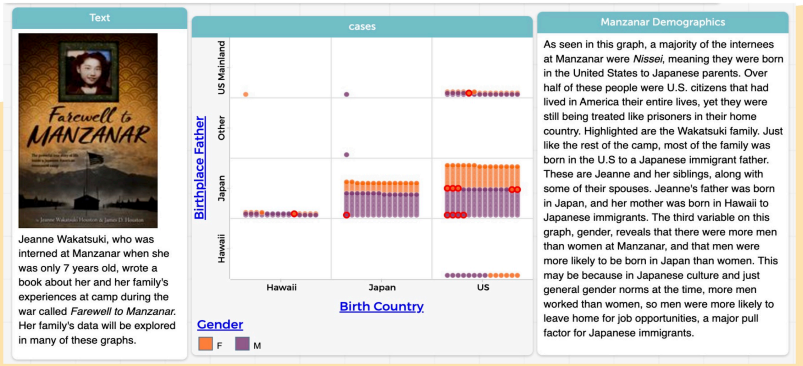
Implementation at two schools (NYC and Columbus) in three modules co-designed with teachers (8th grade social studies: **Immigration and who gets to be an American?**; 8th grade ELA and social studies: **Incarceration and racial identity**; 7th grade science: **Epidemics, vaccination, and public health**)

- The two schools had different structures of support and the three teachers had different comfort levels and approaches to data integration.
- Just-in-time on-the-ground support for teachers was vital to development of comfort and efficacy, and more is needed to grow that.
- The social studies teachers struggled with how to teach the "math."
- Student engagement with CODAP (Common Online Data Analysis Platform) was high and resulted in development of data skills.
- Students and teachers expanded their view of what counts as data and how and when data can be used.

"I learned that data could actually be helpful. Before I thought data was like percentages or something, but now I see it more as diverse information." — 8th Grade Social Studies Student

"It influenced students' ideas about what it means to grow up in certain countries. Most kids are first or second generation, so I think it helps them get a better understanding of the why. When you look at the data, it's like, oh, yeah, it's a big difference, like that's 15 years of life expectancy." — 7th Grade Science Teacher

"At first it was just a tech thing. But then, once I felt a lot more confident with that, it is also knowing how to teach the graphing skills. I do not know the pedagogical content knowledge to teach students some of those math skills." — 8th Grade Social Studies Teacher



RESEARCH QUESTIONS

1. How can teachers integrate data practices into interdisciplinary project-based learning curriculum modules?
2. In implementations of the DataPBL curriculum, what interdisciplinary data practices do students participate in, and under what conditions?
3. Under what conditions do students manifest agency in the course of their data-infused PBL?
4. How do aspects of the experienced projects contribute to developing positive identities for students related to data?

DATA SOURCES

Student exit tickets and final products, student post-intervention surveys and focus group interviews, teacher reflections, planning and implementation materials, and post-implementation interviews.

CHALLENGES & REFLECTIONS

How do we balance...

- PBL, interdisciplinary, and data science within the existing curriculum needs?
- Existing teacher knowledge and data fluency skills within a co-design framework?
- Data practices, agency, and identity within student experiences?

How do we support teachers to become leaders and masters of CODAP and data fluency in their community?

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