

organized by

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## Workshop Summary

### *Introduction.*

This workshop brought together researchers and practitioners to develop Open Educational Resources (OER) with a focus on impactful applications that can be incorporated in a multitude of mathematics courses. Morning lectures covered topics such as authoring OER using PreTeXt, using GitHub to support collaborative authoring, open licenses, and surveys of existing social justice-focused OER materials.

### *Working Groups.*

Many projects were proposed and many participants brought projects that they were currently working on to the workshop. During our workshop, we had approximately eight groups meeting throughout the week. A summary of the six most active groups is given below.

*Data 4 Justice.* This group focused on the design and dissemination of the QSIDE course Data4Justice (D4J, <https://qsideinstitute.org/data4justice-curriculum/>), an introductory course in justice-oriented data science, as well as other participants' courses and textbooks. We began by reviewing appropriate topics for such a course. We discussed how the various materials (D4J and other participant materials) could be adapted to different audiences and contexts, such as undergraduate curricula (in data science, statistics, or general education), professional development for faculty, or capacity-building for nonprofit and community-based organizations. We also examined logistical and technical considerations for open educational resources. These discussions included intellectual property and licensing issues as well as strategies for making the course electronically shareable and remixable. We explored tools such as R Markdown and the Canvas LMS, and discussed the possibility of LTI integration to support platform interoperability. We also reviewed Nathan Alexander's Critical Statistics course as an excellent model of a justice-focused resource. Finally, we began exploring offering D4J at two potential partner institutions, and a preliminary discussion about how we might partner between/among various offerings to help build a network of materials related to data science/math/stat social justice curricula.

*Quantitative Reasoning for Social Justice.* This working group worked on improving the active learning open source PreTeXt book <https://mathforsocialjusticeoer.github.io/QR4SJ/Quantitative> Reasoning for Social Justice. We found data sources for students to explore and created a series of activities that students could work through in class in order to understand the mathematics of data and the issues transgender individuals are facing in America today. The activities would have students explore data visualization choices that were made by the data source authors. Students would also reframe the data in other visualizations in order to understand the issue from different perspectives. Work is continuing on the book and much of what we worked on has been translated to PreTeXt. We are also discussing how it will be

used in the spring and how we can partner with the Making the Case team to measure the impact of using Social justice and real world topics in a quantitative reasoning classroom.

*Math for Democracy.* The Math for Democracy Team had a very productive workshop. A team member arrived at the workshop with a semester's worth of Guided Lecture Notes, previously prepared in LaTeX; the group uploaded them to GitHub and converted Chapter 1 to PreTeXt. Much of our productive time was spent learning the ins and outs of GitHub, how to work with multiple authors, and some subtleties with the different environments in PreTeXt. In the future, team members will be working with students to write Stack problems that will allow students to receive immediate feedback on their work. A follow-up meeting of the group was held in August, during which a schedule was set to create a complete draft of the first chapter as well as review of subsequent chapters of the lecture notes.

*OER&SJ Home.* We spent time initially scoping out the focus of the community and its needs. We discussed that digital communities need several pathways in which to engage. We also discussed the current digital communities that already exist in this space and how to leverage them. Next we focused on OER sharing for authors and potential adopters. We engaged Sam Donovan and Drew Lamar from QUBESHub, who manage a STEM OER repository with strong ties to mathematics and biology in particular. AIM workshops and Research Communities have used their group infrastructure for collaboration and MMHub and SIMIODE have used it for OER publishing. We decided to create a group - <https://qubeshub.org/community/groups/math4impactMath4Impact> on the QUBESHub platform—mostly to connect math OER creators to potential adopters. For textbook projects, we piloted the use of a group around a textbook (the QR4SJ book described above) as an exemplar, then connected it to the broader Math4Impact page. This would also allow those using the QR4SJ book to contribute their customized texts and ancillaries. Sam Hansen will follow up by creating some materials for how to post OER on QUBESHub. Future collaborations between the PreTeXt community and QUBES were identified so that snapshots of PreTeXt books could be more easily published as OER on QUBES.

*Elevating Quantitative Reasoning as a Lever for Student Success.* Quantitative Reasoning is unlike other introductory mathematics courses in that it lacks both uniformity (different courses with the same name cover wildly different material) and legitimacy (too many view it as a non-rigorous course). This group laid plans for a convening to elevate the status of QR courses, with the goal of getting more non-STEM students out of dead-end, inappropriate College Algebra courses, thereby improving student success and graduation rates.

*Making the Case.* In the Making the Case working group we focused on two mini projects. The first project was about having assessment instruments that teachers can use when implementing social justice and real life modules into their curriculum. These rubrics would not be focused on grades but on how mathematics can be used in real world scenarios. The second project focused on how we can advertise to the broader mathematical community in bringing more social justice curricula into the mathematics classroom. The group continues to meet biweekly, and the team working on the QR4SJ OER will implement the results of the first project when they test out their modules in the classroom next spring.