



Science Librarianship and Social Justice: Part One Foundational Concepts

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Introduction

Why are we writing this column?

As a broader awareness of, interest in, and a professional desire (and often a personal desire) for a more equitable, accessible and just world increases, some in the sciences struggle to incorporate these social developments into their research and teaching. Science librarianship can be similarly removed from this discourse. This column series aims to open a dialog around equity, diversity, and inclusion (EDI) concepts, definitions, and examples in both library and science contexts to work toward bridging this gap. [EDI Resources: [ALA](#), [ACRL](#), [SLA](#), [STS](#)]

Each column will address around ten to fifteen concepts, and the next column will build upon the last, in order to break up the concepts into cognitive chunks for easier digestion and scaffold them from foundational to increasingly complex and nuanced terms. The goals of the columns will be

- To engage readers in a meaningful and intentional conversation around EDI and ask them to reflect on their own practices
- To expose readers to scaffolded social justice concepts as pertinent to serving and teaching people of diverse backgrounds
- To demonstrate the relevance of social justice concepts by providing examples of how they intersect with science librarianship

As a group of five librarians from different institutions, there is no single positionality statement that could cover all of us. That said, the work behind these columns is driven at least in part because of our identities and lived experiences including non-binary, Latina, Black, White, queer, and autistic librarians. We have come together as a group with diverse positionality to bring conversations about justice to the forefront of science librarianship.

Who is our target audience?

Those who may read this article and these concepts can come from a variety of backgrounds and various levels of familiarity. We begin with some essential, foundational concepts that may be broadly familiar to most academic science librarians. In order to traverse the pathway to more complex concepts, we must have these fundamental concepts firmly established. The goal of this work is to build the pillars of the bridge that will connect science librarians' perceptions of their community to a more rich, nuanced, personal view that will ultimately change the librarians' interactions with them.

Why did we choose these concepts?

This series of columns is intended to provide the reader with an entry point into social justice terminology and concepts by defining them within the context of librarianship and science. The concepts we chose to begin with are foundational, in that they need to be understood before engagement with more complex social justice concepts.

The authors have written definitions that highlight some of the complex and sometimes contradictory nuances that these concepts are framed within and around. How one person experiences and understands a concept may not be the same as another. These concepts are defined in the context of social justice; they are meant to be conversational and understandable rather than formal, clinical or comprehensive definitions. The structure of this column is to have a definition, followed by a library example and a science example. They will look like the following:

Social Justice

A broadly encompassing term used to collect a variety of ideas and actions that work towards bringing justice to communities and people who are otherwise treated unjustly. Also used to describe the struggle to create, through advocacy, education, and activism, a society that is truly just and equitable.

Library Example: Librarians at an institution that serves primarily low-income and first generation students participated in an equity and inclusion seminar. After the workshop they began to think intentionally about affordability and access to

academic resources in order to support student success. They began advocating for an administratively funded Open Education Resources (OER) Program, in response to students' continued requests to borrow expensive textbooks and find open software alternatives. Through marketing and student ambassadors, the librarians advocated for the campus community to consider the value of these alternatives when selecting course materials.

Science Example: When she realized there was only one person of color among her coworkers in the Biology department, Natalie decided to start a special recruitment program to increase diversity in their biology majors as well as to help educate her fellow teaching faculty on instructional methods that will help these new students succeed in the major.

While we cannot cover all the different possible definitions for each concept, we aim to provide a representative sample. The concepts and examples are based on the authors' experiences in the United States academic environment. There exists a large volume of resources and research, academic and otherwise, on these concepts if you wish to research them more deeply. Your library catalog is, as always, a great place to start.

What is next?

The authors will continue to define more complex social justice concepts in future columns. We hope that the combined columns can be used as a reference for the reader to recognize the unique characteristics and challenges of their community and fellow colleagues. These concepts are meant to engage librarians with issues that are affecting the academic environment. The authors acknowledge this work will likely push some readers outside of their comfort zone, but the work is intended to spur conversation and not to alienate. Thus, the authors encourage readers to use the discussion questions at the end for self-reflection and/or to help start a conversation in your library or organization.

The Foundational Concepts

Ableism

The oppression of disabled people through words or deeds; Can be expressed through slurs, harassment, exclusion, using disabilities as negative metaphors, inaccessible work environments, patronizing attitudes, silencing, etc. The perception that people with certain mental, physical, or medical conditions should be cured or "fixed" and/or the assumption that everyone who enters a space or uses a service is able-bodied (not disabled).

Library Example: Despite the fact that the Americans with Disabilities Act (ADA), which has been in effect for 30 years, states that all aisles in public buildings should be a minimum of 36" (or 3 feet) wide, a mid-sized academic library is currently not accessible to wheelchair users due to the aisles between bookshelves being only 30" wide. This is unlikely to be changed without a lawsuit because the institution does not prioritize ADA retrofits in the budget.

Science Example: In science, one common ableist metaphor is the word ‘blind.’ It is often used to represent a lack of knowledge of something instead of people who are unable to see, such as double-blind study or blind peer review.

Diversity

The state of being made up of a variety of different people, objects, ideas, and backgrounds that may or may not be of equal stature and prominence. A term that attempts to express, when used in higher education, an organizational recognition that people with different life experiences and identities affect organizations differently, and that people of differing experiences and identities should be represented in organizations because multiple perspectives are important. Diversity includes race, sexuality, gender, physical disability, mental abilities and disabilities, economic reality, class in society, etc.

Library Example 1: In order to make sure they were following their collection development policies, a library decided to review their collection. This review revealed that they had no materials for disabled patrons. The library responded by acquiring some braille and large print books.

Library Example 2: Realizing that the library staff did not mirror the demographics of the campus, library administration sought to diversify the applicant pool for new hires by requiring the search committee members to complete a diversity appreciation tutorial.

Science Example: A biology lab realized that they did not have proper representation in their participant group, so they added a stock photo of the missing demographic to the promotional flyer in the next callout.

Dominant Culture

A set of norms or practices that are considered to be superior by the culture that holds power (through mechanisms such as traditions, laws, and/or economics) and have been imposed by them onto other cultures and/or subcultures, which are often seen as lower or subordinate. Dominant cultures can exist at different scales from a group of friends to academic organizations to entire countries. It is often the case that the smaller group’s dominant cultures reflect the ones in which they reside. For example, the dominant culture of organizations in the U.S. reflects the dominant culture of the USA which are the historical values of white, European men.

Library Example: The dominant culture within a library system may be reflected in the attire and aesthetic of the workers and community that they serve. Librarians are perceived as cardigan wearing introverts, with dress codes and codes of conduct that perpetuate the norms. One of the writers has worked in a library system where wearing denim was not allowed and formal greetings to co-workers were “highly encouraged.”

Science Example 1: In a research intensive STEM-focused academic environment, the culture of research productivity may be measured in funded grants, journal articles, and/or monographs, with the related policies and funding models in place. In another academic environment, productivity may be directly measured in local and regional services to students and communities, with the related policies and funding models in place.

Science Example 2: On the same campus, those who work in non-STEM fields may measure academic productivity by the outside communities and organizations that they have impacted, but have been forced to comply with the norms of journal articles and monographs, rather than elementary schools served or number of outreach events.

Equality

The condition of being equal in stature, prominence, and opportunities, whether by gender, ethnicity, or abilities.

Library Example: Because the search committee was committed to equal opportunity for all candidates, they required the use of telephone-based communication for all candidates. This, in turn, led them to deny the use of a video conferencing tool for a candidate with Auditory Processing Disorder.

Science Example: Both the engineering education lab and the cybersecurity lab were given the same empty lab space with no budget to outfit the lab, even though the cybersecurity group receives a large amount of external funding and the engineering education lab is reliant on internal resources.

Equity

The act of creating opportunities in order to obtain justice, fairness, and equality without impartiality or barriers.

Library Example: Because the search committee was committed to equitable opportunity for all candidates, they allowed the use of video interview instead of a phone interview for a candidate with Auditory Processing Disorder, when they determined Text Telephone (TTY) service would not allow the candidate to communicate satisfactorily.

Science Example: The university's goals for the next five years include starting a cybersecurity academic program and increasing student retention by improving engineering education. In order to show that both initiatives were equally important, the projects given the same size of laboratory spaces to research the issues. However, the funding of the labs was not equitable.

Feminism

The ideology that people should have equal rights and opportunities regardless of gender or sex and the political and social movements and advocacy which rise from this ideology. Originally, a movement that fought for women to determine their own fates, in terms of career choices, motherhood, fertility, marriage, sexuality, voting rights, education, etc. Over time, a critical feminist theory was developed based on this movement.

Library Example: Originally started in 2003, the Barnard Zine Collection includes zines from a wide range of Women's Studies topics from radical parenting to Riot Grrrl. It preserves and provides access to primary sources that showcase all kinds of women's voices, including many perspectives that are rarely featured in more mainstream works. ([Barnard College 2020](#))

Science Example: 500 Women Scientists is an inclusive, feminist organization which is working to address discrimination, sexism, unequal pay, and many other issues faced by women and other under-represented groups in science. ([Ramirez 2016](#))

Gender Binary

A socially constructed view of human gender expression that asserts that there are two biological sexes (male and female) that are determined by chromosomal composition and that there are two genders (man and woman) that are aligned to those biological sexes. These genders are believed to be inherent, natural, immutable, and exclusive, as well as opposite and complementary. This leads to the notion that the human experience is relegated to only two distinct genders, with no room for nuance. People whose gender identities do not match with their biological sex (transgender) and those whose biological sex is not distinctly male or female (intersex) are considered aberrations in this ideology.

Library Example: A library worker has a non-binary gender and shared their preferred name and pronouns. However, some coworkers who adhere to a strictly binary view of gender refused to use the pronouns with the claim that it was against the norms of grammar, i.e., these coworkers believe that “they” is solely plural.

Science Example: Charles Darwin argues, in his theory of sexual selection, that male members of the same species compete with each other over sexual access to females in order to successfully pass on their genes. This theory is predicated on the assumption that all species of animals (including humans) are naturally sexually binary and that biological sex equates to gender presentation, which is only useful for sexual reproduction purposes. However, Dr. Joan Roughgarden ([2009](#)) and others have observed that, in fact, not all vertebrates adhere to a sexual binary, much less a gender binary.

Inclusion

Intentionally providing for or creating an environment that not only contains diverse people but also welcomes and allows for the meaningful involvement, contributions, representation, and empowerment of any person, particularly those who have been historically excluded. This can include ideas and objects as well. In an organizational context, inclusion is the act of involving, recognizing, and valuing the diversity of others with the goal of empowering them within the organization and creating an overall sense of belonging.

Library Example 1: In order to make sure they were following their collection development policies, a library decided to review their collection. This review revealed that they had no materials for disabled patrons. The library responded by reaching out to members of their community who are disabled to determine their needs and wants and reviewed what other libraries had done to better support disabled library users. This work led them to begin to acquire and circulate graphic novels, blankets (an unexpected need), braille and large print books, and train the front line staff to use American Sign Language.

Library Example 2: Realizing that the library staff did not mirror the demographics of the campus, library administration invited a human resources external review team to do a climate assessment of their recruitment, retention, and support practices. The external review team

determined that the library was doing a good job recruiting a diverse workforce, but they should put extensive retention and support infrastructure into place in order to create a truly inclusive work environment.

Science Example 1: A biology research lab team realized that they did not have the proper tools to ensure the success of the entire team. Based on input from the Accessibility Office and their colleagues, they purchased multi-lingual screen reader software for shared lab computers.

Science Example 2: After taking a workshop about making their science curriculum more inclusive, a science faculty member realized that their approach to teaching excluded the contributions of women of all races and men of color. In order to provide more students a way to see themselves as potential scientists, they restructured their classes so that examples of the contributions of scientists of color and women, rather than the traditional scientist pantheon, were made central to the course.

Lived Experience

A person's direct, embodied, and subjective experience of life, and the events therein. The tangible details of an individual's life, including their thoughts, beliefs, memories, and daily activities, as well as how they are affected by others' attitudes and actions toward them. Thus, two people can have very different lived experiences of an event depending on their background, gender, race, class, previous experiences, etc.

Library Example: Depending on the librarian's comfort with science or engineering, some might enjoy or dislike answering scientific reference questions. The librarian who had a bad experience with science in high school may feel uncomfortable being considered a resource for answering scientific questions. On the other hand, a librarian who used to discuss science over the dinner table with their parents may be reminded of those dinners when they receive a scientific reference question and, thus, enjoy looking for the resources to answer it.

Science Example: Austin was very excited to join a lab doing ground-breaking research in sound identification using machine learning, but this excitement soon evaporated when it became clear his job would be to identify gunshot sounds in audio recordings to use for training the machine learning model. As a mass shooting survivor, this assignment caused him emotional distress. Austin requested, and was granted, a move to the voice recognition team instead.

Marginalized

To be habitually oppressed, discriminated against, or excluded from power and privilege. This can lead to people and communities of people who exist outside of the dominant culture, ethnic majority, or economically privileged. These people are frequently dismissed, forgotten, unacknowledged, and left out of the conversations, dialogues, and decision-making.

Library Example: A library educational workshop that requires (and, therefore, assumes) all students have personal computer laptops to bring and use at the workshop.

Science Example: A mathematics history class only presents the biographies of and mathematical proofs from European mathematicians (viewed by students as "white" men).

Misogyny

The hatred of or prejudice against women. Misogyny can make its presence felt in many ways, including: violence, sexualization, verbal and online harassment, unequal treatment, diminishment of accomplishments, and a lack of opportunities. At a societal level misogyny typically leads to patriarchy.

Library Example: The median weekly earnings for women librarians is 77% that of men who hold equivalent positions. ([Lawton 2018](#))

Science Example: Throughout the history of science, if a female scientist made a significant contribution to an experiment or concept, her male colleagues would often take credit for the entire project and not recognize her work. For example, Chien-Shiung Wu was left out of the 1957 Nobel Prize in Physics even though it was her experimental work that confirmed the results of the two men who were awarded the prize. ([Dominus 2019](#))

Patriarchy

A socially constructed, hierarchical system that privileges men, maleness, and masculinity on a structural level and devalues women, femaleness, and femininity through both overt and covert tactics of control. These tactics can include political, economic, legal, and social power, and also through holding that masculine perspectives and narratives are the normative experience of the world.

Library Example: Even though 79.5% of librarians are women according to the Bureau of Labor Statistics, men hold 39% of Library Director positions. ([American Library Association 2007](#))

Science Example 1: Crash test dummies have traditionally been modeled on the shape and size of an average US man. This is now considered one of the major reasons why women are more than 70% more likely than men to suffer an injury when in a car crash. ([Holder 2019](#))

Science Example 2: In the past, the subjects studied in clinical trials (which test new medicines, procedures, or devices to treat or cure diseases) were predominantly or exclusively men. However, not all the results were applicable to women. For example, when women have heart attacks, they may not feel it in their chests, like men do, which can lead to potential misdiagnosis and treatment. This is one reason that clinical trials now require test subjects to have women in the testing pool. ([Davio 2018](#))

Racism

Attitudes and behaviors that presume that one race is superior and all other races are inferior. Racism creates a socially constructed hierarchical system that privileges one race over all others and devalues other races through overt and covert tactics of power and control. The overt tactics can include exclusionary legal practices and policies, and the covert tactics can include unequal mortgage rates and biased patient care.

Library Example: The first Latinx librarian to be on the faculty tenure-track at a public university was held to a different and higher standards than those who had been granted tenure before, i.e.,

more robust research, more stellar teaching, and more national service. The expectations for promotion were changed in real-time as she got closer to her tenure dossier submission date. Her experience and degrees were not held in the same regard by her dominant-culture colleagues.

Science Example: Despite equal income levels, more African-American, Native American, and Alaskan Native women die of complications due to childbirth than white women. Health care providers often fail to recognize that other underlying conditions, such as hypertension and hemorrhage, affect these minority populations. The providers may not communicate well with the patients, especially if the providers are of different racial backgrounds as the patients.

Sexism

Discrimination and prejudice caused by the belief that one gender or sex is superior to others. Sexism can occur in overt, specific cases, as well as unconscious and systemic ones.

Library Example: Melvil Dewey, in an 1886 speech, asserted women librarians deserved smaller salaries than men:

With equal health, business training and permanence of plans, women will still usually have to accept something less than men because of the consideration which she exacts and deserves on account of her sex. If a man can do all the other work just as well as the woman and in addition can in an emergency lift a heavy case, or climb a ladder to the roof or in case of accident or disorder can act as fireman or do police duty, he adds something to his direct value just as a saddle horse that is safe in harness and not afraid of the cars will bring more in nine markets. out of ten than the equally good horse that can be used only in the saddle. So in justice to those who wish to be fair to women, remember that she almost always receives, whether she exacts it or not, much more waiting on and minor assistance than a man in the same place and therefore, with sentiment aside, hard business judgment cannot award her quite as much salary. There are many uses for which a stout corduroy is really worth more than the finest silk. ([Dewey 1886](#))

Science Example: Even though Catherine was integral to the running of the aeronautics laboratory and got along well with her all male colleagues, she never found herself invited to their after work social events or to participate in their softball league. When she asked one of them why, he answered, “We just do guy things, I don’t think you’d fit in.” [Additionally, because she is a woman, they assume she will write up all of the lab work, doing traditionally secretarial work.]

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Science Example: When she realized there was only one person of color among her coworkers in the Biology department, Natalie decided to start a special recruitment program to increase diversity in their biology majors as well as to help educate her fellow teaching faculty on instructional methods that will help these new students succeed in the major.

Systemic Injustice

The ways in which the institutions and structures of a society and the systems of power within it cause, amplify, and perpetuate unfairness and other more grievous injuries such as bigotry, racism, discrimination, harassment, and economic inequality against non-dominant groups in the society.

Library Example: A study of school and public libraries in four Pennsylvania communities found the quality and quantity of books to be lesser and operating hours to be shorter in low-income communities versus middle-income ones. ([Neuman and Celano 2001](#))

Science Example: Because African-American people were excluded from many college campuses, it was not until 1925 that the first African-American earned a PhD in mathematics and not until 1943 that an African American woman earned a PhD. There are still African-American mathematicians today who count themselves as among the first one or two to receive a PhD from their graduate institution or to work in their department. ([Shakil 2010](#))

Reflection Questions

To engage further with these concepts and/or colleagues, we provide a few discussion questions:

1. Are any of our definitions different from your understanding of the concepts, and if so, how?
2. Considering your own background, what concepts did you find the most challenging and why?
3. Which of these concepts relate most directly to your work as a science librarian?
4. Considering the concepts defined above, are there any actions you can take to minimize barriers for others?

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