

Education as a Tool for Social Inclusion: Operationalizing United Nations Sustainable Development Goals (SDGs) 4 and 10 in Library and Information Science

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Abstract: ***Background:** Modern libraries are increasingly recognized as vital social infrastructure capable of fostering equity and mitigating information poverty. **Objectives:** This paper examines how Library and Information Science (LIS) leverages education to promote social inclusion, specifically aligning operational practices with UN Sustainable Development Goals 4 (Quality Education) and 10 (Reduced Inequalities). **Methods:** Drawing on Ranganathan's Five Laws, Sense-Making Theory, and Critical Information Studies, the study synthesizes theoretical frameworks with contemporary LIS interventions. **Results:** The analysis demonstrates that LIS operationalizes social inclusion through Open Educational Resources (OER), digital literacy instruction, universal design, community-led librarianship, and critical cataloging that remediates biased metadata. **Conclusion:** Libraries shift information from a commodity to a human right. Integrating these educational frameworks empowers information professionals to dismantle systemic barriers, bridging digital and socioeconomic divides to build equitable communities.*

Keywords: Library and Information Science, Social Inclusion, SDG 4, SDG 10, Information Equity, Open Educational Resources, Critical Cataloging.

1. Introduction

Modern societies are marked by widening economic polarization, rapid digital transformation, and systemic social exclusion (International Federation of Library Associations and Institutions [IFLA], 2018). In an information-driven global economy, marginalized communities- including low-income populations, racial and ethnic minorities, persons with disabilities (PwDs), incarcerated individuals, and rural residents- face compound barriers to socio-economic mobility (Chatman, 1996; Jaeger et al., 2012).

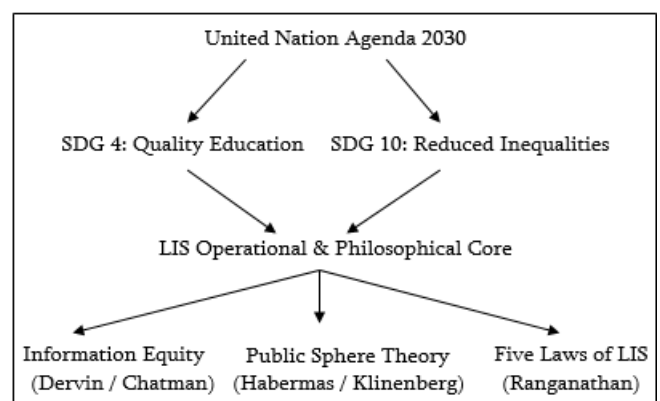
In response to these systemic divides, the United Nations (2015) 2030 Agenda for Sustainable Development highlights **SDG 4** (*Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all*) and **SDG 10** (*Reduce inequality within and among countries*). Within Library and Information Science (LIS), education is recognized not merely as a formal instructional process, but as an active, continuous, and community-rooted vector for social inclusion (Subramaniam et al., 2018).

Libraries are unique public assets: they function as non-commodified, non-judgmental public spaces where information access is treated as a fundamental human right (American Library Association [ALA], 2020; Buschman, 2003).

Objective of the study

How do LIS theories, operational methodologies, and information infrastructures leverage education as a tool to advance social inclusion and reduce inequalities?

2. Theoretical Foundations



The role of LIS in driving social inclusion through education rests on three primary theoretical paradigms:

- **Ranganathan's Philosophy of Library Science:** Ranganathan's (1931) normative principles—specifically first law ("*Books are for use*") and Second law ("*Every person his or her book*")—laid the groundwork for universal, egalitarian access to information. Expanded to contemporary digital contexts, Ranganathan's vision dictates that every individual, regardless of caste, creed, socioeconomic background, physical ability, or gender, is entitled to tailored educational resources (Barner, 2011).
- **Critical Information Theory & Information Poverty:** Scholars such as Dervin (1998) (*Sense-Making Methodology*) and Chatman (1996) (*Theory of Information Poverty*) demonstrate that information-seeking behavior is heavily shaped by social power structures. Achieving true educational inclusion requires information institutions to actively identify and dismantle systemic, cultural, and economic barriers to knowledge acquisition (Greyson, 2018; Jaeger et al., 2012).

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- **Social Infrastructure & The Public Sphere:** Grounded in Habermas's (1989) theory of the *Public Sphere* and expanded by sociologist Klinenberg (2018) (*Palaces for the People*), libraries are modeled as crucial "social infrastructure." They offer physical and civic spaces where diverse individuals interact, learn, and build social capital on equal terms (Buschman, 2003; Oldenburg, 1989).

3. LIS Operationalization of SDG 4: Quality Education

SDG 4 calls for inclusive, equitable quality education and lifelong learning (United Nations, 2015). LIS operationalizes these targets through three core domains:

3.1 Pedagogical Equity & Open Educational Resources (OER)

Commercial textbook prices and database subscription paywalls create significant economic hurdles for students in higher education (Okamoto, 2013). Academic and school libraries lead the Open Educational Resources (OER) movement by curating, funding, and preserving openly licensed instructional materials (Salem, 2017).

OER directly advances **SDG Target 4.3** (ensuring equal access to affordable vocational and tertiary education) by eliminating learning material costs for underprivileged students (ALA, 2020; IFLA, 2018).

3.2 Non-Formal Lifelong Learning & Literacy Instruction

Public libraries serve as informal educational hubs, providing low-barrier learning opportunities across life stages:

- **Digital & Algorithmic Literacy:** Equipping patrons with skills to navigate online environments, evaluate source

credibility, protect personal privacy, and understand automated systems (Subramaniam et al., 2018) (**SDG Target 4.6**).

- **Functional & Adult Literacy:** Running adult basic education, English as a Second Language (ESL), and family reading programs that bridge gaps left by formal schooling systems (Jaeger et al., 2012).
- **Vocational Skill Building:** Hosting coding bootcamps, resume workshops, and maker-space technical training to enhance employment opportunities for job seekers (Klinenberg, 2018).

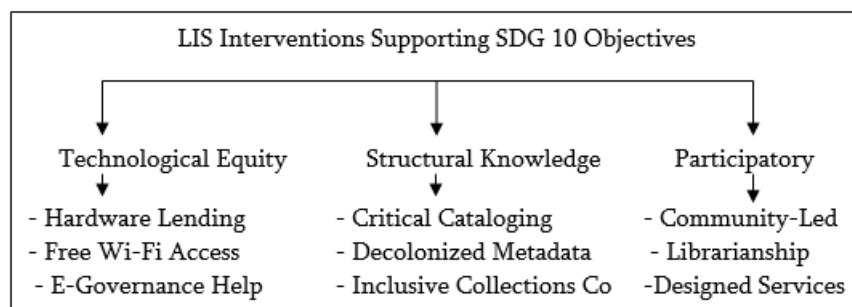
3.3 Universal Design in Learning Environments

To align with **SDG Target 4.a** (inclusive and child-, disability-, and gender-sensitive educational facilities), modern library systems apply Universal Design standards across physical and digital platforms (Vincent, 2014):

- Assistive technologies including screen readers, refreshable braille displays, voice-to-text software, and height-adjustable furniture (Jaeger et al., 2012).
- Sensory-friendly reading rooms and tailored programming for neurodivergent individuals (Vincent, 2014).
- Digital outreach platforms, mobile libraries (bibliobuses), and homebound delivery services for geographically isolated or physically disabled patrons (Barner, 2011).

4. LIS Operationalization of SDG 10: Reduced Inequalities

SDG 10 targets structural exclusion based on income, disability, race, ethnicity, origin, religion, or economic status (United Nations, 2015). LIS advances these objectives by engineering equitable access systems and reforming legacy knowledge structures.



4.1 Digital Poverty Mitigation

Access to the internet and computing devices is a prerequisite for contemporary civic participation and education (Jaeger et al., 2012). Libraries counter digital inequality through:

- **Hardware & Connectivity Lending:** Mobile hotspot loan programs, laptop lending kiosks, and free high-speed public Wi-Fi extending connectivity into underserved households (Klinenberg, 2018; Real et al., 2014).
- **E-Governance Navigation:** Staff-assisted guidance for digitally excluded citizens applying for public housing, unemployment benefits, healthcare, and social welfare programs (Real et al., 2014).

4.2 Critical Cataloging & Knowledge Representation

Education cannot be fully inclusive if information organization systems reinforce historic biases. Legacy tools—such as the Dewey Decimal Classification (DDC) and Library of Congress Subject Headings (LCSH)—historically incorporated Eurocentric, colonial, and heteronormative frameworks (Drabinski, 2013; Olson, 2002).

Critical cataloging reforms these structures to align with **SDG Target 10.3** (ensuring equal opportunity and eliminating discrimination):

- **Metadata Remediation:** Replacing pejorative or outdated subject headings with respectful, culturally authentic terminology (e.g., updating terms relating to

indigenous populations and migration statuses) (Drabinski, 2013; Noble, 2018).

- **Inclusive Collection Building:** Proactively acquiring, digitizing, and preserving oral histories and literature from historically underrepresented communities to combat systemic cultural erasure (Olson, 2002).

4.3 Outreach for Specialized & Marginalized Populations

Libraries design tailored educational interventions to reach groups facing systemic barriers:

- **Incarcerated Individuals:** Prison library services provide educational materials, vocational instruction, and

legal reference collections to support re-entry and reduce recidivism (Lehr, 2011).

- **Unhoused Populations:** Low-barrier library cards, computer access, and integrated social work partnerships within public library facilities (Hodgetts et al., 2008).
- **Refugees & Immigrants:** Citizenship prep courses, multi-lingual collections, and community integration toolkits (Vincent, 2014).

5. Comparative Analysis: Traditional vs. Socially Inclusive LIS Paradigm

Dimension	Traditional LIS Model	Socially Inclusive LIS Model (SDGs 4 & 10)
Institutional Role	Passive repository of printed media	Active driver of community equity & social justice (Klinenberg, 2018)
Access Philosophy	On-site, collection-centric consultation	Hybrid, open access, OER, and community outreach (Salem, 2017)
User Conceptualization	Passive patron / borrower	Active learner / co-creator / civic participant (Subramaniam et al., 2018)
Knowledge Organization	Standardized, legacy classification systems	Critical cataloging & decolonized metadata (Drabinski, 2013)
Programmatic Scope	Standard bibliographic instruction	Digital literacy, adult education, & social service integration (Real et al., 2014)
Community Engagement	Top-down service delivery	Participatory action research & co-designed services (Williment, 2009)

6. Challenges to Implementation

Despite clear alignment with UN SDGs 4 and 10, several structural obstacles impede the full realization of inclusive LIS educational programming:

- 1) **Resource Disparities & Underfunding:** Public and academic libraries in socioeconomically depressed regions face chronic underfunding, restricting their ability to maintain hardware lending programs, acquire assistive technologies, or retain specialized staff (Real et al., 2014).
- 2) **Professional Training Gaps:** LIS curricula frequently emphasize traditional technical services over social justice methodologies, anti-racist frameworks, critical pedagogy, and trauma-informed service delivery (Jaeger et al., 2012).
- 3) **Political & Censorship Pressures:** Increasing intellectual freedom challenges and book bans targeting collections by or about racial minorities and LGBTQ+ communities directly undermine SDG 10 principles of non-discrimination and diverse representation (Buschman, 2003; Drabinski, 2013).

7. Recommendations & Strategic Directions

To strengthen Library and Information Science as an engine for social inclusion, information institutions and academic programs should implement the following actions:

- 1) **Integrate Social Justice into LIS Curricula:** Higher education programs must embed critical information literacy, critical cataloging, and the UN 2030 Agenda into core LIS coursework (Jaeger et al., 2012).
- 2) **Institutionalize OER Initiatives:** Academic institutions should allocate dedicated funding, infrastructure, and faculty incentives for the creation, adoption, and maintenance of Open Educational Resources (Okamoto, 2013; Salem, 2017).
- 3) **Adopt Community-Led Librarianship:** Libraries should move away from top-down service design and

adopt participatory planning models- co-creating programs alongside marginalized populations to address their specific educational needs (Williment, 2009).

- 4) **Develop Qualitative Impact Metrics:** LIS researchers must establish evaluation frameworks that measure long-term social outcomes- such as digital literacy acquisition, educational attainment, and social integration—rather than relying solely on traditional output metrics (e.g., circulation figures or visitor counts) (IFLA, 2018).

8. Conclusion

Education serves as an effective mechanism for social inclusion only when access to information is equitable, culturally responsive, and universally accessible. By aligning LIS theory and practice with UN Sustainable Development Goals 4 and 10, information professionals move beyond passive service models to actively dismantle barriers to social equity. Through Open Educational Resources, digital literacy instruction, critical cataloging, and community-led outreach, libraries affirm their role as indispensable social infrastructure for democratic participation, human rights, and social inclusion.

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