Diverse Minds, Collective Mission: Surveying the Development of a Participative EDI Manifesto

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Abstract

Equity, diversity and inclusion (EDI) are crucial for shaping a scientific community that reflects and serves the diversity of society. This paper centers on the development of a participative EDI Manifesto tailored for Data Science community. To achieve this objective, a survey was designed as a key tool to collect feedback and insights from diverse participants. The survey engaged researchers, educators and institutional leaders, with the aim to identify the challenges and priorities associated with EDI and outline actionable strategies for systemic change.

The participatory approach underscores the importance of integrating diverse perspectives into the creation of the EDI Manifesto, achieved through the use of a purposefully developed survey as a methodology to gather insights, feedback, and experiences, trying to ensure representation and intersectionality. Respondents from varied experiences highlighted critical needs and opportunities for fostering inclusivity in Data Science. The survey served as the foundation for EDI discussions held in occasion of *EDI special day* during *ACM KDD 2024*, which showcased practical applications and reflections of these principles within the field.

The findings underscore the importance of institutional support for ensuring equal opportunities and outcomes, in order to create awareness and collaboration that could help to the growth of the culture of organizations. Participants emphasized the need for transparency and open discussions to establish clear policies and enhance the ability of the organization to grow their member in an equitable way. Priorities also include raising awareness of mental health, ensuring equitable funding, providing comprehensive training, promoting work-life balance, and placing greater emphasis on addressing the needs of individuals.

Keywords

EDI Manifesto, Scientific Community, Inclusion, Participation, Survey

1. Introduction

The scientific community plays a pivotal role in shaping the future of society, driving innovations, and solving critical global challenges. However, for science to fully serve society, it must reflect the diverse populations it aims to benefit. In recent years, equity, diversity and inclusion (EDI) have become increasingly recognized as essential pillars for promoting an environment that encourages participation, collaboration, and innovation from all groups. In this context, the need for equitable representation and fair opportunities within science is not only a matter of social justice, but also contributes to the quality and depth of scientific research.

Despite these ideals, systemic barriers and biases persist within the STEM fields, disproportionately impacting women and minorities, who remain significantly underrepresented as largely reported by American Association of University Women (AAUW) [1], [2]. This lack of diversity limits the range of perspectives and ideas that drive scientific discovery and technological innovation. Women and minority groups face challenges such as unequal access to educational resources, implicit bias in hiring and promotion, and a lack of role models, all of which create an exclusionary environment.

Data Science, with its interdisciplinary reach spanning fields as diverse as medicine and economics, occupies a unique position where the integration of diverse perspectives can ignite innovation and enhance our understanding across there varied fields. However, as the field grows rapidly, it also faces significant challenges related to ensuring inclusivity, fairness and accessibility. These challenges are particularly relevant in terms of addressing biases in algorithms, ensuring representation in datasets and supporting marginalized groups within the research field.

1.1. The Importance of EDI in the Scientific Community

EDI in science extends beyond creating a welcoming environment; it ensures equal opportunities for all individuals while addressing systemic barriers [3]. These barriers manifest in underrepresentation in leadership, limited resources, and biases in hiring, promotion, and collaboration. Educational disparities further exacerbate these challenges [4].

Addressing these issues requires institutional reforms and a commitment to fostering an inclusive research culture [5]. A key objective is integrating EDI into research methodologies to enhance rigor and inclusivity. Studies highlight the need for nuanced demographic data to improve representation [6]. Research that considers diverse perspectives produces more robust and socially relevant outcomes.

A scientific community that mirrors the heterogeneity of society ensures broader benefits. The development of an EDI Manifesto is a step toward advancing inclusivity and improving the quality of research.

1.2. Research Motivation and Research Questions

This study is driven by the will of creating an EDI Manifesto for the data science community, aimed at promoting fairness, representation and inclusivity, with a focus on enabling sustained and systematic change. To ensure that the manifesto is grounded in the real experiences and needs of the community, a survey was developed as a key tool to gather insights from a broad, intersectional spectrum of

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	Question Topic		Options
DEMOGRAPHIC INFORMATION	**Demographic and Professional Data**	**Age Range**	18-24, 25-34, 35-44, 45-54, 55-64, 65+
		Working Environment	Academia, Research Industry, Research Institutions, Practitioners, Other
		Current Role	Undergraduate Student, PhD Student, Early-stage Researcher, Senior Researcher, Manager/Head of Research Unit, Professor, Other
	Identity-Related Factors	**Gender Identity**	Gender non-conforming, Man, Woman, Other, Prefer not to say
		Residence	Africa, Asia, North America, South America, Europe, Other
		Minority Group	Racial/Ethnic Minority, LGBTQ+, People with Disabilities, Other, No, Prefer not to answer
PERCEPTION	**Question**		
	What does respect mean to you?		
	How would you define an inclusive community?		
	Which are the EDI values in your opinion?		
	What are the primary barriers to achieve equity in research community?		
	What type of support is most needed to foster a diverse and inclusive research environment?		
THINK-PAIR SHARE	**Question**		
	What does equity means to you in scientific environment?		
	What does diversity means to you in scientific environment?		
	What does inclusion means to you in scientific environment?		
	What are the priorities to build an EDI community?		
	What specific programs or initiatives would you recommend to promote an inclusive and equitable environment?		

Table 1
Structure of the survey proposed to the audience

participants, including researchers, educators, practitioners and industry professionals.

The survey was designed to identify barriers to inclusivity and uncover actionable strategies to foster a more equitable environment. The data collected from the survey will serve as the foundation for the creation of the EDI Manifesto, offering a structured framework to advance equity, diversity, and inclusion within the Data Science community.

Furthermore, the participative approach to developing the EDI Manifesto serves as a model for how the scientific community can engage in collaborative, inclusive processes. This method not only fosters a more equitable and representative field but also emphasizes the importance of participatory approaches in shaping broader social structures, encouraging democratic and inclusive decision-making in the development of social life.

The primary research questions guiding this survey include:

1. How representative are the survey respondents in terms of gender, race, ethnicity, career stage, and geographic location compared to the overall Data Science workforce?
2. What do respect, inclusion, diversity and equity mean to the practitioners in the scientific community?
3. What are the key challenges related to equity, diversity and inclusion in scientific environment as identified by practitioners and educators?
4. What strategies and actions are deemed most effective for overcoming these challenges and ensuring inclusivity at all levels of Data Science practice?

To answer these questions, a mixed-methods survey was distributed to a diverse range of participants present at *EDI special day* during *ACM KDD 2024*. The results of this survey provide the foundation for the subsequent section of this paper, where we will explore the specific needs, challenges and actionable strategies for promoting EDI in Data Science.

2. Methodology

To foster a more inclusive and equitable Data Science research community, we adopted a participatory approach in developing the Equity, Diversity, and Inclusion (EDI) Manifesto. We believe that rather than imposing a top-down directive, we should engage community members through a comprehensive survey designed to collect diverse perspectives, experiences, and insights. The aim was to ensure that the Manifesto reflects the realities and expectations of those directly involved in the field.

This participative approach is useful to:

1. **Collect diverse perspectives**: the manifest should ensure a wide range of views in order to create a more inclusive framework.
2. **Identify key themes and issues**: through the variegated experiences of respondents it is possible to identify a wide range of themes and issues.
3. **Involve people in the process**: to ensure that individuals can directly impact and influence the principles and commitments to be included in the Manifesto.
4. **Create further discussions**: the survey is a way to ignite discussions on these themes.

2.1. Description of the Survey

After defining our research questions, we structured the survey into three phases to capture diverse experiences, perceptions, and ideas.

1. *Demographic Information*: Collects fundamental data such as age, gender, ethnicity, education level, occupation to assess participant diversity. This information helps in analyzing representation, identifying potential biases, and ensuring representation within the study population.
2. *Perception*: This phase aims to explore participants' experiences and perceptions of Equity, Diversity, and Inclusion (EDI) within research contexts. The

questions were designed to short responses in the form of keywords, enabling participants to convey their personal opinions concisely while minimizing the time required for completion. In this phase, we also present several mottos and ask respondents to indicate their preferred choice and we also ask to propose a personal motto.

3. *Think-Pair-Share*: In the third phase, participants are encouraged to collaborate with those around them to answer specific questions. This interactive approach promotes dialogue and enables us to gather a variety of perspectives on advancing EDI through collective efforts. The questions are similar to those in the Perception section, but the objective is to gather responses developed collaboratively rather than individually.

The questions presented to the participants, organized by phase, are detailed in Table 1. This structured format ensures clarity in the survey design and facilitates a comprehensive analysis of responses across different stages of the study.

2.2. Description of the Application Scenario

We propose the just described survey at the end of the *EDI Special Day* during *ACM KDD 2024 Confernence*. The decision to adopt a collaborative approach for creating an EDI Manifesto led to the choice of using the Wooclap platform to administer the survey.

Wooclap enables the creation of interactive surveys, allowing participants to view the responses of others in real-time.

This approach was particularly valuable during the second and third phases, where respondents could upvote the answers of others, expressing agreement with various opinions and fostering a sense of collective input.

In the third phase, a more collaborative approach was encouraged by forming spontaneous groups within the conference room. These groups engaged in dialogue and worked together to provide collective answers, enhancing the depth of perspectives gathered.

2.3. Results

2.3.1. Demographic Information

In Table 2, the results of the demographic section of the survey are presented. It is important to highlight that the survey was conducted during a dedicated EDI (Equity, Diversity, and Inclusion) day, attracting participants with a strong interest in these topics. Consequently, the representation of minority groups in the survey is higher than in the general population, leading to an inherent imbalance in the sample. Additionally, since the conference was held in Barcelona, geographic proximity likely influenced attendance, resulting in a majority of respondents residing in Europe.

2.3.2. Perception Results

The first individual perception question addressed the concept of respect. The responses of the participants, as shown in Figure 1, included terms such as understanding, giving, caring, empathy, and acceptance. Additionally, words like

Category	Distribution
Age Group	Under 24 years: 8% 25-34 years: 62% 35-44 years: 15% 45-54 years: 15%
Professional Background	Academia: 69% Research Institutions: 15% Research in Industry: 8% Practitioners: 8%
Roles	Early-stage Researchers: 29% PhD Students: 21% Senior Researchers: 21% Professors: 14% Managers/Heads of Research Units: 7% Other: 7%
Place of Residence	Europe: 62% North America: 31% South America: 8%
Gender Identity	Women: 46% Men: 38% Gender Non-Conforming: 15%
Minority Group Membership	LGBTQ+: 43% Racial/Ethnic Minority: 14% Disability: 8% No Minority Membership: 21% Undisclosed: 14%

Table 2
Survey Participant Demographics

Figure 1: Word cloud illustrating the participants' responses to the question, "What does respect mean to you?"

accountability and professionalism were mentioned, highlighting the importance of responsible behavior of each individual to create a respectful environment.

The keywords defining an inclusive community, as identified by the participants and shown in Figure 2, emphasize safety, collaboration, inclusivity, a welcoming environment, and a barrier-free space with respect for all individuals.

The most prominent barriers identified include biases, misogyny, patriarchal structures, and stereotypes, which perpetuate unbalanced power dynamics and inequities within societies and organizations. These barriers are promoted by cultural norms, inequitable policies, and insufficient resources dedicated to addressing systemic exclusion and oppression. Issues such as segregation, underrepresentation, and capitalism-driven inequities further marginalize vulnerable groups.

To address the barriers identified previously, several solutions have been highlighted, emphasizing the importance

Figure 2: Word cloud illustrating the participants' responses to the question, "How would you define an inclusive community?"

of commitment from leadership, institutional support, and a culture of inclusivity within organizations. Leaders play a critical role in ignite change, promoting a collaborative environment, and ensuring equitable access to resources and mentorship opportunities.

Establishing clear EDI commissions, advocating for fair wages, and implementing supportive policies such as maternity and paternity leave are essential to creating an equitable foundation.

Additionally, promoting awareness and accessibility, simultaneously to organizational protocols and training, can empower individuals and ensure meaningful participation in EDI initiatives. Fostering diversity in leadership, offering widely accessible tools, and prioritizing flexibility and collaboration are also pivotal for sustaining an inclusive and supportive environment.

The chosen motto, "Diverse minds, collective mission," serves as the title of this work; however, other interesting options considered were "Mixing is fixing," "Diversity powers discovery," "Inclusion in research, equity in findings," and "The future is for everyone."

2.3.3. Think-Pair-Share Results

The section create in an active collaboration between members during the EDI special day in the conference hall offered significant results.

Equity in a Scientific Environment: The most common themes identified in responses to the question "What equity means to you in a scientific environment?" include:

- Ensuring that everyone's ideas are considered and respected.
- Equal opportunity and equal outcomes are central to an equitable environment.
- Guaranteeing safe and equal accessibility for all.
- Empowering the workforce and removing discriminatory obstacles.
- Mental health awareness as vital to promoting well-being alongside equity.
- Feeling equally empowered, with a focus on fostering a sense of belonging and inclusion.

Diversity in a Scientific Environment: The key themes in response to "What diversity means to you in a scientific environment?" are:

- Fostering an environment where everyone feels like they belong.
- Representation of diverse points of view, with a focus on intersectional representation.
- Heterogeneous collaboration across different backgrounds and perspectives.

Priorities for Building an EDI Community: Several essential priorities for building an equitable, diverse, and inclusive (EDI) community were identified:

- Legal mandates, emphasizing the need for institutional frameworks to ensure accountability.
- Ongoing training to raise awareness and build EDI competencies.
- Collaboration among minority groups to enhance inclusivity.
- Widespread use of accessible software and open-source tools for participation.
- Promoting paternity leaves to facilitate a more gender-equal sharing of care and related housework, supporting the mother's return to the labor market, and equalizing the circumstances in which women and men enter the labor market

Programs and Initiatives to Promote Inclusivity and Equity: Recommendations for specific programs and initiatives include:

- Providing scholarships for minorities to promote equitable opportunities.
- Offering funding for research and scholarships as financial support.
- Ensuring accessible and secure reporting mechanisms for abuse and vulnerable situations.
- Developing fairer methods for collecting data related to EDI.

3. Discussion

3.1. The need for a fairer data collection

Working in data science, it is impossible to ignore the fact that data often provides a biased representation of the world, leading to skewed research outcomes in the field. For instance, when considering gender, most datasets disproportionately represent males [7] [8], while, when considering ethnicity, the data does not represent minorities [9]. This issue becomes even more pronounced when examined through the lens of intersectionality [10], where biases are inflated by the overlapping effects of various protected categories. In this context, it is crucial to collect data that more accurately reflects the populations affected by the technologies being developed. Achieving this can be supported by adopting and promoting open-source technologies based on open-source datasets. Such efforts can raise awareness, encourage research in the field, and enhance accountability.

3.2. The need for broader audience

A powerful example of the impact leaders can have on shaping an inclusive environment emerged through the emphasis placed on EDI-themed days during major conferences. These dedicated days highlight the importance of a certain kind of ethics, but there is the need to expand their prominence, ensuring EDI topics receive greater visibility and attention throughout the entire event. To maximize impact, it is crucial to increase participation in these sessions,

spreading knowledge and fostering the values of respect and inclusivity among a broader audience. This could be achieved by allocating even a small dedicated time slot during conferences, ensuring no other events overlap with the EDI sessions. A couple of hours focused on introducing key EDI concepts to a large audience may prove more effective than an entire day where only those already committed to EDI principles engage with like-minded individuals. Reaching a broader, more diverse group can help plant the seeds of change and inspire a wider commitment to these values.

3.3. Limitations of the study

The main limitation of our study is the diffusion of the survey, and it is strictly related to the need for broader audience. There is a noticeable imbalance in the representation of individuals from various minority groups when compared to the global population distribution. This discrepancy could be attributed to the fact that targeted outreach efforts, voluntary participation bias, and research interests that prioritize diversity and inclusion may lead to a higher representation of minority groups in the survey compared to their proportion in the general population. Consequently, the survey reflects a higher representation of minority groups than what would be expected based solely on their proportion in the general population. Understanding these dynamics is crucial for interpreting the findings and ensuring that conclusions drawn from the data are contextualized appropriately.

3.4. Conclusion

This study focused on promoting inclusivity and equity within the Data Science research community by involving its members in the co-creation of an Equity, Diversity, and Inclusion (EDI) Manifesto. Using a three-phase survey, we explored the diverse experiences, perceptions, and ideas of participants, uncovering the challenges they face and the solutions they envision for creating a more equitable research environment. The approach ensured that perspectives from individuals with varying backgrounds and professional roles were at the center of the process.

Events like the *EDI Special* Day during *ACM KDD 2024* provided a unique opportunity to engage with people from different age groups, regions, and professional experiences. The insights gathered highlighted critical barriers to equity, diversity, and inclusion, while also offering actionable strategies to overcome them. The interactive and collaborative methods used during the event reinforced the importance of collective dialogue and community-driven solutions.

The results of this study underscore the need for continued efforts to address systemic inequities, empower underrepresented groups, and create inclusive policies and practices. These findings serve as a valuable starting point for concrete actions that can shape a more equitable future within the Data Science community and beyond.

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Declaration on Generative AI

During the preparation of this work, the author(s) used GPT-4 in order to: Grammar and spelling check. After using these tool(s)/service(s), the author(s) reviewed and edited the content as needed and take(s) full responsibility for the publication's content.

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