Leveraging Promising Practices in Equity, Diversity and Inclusion (EDI) in Computer Science Research

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Presentation Outline

• Defining key terms
• Embedding Equity, diversity, and inclusion (EDI) in grants
• Underrepresentation in computer science
• Gender-based Analysis Plus (GBA+) of research design
• EDI in the research team and training environment
• Q&A
Defining Key Terms

• Equity: the removal of systemic barriers and biases enabling all individuals to have equal opportunity to access and benefit from a program, policy, or practice

• Systemic barriers: result from institutional level practices, policies, traditions and values that may be “unintended”/“unseen” but that have serious and long-lasting impacts

• Diversity: differences in race, colour, place of origin, religion, immigrant and newcomer status, ethnic origin, ability, sex, sexual orientation, gender identity, gender expression and age

Source: NFRF EDI Best Practice Guide
Defining Key Terms

• Inclusion: ensuring that all individuals are valued, respected for their contributions, and equally supported to create an environment where all individuals feel they belong

• Equity-seeking groups: communities that face significant collective challenges in participating in society, including the research enterprise

  • E.g. women, LGBTQ2+, racialized groups, Indigenous peoples (First Nations, Metis, and Inuit), persons with disabilities, people who exercise cultural and/or religious practices, and any intersection of these identities
Embedding Equity, diversity, and inclusion (EDI) in Grants

• Many granting agencies have added requirements for embedding EDI principles in research design and training plans for HQP

• In many cases, EDI considerations are now tied to merit indicators

• Grants with EDI considerations include (but are not limited to):
  • NSERC (Alliance, CREATE, Discovery)
  • New Frontiers in Research Fund (NFRF)
  • Innovation for Defence Excellence and Security (IDEaS)

• Always review specific instructions and guides as requirements are not consistent across all programs
Underrepresentation in Computer Science

• Women made up 44% of first-year STEM students in undergraduate programs compared to (64%) of students in non-STEM programs.

• Among STEM programs, the participation of women was lowest in computer and information sciences (16%).

• Participation rates of young women in advanced computing research has declined over time.

• Diversity for immigrant and visible minority groups is high, but some groups are underrepresented, and earnings are not equal.
Gender-Based Analysis Plus (GBA+) of Research Design

• Gender-based analysis plus (GBA+): an analytical process used to assess the impacts of initiatives (such as research design) on diverse groups of women, men and people with diverse gender identities, taking into account multiple identity factors

• The "plus" goes beyond gender to examine other identity factors

• Consider completing Status of Women Canada’s GBA+ module

• Full Case Studies: Stanford University Gendered Innovations Project
Gender-Based Analysis Plus (GBA+) of Research Design

• When considering your research design, methods, analysis and interpretation, and/or dissemination of research findings ask:

1. Are sex (biological) or gender (socio-cultural) considerations taken into account?
2. Are race and ethnicity considerations taken into account?
3. Does my research engage Indigenous peoples or communities?
4. Are other identity factors taken into account?
5. If the research is using population data, can it be disaggregated by identity factor(s) to determine differences between groups?
6. Is there diversity in the work consulted and referenced in supporting/secondary research?

(If you answer "yes" to any of these questions) Describe how identity factors will be considered in your research project

Source: NFRF EDI Best Practice Guide
Gender-Based Analysis Plus (GBA+) of Research Design

• (If you answer "no" to these questions) Explain why identity factors are not applicable in your research proposal

• If applicable, commit to conducting further GBA+ prior to dissemination of research findings

“The PI/Co-PIs have completed the Status of Women Canada GBA+ training module prior to starting the research design for the project. The PI/Co-PIs conducted a GBA+ analysis of the research design and found no GBA+ considerations to be relevant at this time as the research focuses on (include on key objective), which is not anticipated to be impacted by bias or barriers because (provide specific description related to design, methods, analysis and interpretation). Further GBA+ will be completed prior to the research dissemination as the project is expected to benefit (provide specifics).”

The above case study is not intended to be used as a template
Research Team and Training Environment

• Embed EDI in the research team and training environment by focusing on four key areas:
  • Team composition and management
  • Recruitment, selection and hiring processes
  • Training, development and mentorship
  • Inclusive team environment
• Consider completing the Tri-Agencies Unconscious Bias training module
Research Team and Training Environment

• Focus on providing examples of concrete actions that you intend to implement in your research team and training environment

• To develop actions, consider:
  • Specific barriers the action is intended to address (use data or research to support, if possible)
  • Relevance to your team or institutional environment
  • The approach you will use to implement
  • The anticipated impact of the action for your team
Team Composition and Management

• What measures and safeguards will you implement to ensure EDI principles are key considerations in the composition and management of your team?

• For example:
  • Familiarize yourself with EDI initiatives, policies and program at your institution
  • Make a strong commitment to EDI as a PI in your training plan
  • Formalize a complaints management process
  • Recruit Co-PI(s) who have made contributions to EDI
  • Assign a management team member to be responsible for EDI objectives
Example for Team composition and Management

“The PI is strongly committed to ensuring an inclusive team environment that supports a diverse team of HQP through implementing concrete actions. The management team for the project includes PI/Co-PI(s) with direct experience in EDI, as demonstrated through the PI’s participation in leading an anti-racism campus task force leading to 52 recommendations implemented across campus. To ensure the team is prepared to address equity-related concerns among team members, a complaints management process has been established and will be communicated to the team. All complaints will be brought forward to the identified EDI lead, who has received specific complaints management training. Concerns that cannot be addressed internally will be escalated to the Equity Office for additional consultation.”

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Recruitment Processes

• What safeguards will you put in place to ensure the recruitment of team members is open and transparent and aligned with best practices (minimizing bias and barriers)?

• For example:
  • Adhere to EDI related policies
  • Broad distribution of job opportunities
  • Develop inclusive job ads
  • Consider consulting an EDI experts to review materials
  • Develop and consistently use specific selection criteria
  • Create a selection committee
  • Complete unconscious bias training prior to selection
Example for Recruitment Processes

“The PI/Co-PI(s) completed the Tri-Agencies Unconscious Bias Training Module to help identify the researchers’ unconscious biases prior to recruitment and selection. As the PI is recruiting from within the department, broad recruitment was not possible. However, the opportunity was communicated openly through email to all incoming graduate students and promoted during an introductory welcome session. The PI developed a series of selection criteria based only on the required skills for the role prior to selection began. As gender was identified as a relevant factor for the project during the GBA+ analysis, experience with gender-based research will be considered an asset during selection. Selection will be determined by a selection committee made up of three management team members to ensure that individual bias of any one team member is mitigated.”

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Training, Development and Mentorship

• What approaches will you use to ensure development and training opportunities are equitably distributed in your team?
• For example:
  • Require EDI-related training for all HQP
  • Provide information on mentorship programs
  • Keep a record of all training opportunities
  • Communicate all opportunities broadly and transparently
  • Provide financial support for training and development
  • Ensure workload of HQP providing mentorship is balanced
Example for Training, Development and Mentorship

“All HQP will be required to complete equity training available through the institution to ensure all understand the importance of an equitable and inclusive research team environment. HQP will be encouraged to explore available mentorship programs, including Women in Computer Science. The PI will provide a monthly email promoting training opportunities. The PI will keep written records of completed training and development to ensure that all HQP are provided with equitable support. All Post-docs will receive funding for one international conference, while the graduate students will receive funding for one national conference to ensure that financial limitations do not present a barrier to participation. Senior HQP, including the post-docs and PhD students will be expected to mentor junior HQP through formalized mentorship roles. All HQP taking on mentorship roles will have their workloads redistributed to ensure that an adequate work/life balance is maintained.”

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Inclusive Training Environment

• What measures will you put in place to ensure team members from equity-seeking groups feel they belong?

• For example:
  • Provide information on EDI related policies, campus resources, and supports
  • Address equity-related conflicts and microaggressions that occur between HQP quickly
  • Hold regular meetings to allow HQP to communicate their needs
  • Provide alternative meeting formats and dates/times
  • Encourage participation in campus equity initiatives to ensure team members understand the importance of an inclusive environment
Example of Inclusive Training Environment

“Weekly team meetings will be scheduled to ensure HQP are able to provide updates on their workload and discuss any emerging issues, including equity-related concerns. Meetings will be intentionally scheduled during core business hours and avoid days/times that conflict with faith-based practices of team members. Virtual meeting options will be provided for team members with caregiving duties or travel limitations. All team members will be provided with information on available campus resources, including how to access bursaries for parental leave, locations of multi-faith spaces, and inclusive washrooms. Team members will be encouraged by the PI to contribute in campus events, including (provide specifics based on availability).”

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Recommended EDI Resources

• Canada Research Chair Program: [Equity, Diversity and Inclusion: A Best Practices Guide for Recruitment, Hiring and Retention](#)

• NFRF: [Best Practices in Equity, Diversity and Inclusion in Research](#)

• NSERC: [Guide for Applicants: Considering equity, diversity and inclusion in your application](#)
Questions?