k2i academy Inclusive Design Framework 1.0

A quick guide to designing and implementing educational programs that is equity-focused, and creates opportunity for system change in K-12 Science & Technology and STEM Education.

Critical Theory

How will we evaluate, reflect and critically think about society and culture, to reveal how structures impact certain individuals?

How do we challenge power structures to create more equitable outcomes?

Anti-Oppression Theory

How will we address systems of oppression such as colonialism, racism, sexism, ableism, homophobia, transphobia, and classism, resulting in individual and structural inequities in society?

Anti-Racism Education

How will we challenge racism, inequities, prejudices, and discrimination based on race?

How will anti-racist spaces, free of racial injustice, be co-created?

Individual

How will each individual identify and confront their biases and be open to learning in order to be culturally responsive?

Instructional

How are the educational practices within programs and sessions addressing student needs, incorporating intrapersonal experiences and creating equitable outcomes?

Institutional

How will leaders critically examine processes and systems to identify areas of inequity?

How might we create new inclusive systems?

Let's create equity-focused STEM programs together!

ABOUT US

The Lassonde School of Engineering launched k2i (kindergarten to industry) academy in June 2020 with a mission to create an ecosystem of diverse partners, committed to dismantling systemic barriers to opportunity for underrepresented students in STEM. The k2i academy engages with youth and educators by bringing STEM to life – connecting directly to school boards and their classrooms, offering innovative work-integrated learning programs, and partnering with community organizations to provide unique, hands-on STEM learning opportunities.

https://lassonde.yorku.ca/k2i

k2i@lassonde.yorku.ca

Student & Family

1 How has the program placed students and families at the centre of the design?

Intrapersonal

2 Have specific identities or intersectional identities of student groups been identified?

Considerations:

- ☐ Cultures
- ☐ Families
- ☐ Identities
- ☐ Social Location
- ☐ Abilities
- ☐ Languages

Interpersonal

3 Have individual, instructional and institutional barriers been identified?

Considerations:

- ☐ Designing Experiences
- ☐ Engaging Student and Educator Voice
- ☐ Collect and Analyze Equity Data
- ☐ Report and Evaluate to Drive Improvement
- ☐ Building Leadership, Engaging Family
- ☐ Parents, Elders, and Community
- ☐ Environment and Context Learning

Operational Framework

4 Organizational

Community
Have you found willing partners and co-learners within the ecosystem to identify persistent challenges within STEM education?

How will you work collaboratively to design, implement, text, and iterate on co-designed initiatives?

Partnership
How are your partnerships reciprocal relationships that work towards system change?

Identify complementary:

- ☐ Resources
- ☐ Skills
- ☐ Knowledge
- ☐ Experience

Equity, Diversity, and Inclusion
Does the initiative engage diverse thought leaders and perspectives for collaboration?

How is your initiative designed to be culturally relevant and responsive to diverse learners?

Social Impact
How might your initiative address systemic barriers for underrepresented students in STEM?

5 Program Level

Meaningful Engagements
Is your program:

- ☐ Culturally relevant and responsive?
- ☐ Increasing scientific and agential literacy in STEM?
- ☐ Increasing students' sense of responsibility for social and environmental justice?

Leadership
Is your program:

- ☐ Engaging community and educational partners?
- ☐ Co-designed with partners?
- ☐ Implemented with partners?
- ☐ Disrupting STEM education with partners?

Multi-point Engagement
Does your program:

- ☐ Sustain long term relationships with partners?
- ☐ Create positive STEM identity development in students?
- ☐ Enhance skill acquisition?
- ☐ Offer mentorship?

6 Sessional Level

Skill Expansion
Does the learning:

- ☐ Strengthen competencies in coding and computational thinking?
- ☐ Develop scientific understanding?
- ☐ Demonstrate application of mathematics?
- ☐ Include engineering design?
- ☐ Incorporate hands on learning experiences?
- ☐ Focus on solving real world problems?
- ☐ Inspired by the UN Sustainable Development Goals?

Mindset Development
Does the learning and problem solving:

- ☐ Connect to students interests, lived experience and perspectives?
- ☐ Create opportunity to pursue social justice?
- ☐ Develop skills in:
  - ☐ Communication
  - ☐ Critical Thinking
  - ☐ Creative Problem Solving
  - ☐ Adaptability

Note:
This is a living document and will adapt and change as our thinking evolves. We invite collaborators to join us in this work. (June, 2022)

Framework Inspired by the work of:
Chanicka, J., and Logan, C. Example of best practice: inclusive design. Intercultural Education (London, England), 32(3), 335–347, 2021. https://doi.org/10.1080/14675986.2021.1886430

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