

Valuing Inclusion

Towards and evidence-informed approach to EDI practice

Agency and ownership

A person's capacity to act and to take action in their learning and lives. The extent to which a person experiences a sense of ownership and voice. A feeling of greater control to participate, to take the lead, to feel informed to use (or not use) STEM, in order to make a positive difference in their lives and the lives of others.

Outcomes that cluster with 'Agency and ownership'

- Having a voice
- Feeling listened to, feeling heard
- Feeling valued
- Confidence and self-belief
- Freedom and ability to make choice
- Capacity to act and take action
- A sense of ownership
- Feeling empowered
- A sense of pride and self-esteem
- Ability to utilise and question science
- A sense of STEM as a 'shared endeavour'

Examples of questions / statements

- “I felt listened to / I felt heard”
- “I made a difference here”
- “I felt confident I could contribute / share my ideas”
- “I felt my ideas are heard during *science activity*”
- “People asked me for my ideas and opinions”
- “I felt able to question and be critical about *science*”
- “I was able to make a contribution during the programme”
- “I helped someone else join in”
- “I felt other people cared about my ideas”
- “I felt like an expert today”
- “I had the chance to work on something I wanted to do”
- “I felt valued here”

Belonging

An active and dynamic interaction between people, places and contexts. Closely tied with agency and the ability to participate, Belonging includes a sense of personal identity alongside community/group value, respect, representation, recognition and acceptance.

Outcomes that cluster with 'Belonging'

- Feeling welcome
- Feeling comfortable
- Feeling part of a community / a group
- Feeling connected with others
- Confidence in the space
- Enhanced mental and emotional wellbeing
- Being with family or friends as a social experience
- Representation
- Ability to be myself
- Being able to understand, enjoy and take part

Examples of questions / statements

- “I felt welcome”
- “I feel comfortable when doing * science activity*”
- “I feel that *science centre* is a place for me / for us”
- “I feel at home and comfortable here”
- “I feel like a belong at *science centre*”
- “I can be myself when doing *science activity*”
- “I felt safe and secure”
- “I see myself / my values / my interests here”
- “People like me come here”
- “Content here reflected me / my community”
- “People I saw here reflected me / my community”

Relevance

A push for personal relevance to lived experience and everyday life including personalisation and localisations. To think about social, political and cultural relevance. To work against science as an elite and elitist pursuit, instead to recognise that people encounter and relate to science in many ways and to contextualise it as such.

Outcomes that cluster with ‘Relevance’

- Relevance of science to everyday life
- Connection to *STEM/science/nature*
- Relevance to lived experience
- Relevance to local place
- Relevance to interest
- Representation
- Respect
- Relevance to culture
- Relevance to current / contemporary issues (e.g. climate, health, social justice)

Examples of questions / statements

- “The things covered here felt relevant to me”
- “*STEM* matters in my everyday life”
- “I can use *STEM* to understand the world around me”
- “How do your projects connect to your life?”
- “*STEM* feels relevant to me and the things I care about”
- “This had something to say about the world in which we live”
- “We can see a connection between *STEM* and our own lives”
- “I could see how science matters for me”
- “This was important to who I am”
- “Things that matter to my community happen here”
- “The content here reflected me / my community”
- “We couldn’t find much that was relevant to us”

Skills development

Higher order cognitive skills, sometimes termed ‘flexible’, ‘essential’ or ‘HOT’ skills bring together challenge and creativity, STEM skills (e.g. research, problem solving, critical enquiry, etc) connecting with social, emotional and development skills (e.g. teamwork, communication, leadership, etc): essential preparation for the world of work.

Outcomes that cluster with ‘Skills development’

- Problem solving and research skills
- Critical thinking and the capacity to question science itself
- Pride in attainment of skills
- Creativity
- Perseverance and resilience (a safe space to try, fail and try again)
- Social skills and self management
- Teamwork and communication
- Leadership skills

Examples of questions / statements

- “I would like to develop my skills in *STEM* more”
- “I discovered a skill I didn’t know I had”
- “I feel proud of myself when I did here”
- “I learnt something new that I could use at home/school...”
- “I could try *science activity* even if it looked hard”
- “I got better at something I enjoy doing”
- “I helped someone else do something”
- “I see a challenge and enjoy it”
- “I’m good at finding out about how things work”
- “We had to try a few different ways, but we figured it out”
- “What new skills have you developed?” (open ended)

Possible selves

The ability of STEM to open-up new pathways, possibilities, choices and opportunities broaden horizons and support identity development. Engaging and developing pre-existing aspirations and interests, as well as developing new ideas about what someone can do, what opportunities they would like and who they can be.

Outcomes that cluster with 'Possible selves'

- Curiosity
- Confidence
- Self-belief
- Broadening horizons
- New experiences and new ideas
- Seeing new possibilities for self
- Opening up choices
- Shared learning with others
- Connection to opportunities

Examples of questions / statements

- “I could work in *STEM* in the future if I wanted to”
- “I would like to know more about careers involving *STEM*”
- “I think *STEM* will be useful to me in the future”
- “I am clever enough to work in *STEM*”
- “I feel like working in *STEM* could be an option for me”
- “The visit made me want to explore further some of the things covered here.”
- “I discovered that this is not what I’d want to do for a job”
- “Something I learned today changed my interest”
- “I did not learn anything new”
- “This relates to what I want to do in the future”
- “The experience changed my mind about what I want to do”

Social connection

Bonding with friends and family members, creating new relationships or connecting with others over a shared experience. Overlapping with Belonging, Agency and Relevance, sometimes termed ‘social wellbeing’, social connections are key motivators to attend, and huge contributors to positive experiences with STEM.

Outcomes that cluster with ‘Social connection’

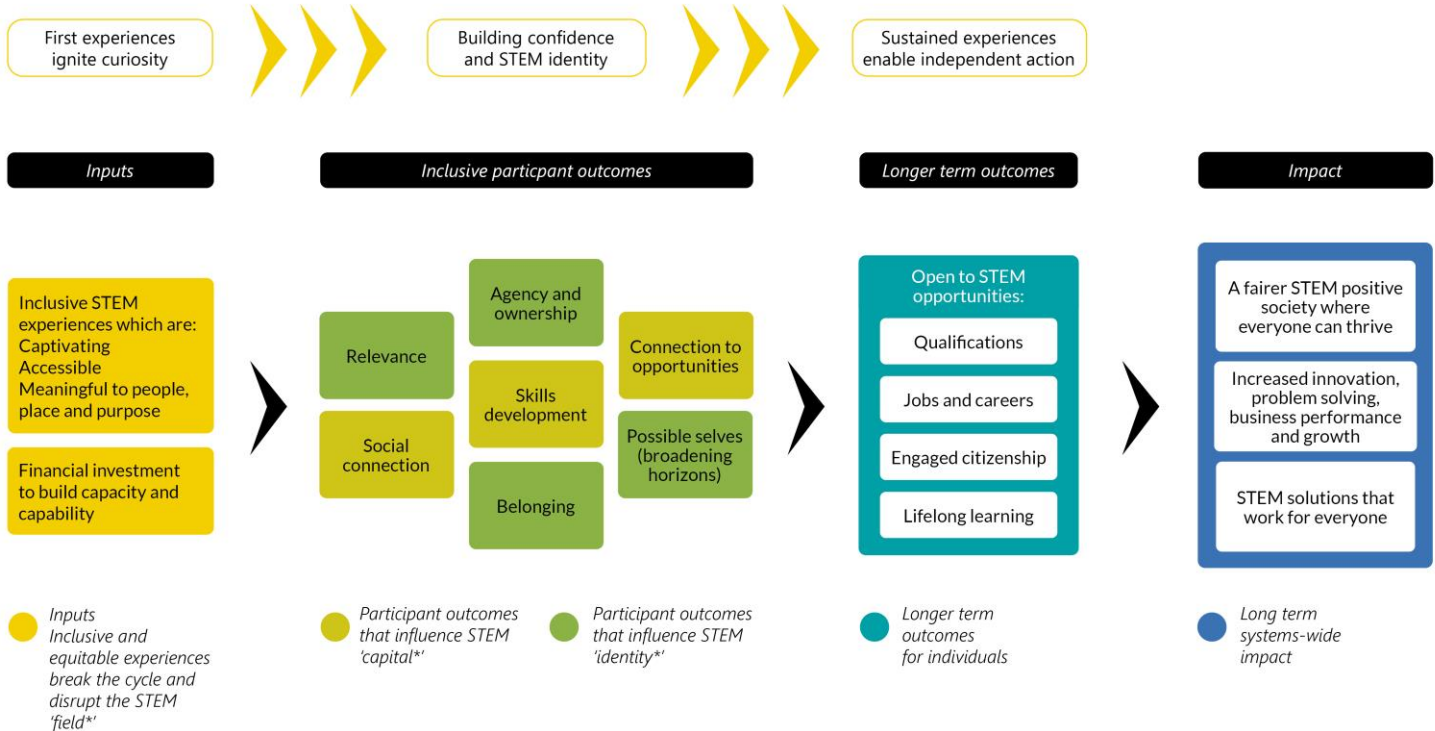
- Positive relationships with family
- Positive relationships with friends
- Making friends
- Positive relationships with STEM professionals
- Building trust
- Wellbeing
- Belonging

Examples of questions / statements

- “I enjoy doing *science* with my friends/family”
- “I enjoyed having conversations with my friends/family about *STEM*”
- “This *science activity* helped us to spend quality time together”
- “I felt connected with others around me / experiencing this”
- “During our visit, we talked to each other about what we were looking at and what we were doing”
- “I enjoyed the company of other people here”
- “I made new connections to people here / I made friends here”
- “I met people here that I will stay in touch with”
- “Did your visit help you feel connected with a community?”
- “Did your visit allow you to increase your understanding of others?”
- “The *scientists/teacher*I met was approachable/friendly”

Breaking down barriers:

opening pathways to opportunity



*referenced from ASPIRES 3 Young People's STEM Trajectories, Age 10-22 (Archer et al. 2023)