Towards equitable makerspaces

ACTIVITY BOOKLET

Activity 1.1:
Getting started with critical reflection

Who: Practitioners, makerspace leaders

Time: 30-40 minutes

Resources: Equity Compass summary and worksheet, video access, means for working on the worksheet (hard copy or on device)

What to do:

1. Read the case studies and introduction to Step 1 to learn about the Equity Compass.

2. Read the Equity Compass summary for practitioners and watch the two-minute video.

3. Use this worksheet to critically reflect on, and map, your own practice using the Equity Compass.

4. You may also want to use the funders version of the summary to reflect on your organisational strategy using the Equity Compass.

5. Develop a plan for one change that you would like to make to your practice as a result of this reflection and mapping. You may want to use the template in the Next Steps worksheet for this.

Activity 1.2:
Moving to deeper critical reflection

Who: Everyone

Time: 30-40 minutes

Resources: Hard or electronic copies of the boxed practitioner statements, which are printed and cut up into individual statements that can be grouped or sorted

What to do:

1. Read the following reflections from a group of practitioners who have completed the Equity Compass Activity 1.1:

> I'm not a stupid or bad person, but this activity made me feel both stupid and remiss for not having thought about these issues before. I don't like how I'm feeling and I'm not sure I want to continue.

> I have felt uncomfortable over issues of race in the past and, having reflected on this, I can see that my discomfort at the time was helpful because it did provoke a response in me, which led me to improve my knowledge and future practice.

> I don't think it is helpful to classify people by their background characteristics – that just reinforces inequities. I prefer to just treat everybody the same. It's the fairest way. It doesn't matter to me if you are black, white or an alien with purple and green spots!

> I've always prided myself on my sessions being really fun and engaging, but I'm starting to wonder if they were always actually equitable or inclusive?

> I realise I am a white, middle-class man but I can't physically change who I am. So, I have decided am going to start showing some photos of more diverse engineers and computer scientists in my maker sessions, so the young people can see that anyone can work in this field, not just people who look like me.

> I worry that I've been too complacent.

> It's not easy to give up the familiar.

> don't mind doing this sort of activity myself, but most of my team are volunteers and I don't think it's fair to make them do this sort of stuff. They're doing the best they can – they're only human. I can't risk them leaving by making them feel inadequate or giving them masses more work to do and telling them to change what they do.

2. Consider or discuss the following questions (you may find it helpful to have the statements on separate pieces of paper/card so you can sort and group them as part of the discussion):

   • To what extent do these practitioner comments resonate, or not, with your own experiences?

   • How and why do you think the comments indicate either surface-level or deeper critical reflection? (E.g. what power relations and aspects of their own privilege are they considering? Are there any indications of defensiveness?)

   • How might you help encourage even deeper critical reflection among these colleagues?

Activity 1.3:
Extension activity - personal reflection

Who: Practitioners/staff

Time: 15-20 minutes

Resources: Note-taking materials

What to do:

Think about a time from your own professional experience when you have felt uncomfortable in relation to issues of power/privilege (e.g. race, class, gender, disability, sexuality, etc.). Try to consider:

   • What power relations are at play?

   • What helped open up or close down the potential for critically reflecting on, and engaging with, the issues in this moment?

   • How might you address this sort of issue more productively in the future?

SPACE to REFLECT

Activity 2.1:
Workshop reflection for co-production

Who: This activity is aimed at session facilitators and is suitable for individuals or groups

Time: 15-20 minutes

Resources: Printed or digital copy of a workshop or session plan; pen or electronic device

What to do:

1. Choose a workshop session plan or programme plan from your youth programme (or any other outreach programme). If working in a group, it may be helpful to print this out on a large piece of paper or project it onto a screen.

2. Work individually or in a team to highlight any existing parts of the session or plan where young people are consulted or involved in co-production. This could reflect their involvement in the design, delivery or evaluation of all or any of the activities.

3. Next, annotate the plan (perhaps using a different colour) to identify further opportunities for co-production. You may find it helpful to refer to the case study examples to spark ideas for what these might look like in practice.

4. Discuss the annotated plan with others (even better if you can also involve young people in this) to further iterate and reflect on potential changes and identify steps that will need to be taken to realise co-production. For instance, it may be helpful to consider:

   • Do staff have the resources and time required to facilitate participatory approaches with young people? If not, what could be put in place to help?

   • How might practitioners be supported to balance power relations between adults and young people in the programme/session?

   • Are the changes identified one-off/short-term or longer-term solutions? If the former, how might they be extended and more deeply embedded into everyday systems and practices?

Activity 2.2:
Try out some of our ideas for everyday co-production

Who: Practitioners and young people

Time: 10-30 minutes, depending on the idea

1. **Resources:** Depends on the chosen activity – see list in Appendix D; workshop reflection form in Appendix E.

What to do:

1. Read Appendix D and select one of the activity ideas that you would like to try out to support co-production with young people (you are also welcome to use your own ideas).

2. Try out the idea in your makerspace.

3. Use the workshop reflection form in **Appendix E.1** to critically reflect on how it went and what you could do to improve it next time. Don't worry if things don't go as planned the first time around – continue to reflect on the process and build on what you have learnt.

4. Continue building more ideas into to the workshops, reflecting on how the young people and other practitioners respond.

Activity 2.3:
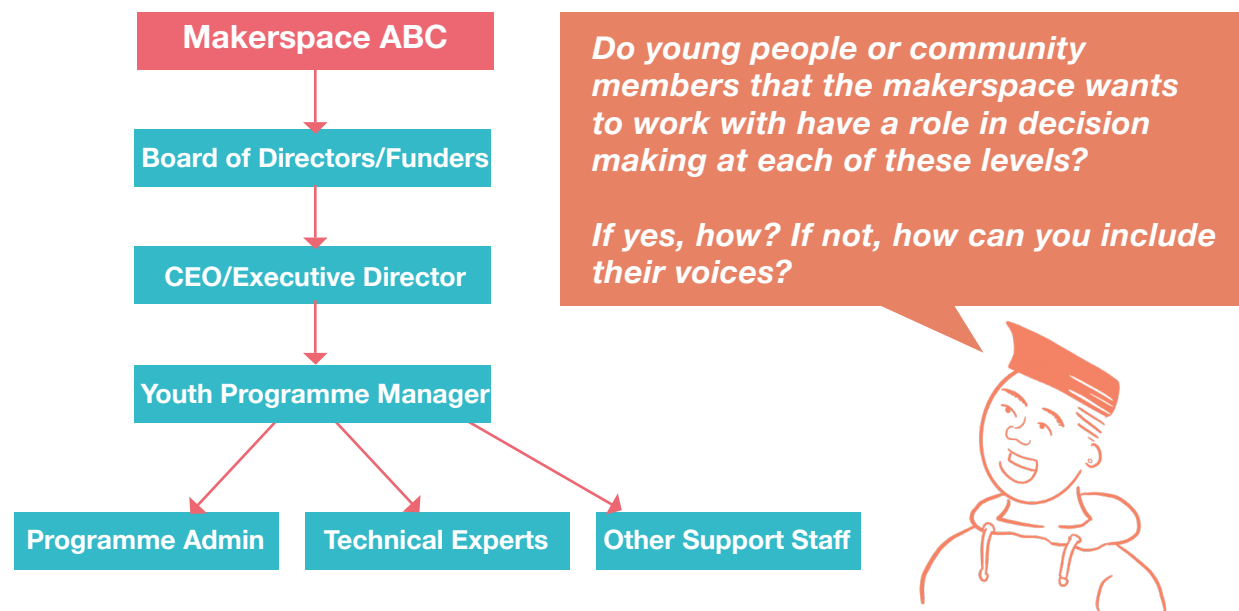## Exploring your governance through an equity lens

Who: Practitioners and young people – all relevant leadership

Time: 30-40 minutes, group activity

Resources: Paper and pens or digital writing/mapping tool (e.g. PowerPoint)
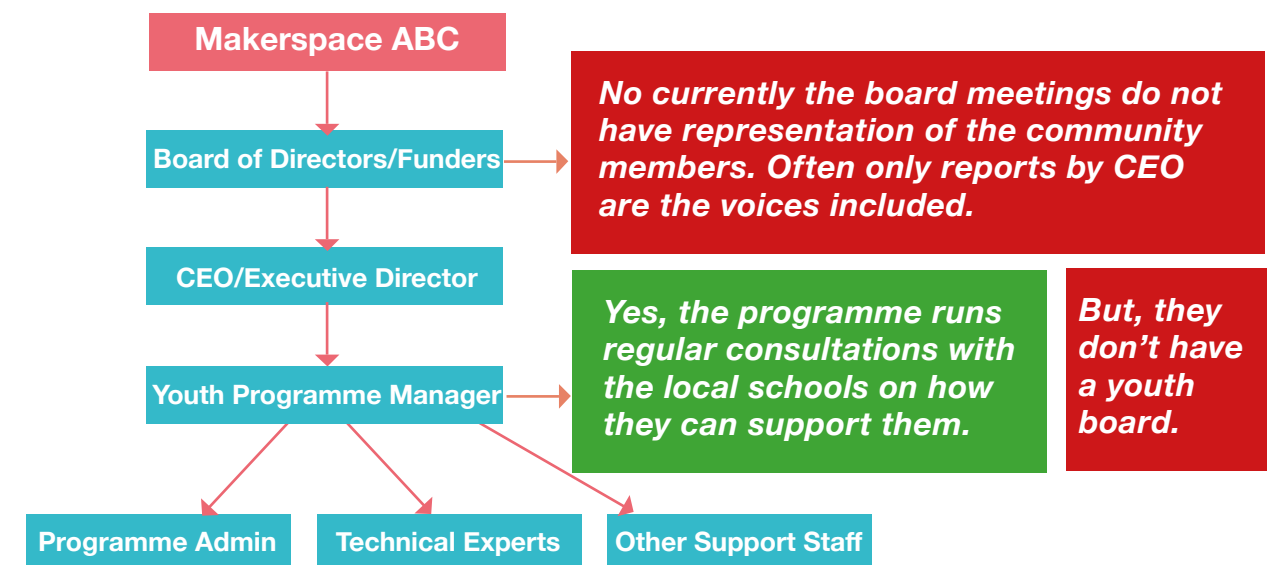
What to do:

1. Understanding your decision-making structure:
   Create a map of your organisation's governance and staffing structure detailing how decision-making takes place (see diagrams below). Note: this is not a standard structure that we are recommending – just a typical example for reference.

   Makerspace ABC

   → **Board of Directors/Funders**

   → **CEO/Executive Director**

   → **Youth Programme Manager**

   → **Programme Admin** | **Technical Experts** | **Other Support Staff**

   Do young people or community members that the makerspace wants to work with have a role in decision making at each of these levels?

   If yes, how? If not, how can you include their voices?

2. Identifying the role of equity at different decision-making stages:
   For each level, identify how and to what extent (a) equity is core or peripheral to the post/role in question, (b) the extent to which staff at each level are supported and equipped to address equity issues, and (c) the voices of young people and their communities are involved in decision-making. For example, if you have youth representatives on a board, or a youth advisory panel, what level of power and accountability does this structure have?

Note: You may find it helpful to refer to the Equity Compass dimensions with regard to mainstreaming equity (from tokenistic to mainstream) and this summary document on how to set up an equitable youth advisory board. Note that youth and community voice not only needs to include young people who attend your setting, but may include young people from local schools, colleges, job centres, charities and grassroots organisations.

Makerspace ABC

→ **Board of Directors/Funders** → *No currently the board meetings do not have representation of the community members. Often only reports by CEO are the voices included.*

→ **CEO/Executive Director**

→ **Youth Programme Manager** → *Yes, the programme runs regular consultations with the local schools on how they can support them.* | *But, they don't have a youth board.*

→ **Programme Admin** | **Technical Experts** | **Other Support Staff**

3. Planning to embed youth and community voices within your governance structure.

   If this review has helped in identifying areas for development, you can now start to plan ahead. For instance, you may decide to instigate some organisational professional development to support the understanding of equity issues. There may be interest in setting up a working group to further embed and maximise the impact of youth voice across the organisation. We suggest working collectively and using relevant resources and networks, where possible.

Activity 2.4:
Reflecting on and iterating promotional materials

Who: Practitioners and young people, particularly staff working on promotional materials, and marketing and communications for the makerspace.

Time: 30-60 minutes

Resources: A selection of recent promotional materials for your makerspace and youth programmes; informal promotional efforts (social media, word of mouth etc.); tools to aid discussion (e.g. paper, pens, sticky notes or online discussion board)

What to do:

1. Look through the promotional materials (e.g. flyers, posters, application forms, social media, website text) used for your makerspace and youth programmes.

2. Identify and articulate both formal and informal ways in which the makerspace conducts its outreach activities. Who creates these materials/makes these decisions?

3. Discuss:
   What visuals are used?
   Who is, and is not, represented?
   What messages might the visuals convey (e.g. in terms of who they are aimed at and what is shown about the space and the activities and programmes)?
   What sort of language is used in the text?
   Who might feel included/excluded by the style and choice of language?
   Whose voices are represented?

4. Collectively discuss and identify ways of developing promotional materials that are more inclusive and engaging for your target audiences.

Activity 2.5:
Collecting multiple perspectives on barriers to access

The aim of this activity is to understand multiple perspectives on barriers that young people might face in terms of accessing the makerspace, and to generate ideas for addressing these barriers equitably.

Who: Practitioners and young people; community members plus professionals with responsibilities for marketing, communications and outreach; leadership

Time: 1-2 hours

Resources: Pen, paper, flip chart paper, or online note taking resources

What to do:

1. Working with your makerspace team, identify and discuss the potential barriers to participation, from the perspectives of multiple stakeholders. (Barriers could include social, individual, systemic, school, family, communities, geographical etc.).

2. Convene working groups, potentially comprising relevant key stakeholders, and run similar sessions with each working group to identify what they perceive as the key barriers (e.g. young people and community members, families, stakeholders, funders etc.).

3. Through discussion, you may want to map different stakeholders' views using a grid, to help see where there are areas of agreement and specificity.

4. Identify the key issues that emerge – both common ones and unique ones identified by different stakeholders.

5. Develop an action plan based on the findings of the mapping, devising both short-term and long-term plans for addressing the barriers to access.

Activity 2.6:
Embedding equitable pedagogy in your sessions

Engaging in critical professional reflection is an invaluable part of equitable practice. This activity can be undertaken as a one-off, but is most powerful when repeated, becoming a regular 'habit'.

Who: One or more practitioners

Time: 5-10 minutes

Resources: Printed or online version of the workshop reflection sheet – equitable pedagogy in Appendix E.2

What to do:

1. Invite your colleagues to observe one of the sessions you are running for young people (this could be a series of sessions).

2. After observing the session, take 5-10 minutes to reflect on how it went, using the workshop reflection form (Appendix E.2) to document what went well and what could be improved in terms of equity in pedagogy.

3. Similarly, observe other sessions run by other colleagues and reflect critically on their equitable practices.

4. Using peer observations of each other's practice, reflect together on areas of equitable pedagogy that are working well, and those areas that need further development.

Activity 3.1:
Current evaluation practice

The outcomes you are trying to achieve are among the most important drivers of evaluation. This activity will help you to reflect on what you are measuring, and why. It can be undertaken individually, but can be even more effective when discussed collectively with other members of staff.

Who: One or more practitioners

Time: 1 hour

Resources: A current evaluation tool (printed or digital) used in your space, and the means to annotate it

What to do:

1. Select one of your current evaluation tools (e.g. a feedback form).

2. Annotate the form with the outcomes that you intend to measure with it. (Some people find it easiest to print a larger copy of the form and use post-it notes to annotate outcomes). As you do this, discuss/reflect on why you are aiming to capture these outcomes?

3. Next consider the extent to which the annotated outcomes reflect equitable outcomes. You may find it helpful to look at the Equitable Youth Outcomes Framework (Appendix A).

4. Discuss/reflect using another round of annotation (e.g. in a different colour) to identify how and where you could adapt the evaluation tool in question to capture more equitable outcomes.

5. You may wish to relate the annotated equitable outcomes to the aims of your programme. To what extent might these offer opportunities for further alignment?

6. To extend the activity further still, you may wish to explore ways to share your reflections and insights, using them to inform the review and iteration of current programmes.

Activity 3.2:
Trialling a tool

Who: One or more practitioners

Time: 2+ hours

Resources: Quick Check Survey, Equity Barometer Survey, devices or means to deliver and capture data and feedback from the chosen evaluation method

What to do:

1. Read the pre/post Quick Check Survey and the Equity Barometer Survey. There are guides in the appendices of this resource to support you in using these two tools.

2. With colleagues, if possible, choose one of these tools to try out, adapting it if necessary to fit your space and programme.

3. After trying out the approach, arrange a discussion with those involved to consider how it went, considering:
   To what extent did participants find the tool was easy or difficult to use? Why?
   To what extent do you feel the tool fits into the flow of the programme? What would need to be changed/improved to make it more effective?

Activity 3.3:
Co-producing evaluation

Co-producing evaluation – or supporting young people to design their own evaluation tools – is a valuable way to not only capture youth voice and support young people's agency, but also to embed equity into the design and delivery of evaluation.

Who: Practitioners, young people

Time: 2+ hours

Resources: Examples of current evaluation tools used in your space; means to record and share young people's thoughts (e.g. written notes, mind map tools); examples of other evaluation approaches; tools to record thoughts and ideas (e.g. pens, paper, stickers, computers)

What to do:

1. Organise a discussion with young people to explore their views and experiences of evaluation. It may be helpful to collect and share some of the tools that you currently use for evaluation as discussion prompts.

2. Record young people's views on these, thinking about:
   To what extent do they feel that existing tools capture their experiences and feelings about a programme?
   What works well?
   What is missing?
   What needs more/less detail?
   What do they think are the most important things that practitioners need to understand about their experiences in the space/on the programme? How might these be best captured?

3. Invite the young people to share their ideas and designs for adapting or changing existing evaluation tools and/or creating new ones. You may find it helpful to share with them some examples of different evaluation approaches, such as creative approaches (Appendix H), Quick Check feedback forms (Appendix G) or the Equity Barometer Survey (Appendix F).

4. Support young people to try the co-produced tools, gather feedback and use this to develop a next version. For example, consider the extent to which the tool captures equitable youth outcomes and ask what is important to young people.

Next Steps Table: Planning & Reflection

	Key reflections after reading the introductory sections to this step	Key thoughts after doing the case study reflective questions	Reflection on the activity - what do I want to try? How do I need to adapt it? How did it go?	How can I take this step further? What do I want to develop/improve/test next? How can I enhance equity ?
PREPARE Equitable mindset and critical reflective practice				
DO **(Tick all that apply)** • Co-production • Equitable governance • Inclusive access and outreach • Equitable pedagogy				
EVALUATE Equitable spaces and outcomes				

Next Steps Table Worked example

The following is a worked example of how to use the form, using the illustrative case of Oliver, a youth workshop facilitator in a makerspace, who has recently begun engaging with issues of equity in his practice.

	Key reflections after reading the introductory sections to this step	Key thoughts after doing the case study reflective questions	Reflection on the activity - what do I want to try? How do I need to adapt it? How did it go?	How can I take this step further? What do I want to develop/improve/test next? How can I enhance equity ?
PREPARE Equitable mindset and critical reflective practice	This made me think about the fact that most of the young people in my electronics workshops are boys. The few girls we do get tend to be quiet and are not as vocal in group discussions. The idea of equity was new to me. Previously, my approach has been to treat all young people the same. But now I think my 'equality' approach was not ideal. I'd like to understand some more about how to use an equity approach in my workshops.	I liked the way the team evolved their practice in the case study – they didn't try to change everything at once. I recognised the same gender imbalance as the case study makerspace. I like how the Equity Compass framework gave the team a structured way to think about improving their programme. 'Assets-based' learning is a new term for me and sounds interesting – I'm going to look at the Equity Compass summary link and read a bit more to better understand it.	I read the Equity Compass summary and tried the activity with a colleague. We focused on the 'assets-based' approach and decided to just try a small change first – asking workshop participants about their own experiences of electronics and adding in more discussion and opportunities for young people to tell us their ideas about what they would like to create in the work-shops, so we can identify ways we can move away from a 'recipe' approach to what we make in the sessions. It went well! The participants had interesting ideas.	We are thinking about running an 'open lab' programme this summer, where we can support participants to apply the knowledge and skills they have developed in the workshops to making and designing their own ideas. I'm going to discuss funding with the director and look at some frameworks for how we might structure and run the sessions. We are also going to get some input from the young people on the current workshop on what they would like.
DO **(Tick all that apply)** • Co-production • Equitable governance • Inclusive access and outreach • Equitable pedagogy	I have always put a lot of thought and effort into making my workshop sessions fun and engaging. But I've never really got young people's direct input, or got their feedback on draft ideas or content. I have tended to be guided by what I felt went well and comments from the course evaluation forms. But I can see that this would be helpful.	I'd like to set up a staff meeting or staff training on participatory ways of working with young people – I think that would be very useful. We could all read the case study and discuss it. I'm interested in the idea of challenging power differences between myself and the young people – but I do worry about the health and safety aspect. I found Mila's quote reassuring on this point.	I decided to ask the young people at the end of the workshop for their ideas for what they want to do next. They had loads of ideas, so we've decided to hold an additional group planning session where I will invite female colleagues and youth mentors to join, to help break down power hierarchies.	I think I'm using a consultation approach, so I'd like to try and develop it more into co-production. I'm going to discuss with colleagues and see if we can look again at the guide to get some ideas on how to develop this further. It's also made me think that we might want to look at our outreach next because I think there is more we could do to make our sessions more attractive and engaging for girls and non-binary young people – so I will read that section next.

	Key reflections after reading the introductory sections to this step	Key thoughts after doing the case study reflective questions	Reflection on the activity - what do I want to try? How do I need to adapt it? How did it go?	How can I take this step further? What do I want to develop/improve/test next? How can I enhance equity ?
EVALUATE Equitable spaces and outcomes	I realised that I have never thought about 'equity' before in relation to outcomes! The sort of outcomes that I've tended to measure have focused on whether young people have enjoyed my workshop, what skills they have learned and if they would recommend us or come back again.	I found it interesting to think about aspects like 'relatability' as a way of understanding how sessions go.	I wanted to try out some more creative approaches to evaluation that could also help me to get young people's input into session planning. I really liked the 'graffiti wall' idea, which I adapted. We used it to get young people's ideas for future workshops and what they want to see improved. It worked really well. I noticed that the girls especially enjoyed adding and drawing their ideas on the wall. I'll work these ideas up and will set up another meeting to get their feedback on what we develop, to check we all feel it is on the right lines.	It's been great getting the young people's ideas – they are really creative! They've come up with amazing ideas that I wouldn't have thought of. It's also given me a better idea of how girls experience our programme. I'd like to extend these input sessions – I'm going to read the governance section next, as my colleague said it has material about youth advisory boards, and I think this is something that might benefit our makerspace.

Activity ideas for co-production

Youth-led icebreaker (10mins)
Ask young people to choose and facilitate an icebreaker activity for the first part of a session. If you have a large group of young people, you might find it easier to involve a smaller number of young people to begin with – however, be careful not to only select more confident voices. You could try selecting randomly, or you might want to ask someone who is usually not as confident or engaged. Icebreaker activities can be any warm-up game to get the young people energised and interacting with each other in a fun way. Leave space for the young people to explain the rules of the icebreaker to the group and let them run the activity/game. You can help by making sure all the young people are taking part in the icebreaker, and that everyone understands the rules, or help the young people to make sure everyone is listening.

Youth facilitation roles/'mini-managers' (variable)
Discuss with young people if they would like to take on specific roles and responsibilities (these could be within a particular session or more generally across a programme). Collectively generate a list of possible roles (e.g. timekeeping; scribing; giving out snacks during breaks; welcoming new members; hosting visitors; signing young people in and out; tidying up, running games, conducting course evaluations; generating ideas for the programme). Then agree a system that they would like to use to volunteer for these roles. Make sure everyone can have a say and agree ways forward.

Peer feedback activity (c.10-15mins)
Encourage collaboration and peer feedback by asking young people to spend 5-10 minutes in pairs, finding out about projects that they are each working on and any future development ideas they may have. Invite one of each pair to then tell the group about what they have learned about their partner's work and their discussion. (see mentors view's on the value of peer-to-peer learning).

Sharing/showcasing work (15mins)
Leave time at the end of each session for young people to take turns sharing what they have done/made in the workshop. You may want to ask for volunteers to share, or you may prefer to select young people who have done particularly well in that workshop. Remember to consider young people's needs – for instance, some young people may need more support than others to participate in sharing. It can be useful to ask a young person what support they need to be able to share with the group, or use the peer feedback activity so a peer can share, if helpful.

Championing young people as experts (5-10mins)
Make time for young people to demonstrate, explain and share their skills, ideas and experiences with the group, as part of an assets-based approach. For instance, ask a young person to demonstrate using a machine or tool that they like to use; share a skill, hobby or interest that they have from outside the space (e.g. knitting, sports, gardening); or present an idea or topic that they are interested in.

Develop ideas for co-production in a group discussion (30mins)
Facilitate a discussion with young people to plan and map additional ways they can be involved in co-producing the workshops. Explore with young people how they could be involved in the design, delivery, facilitation and evaluation of the sessions. Ask young people for their ideas on how to make the space and their experiences on the programme even better.

Creative evaluation tools

While questionnaires or feedback forms (both on paper and online) are familiar ways of carrying out evaluation, there is a wide range of alternative – and creative – evaluation methods that you and the young people you work with may want to consider. Here are a few of our favourites:

Graffiti wall: This is an open-ended tool that can be used to gather feedback about an activity or programme. You may find it helpful to include particular prompts or key questions – such as likes or dislikes about a programme, suggestions for making it more welcoming, or anything else you are interested in exploring. To make the wall, a large sheet of paper is attached to a wall or board, with prompts written on it. Young people can use post-it notes to write or draw their responses to the prompts. This activity can also be connected visually to a theme, such as drawing a tree (or making one) and inviting young people to respond on the 'leaves'.

Head-hands-heart: This visual tool is a fun way to gather feedback on an activity or programme. Draw an outline of a person on a large piece of paper. Young people can write or draw on post-it notes to reflect on what they thought about an activity (head), how they felt about it (heart) and what they would like to do next (hands – or feet). As an alternative, and depending on the preferences of the young people you work with, the outline could be printed onto smaller pieces of paper to allow for more private individual feedback.

Pebbles in a jar: This is a quick, easy and visual way for participants to provide feedback by voting on aspects of an activity. For example, they could respond to a question such as 'Did you feel listened to today?' with responses such as 'yes', 'a little bit', 'no'. It also has an advantage of being quite accessible to people who may struggle with literacy and can be anonymous. The jar (or box) can be covered so that young people cannot see how their peers are voting, or decorated to fit with the theme of a programme.

Photographs and videos: Participants can take photographs or videos, to capture elements of a programme or features within your space that are meaningful to them. While these would be challenging to evaluate by themselves, they are very useful as prompts in an interview or discussion. They also have the advantage of being usable by individuals who may struggle with literacy, and they can truly centre the voices of young people.

Physical rating scales: With this tool, participants stand along a line in response to a question. This could include expressing how much they enjoyed an activity, whether they agree or disagree with a statement, how interesting they find something, or how much they would like to repeat an activity. In a variation of this, young people could also stand next to a statement that they feel best describes how they feel. (Note that this is not a good tool for more sensitive topics, as there is no anonymity.)

Sticky dot rating scales: This is similar to physical rating scales but can be more anonymous. Participants use dot stickers to place themselves along a continuum (e.g. agree-disagree) in response to a prompt (e.g. 'I felt comfortable in today's activity'). A similar tool is the 'star diagram', on which young people used stickers to denote how far they felt they had progressed with particular skills.

MAKING SPACES

m4kingspaces.org
UCL webpage
X:@m4kingspaces

The Making spaces project is funded by Lloyd's Register Foundation

Partners