



Crafts Council

Make:Shift:Do Case Study

Fab Lab Barnstaple

Crafts Council's Make:Shift:Do programme works with makerspaces and Fab Labs to engage a diverse audience with cutting-edge approaches to making, changing perceptions of the meaning of 'craft' and revealing its real world potential.

In 2019 Make:Shift:Do delivered three mini action-research projects exploring how makerspaces and community groups can work together to co-produce projects. We think that, when projects are led by the passions, interests, and concerns of the communities involved, exciting applications for new craft technologies will emerge.

We're interested in learning from the process of delivering these projects in order to develop and test co-creation models which we can share with the wider makerspace community.



THE PROJECT

Fab Lab Barnstaple opened in 2018 and is hosted by Barnstaple Library. Through their Make:Shift:Do project they wanted to begin working with young people more collaboratively with the aim of young people eventually taking an active decision-making role in the Fab Lab.

Digital Making Tutor Kerala Cotter and Senior Librarian Amy Bell-Worrell developed new relationships with Space*, who provide youth services in Devon, Pilton Community College, Marland Special School, Museum Petroc



and SCOMIS Live, and IT education trade fair. They delivered a series of outreach workshops with these settings that enabled them to trial different approaches to working with young audiences. Outreach and partnership work also helped them to recruit young people to their Young Consultants group, which now meets at the Fab Lab on Thursday evenings and has begun to feed into plans for future activity.

How was your project co-produced?

Make:Shift:Do was our first step towards co-creating work with young people in the Fab Lab. The Creative Jam with Space* youth service, the activity with Pilton Community College and Marland School students, and partnership with the Museum of Barnstaple and North Devon helped us to trial approaches to engaging young people and have fed into the development of our Young Consultants group.

We found that using partner organisations to get in touch with the young people was a good start but relied on the adults to communicate and encourage the young people to attend. After a while the young people came to the sessions themselves and started to engage on their own initiative. The project gathered a momentum of its own as it got going. We found that the messages that we put out to contact young people that we didn't feel were working at the time brought rewards further into the project. We also gained more gatekeeper organisations along the way.

There were elements that were more led by the young people including what they created and whether it was as part of the group or individually. Most of the young people who participated in the activities were shown how the machines worked and would then make the creative decisions about what they wanted to make. They have created vinyl stickers for their school projects and laser cut wooden customised items for their rooms. We have enjoyed the freedom given to the Young Consultants as it has led to many successful outcomes. However, we have found that the young people tend to work towards their own interests, and in most cases the activities have led to outcomes for the individual.

When encouraged to participate in a group collaborative project they showed passion, but a lot of our shorter sessions wouldn't allow for this opportunity. This would be one thing we would like to continue to work towards, encouraging more co-creation with peers. For example, the art that we collected from Marland School visits were transformed into a piece that the library could display. This allows the public to view the amazing work from the school and promotes both the Fab Lab and Marland. As it is a school that works with students with behavioural and learning disabilities having a piece on display that shows their involvement is a way to see that the organisation is constantly engaging with the community and that people from all backgrounds and abilities are welcome.



Another element of the project that was led by the young people was the brainstorming of future activities. They planned a 3D printed garden to give the Fab Lab a green element that the public could participate in creating. These consultations were extremely important in informing us about what younger audiences are keen on seeing in the Fab Lab. One thing that the consultants suggested that they create was a large articulated 3D printed angel/bird wings which you could move and pose to take pictures with. This idea stemmed from some small articulated models that we had printed. It was a great experience to see how the young adults took our old models and ideas to new and modern places. They brought up the idea of social media and ways to promote the Fab Lab in new and different ways. We are aware that not all ideas that the young consultants have about activity in the Fab Lab can be made reality. It is a case of managing expectations, but we want to encourage the chance to imagine and dream about what is possible.

We think that it will take time for young people to take more ownership and feel empowered to co-create. We have found that they need to be encouraged and guided to a certain extent to see the possibilities of the kit and potential of digital making. We found that patience and time to feel more confident and to develop the skills that they need does take time and we are still in the process of this as part of ongoing Fab Lab activity. In most cases the creativity and planning came from the young adults and the Fab Lab was a machine that they could use. We hope that in time the Young Consultants will be trained on the machines well enough that they will be able to take the lead and pass their skills on to others, and we can take an additional step back and work as advisors only. The next steps towards achieving this would be for the young consultants to be in the Fab Lab during opening hours for the general public to start answering enquiries and assisting the digital making tutor. If they felt confident with those steps, then the digital making tutor would encourage them to start thinking about what it would take to start running their own workshops.



What were the challenges?

Working with partner organisation:

With other workloads and commitments, it was difficult to stay in contact with the partner organisations and the staff we were in touch with had their own commitments and targets to achieve. We found it was important to build a range of gatekeeper relationships and that sometimes phone calls were more effective than email.

Schools can have stricter policies and procedures which can eat into activity delivery time. In one setting it really helped that we had worked with the school librarian in another capacity on library activity and she was really enthusiastic about working with us. The school librarian was key in communicating with other teachers and pupils about involvement in the project and assisted us with the school procedures we had to comply with.

We also reached out to young people through use of Facebook and posters in the local community and mailing out to other networks and contact lists. We found that the messages that we put out to contact young people that we didn't feel were working at the time brought rewards further into the project.

Flexibility:

Flexibility is important when working with young people—sometimes we weren't sure if they would attend organised sessions or be willing to engage in the way that we expected. We had a session where we were expecting one young person to attend and four turned up!

Initially we used gatekeeper organisations to ask young people to complete an application form to be young volunteers. Slow uptake taught us that it was better to involve the young people with activities in the Fab Lab first and then ask if they wanted to become young volunteers when they were more committed.

We adapted our approach according to the interests and needs of the young people. After the machine inductions the young people had





complete control over what they wanted to do in the subsequent sessions. For example, we had a spur-of-the-moment 3D scanning session where the digital making tutor was talking about 3D scanning kit and the young consultants asked, 'Can we get that out the cupboard?' This would have been difficult if our brief for the project had been more defined.

The variety of activity on this project allowed us to experiment and gather experience by trying different things. The variety also allowed us to get to know the participants more fully and to enable their creativity. The Young Consultants sessions have also developed stronger bonds where the young adults feel more comfortable coming into the Fab Lab and working up to being able to run the machines or creating their own workshops.

Timescale:

The timescale for the project was quite tight and we were worried that we wouldn't be get young people involved in project activity in such a short space of time. We were pleasantly surprised when activity and opportunities started coming together!

It was difficult to involve partner organisations with such a short timescale—we wanted organisations to commit to several sessions so that the project would be more cohesive, but busy schedules meant that in some cases we were only able to arrange two sessions. It was great to be able to offer our own youth sessions at the Fab Lab alongside these, as some young people were able to attend all five of these, enabling us to get to know them much better.

What elements of the project were the most successful?

New Relationships:

We have made many successful connections with the schools that we visited to promote the youth sessions. Some of the teachers and students came and participated in a co-creation activity in conjunction with the Museum of Barnstaple and North Devon. We were able to build a bridge that will possibly lead to more activities and further cross-promotion.

Creative Jam:

The Creative Jam was a great success! It was only a two-day weekend workshop but the young people who took part progressed immensely. Some of the young adults who didn't participate much at first became the most active team members. They developed key



skills, including self-confidence, being comfortable with public speaking and ingenuity.

As this was the first real experience with co-creation activity it really opened our eyes to where we could go with the idea of co-creation. Developing the idea and the decisions-making process was completely up to the young people—we didn't provide any information about what was expected. The group include participants that had a variety of backgrounds and experience. There were young people that really came out of their shells and contributed in unexpected ways. Our role was very supportive, and ideas were shared from every individual, so it felt like a hub of creativity. Seeing them start with no clear plan or business models and progress to a point where they were presenting their ideas was inspiring.

Working with different audiences:

We carried out outreach activities with different schools and colleges— this enabled us to trial different approaches and adapt to young people with a range of needs.

- At Marland School, which specialises in working with children with learning difficulties, we used 3D scanners to scan the children's heads. The children really enjoyed seeing themselves from new angles! One of the scans was then printed so that they could understand how a 3D printer works.
- We had some students from Ghana attend a workshop which allowed us more experience with assisting students from different countries. It also gave us the idea to work in partnership to organise an activity for Country Cousins who are a big part of North Devon during the summer months. The workshop for the Ghana students was quite open in order to introduce the 3D design software.
- The Marland School tours gave great insight into how we can work with young people, including autistic young adults and those from deprived backgrounds. It really allowed young people to get excited about their local community. Some young adults showed interest in how they could use the machines to develop their art and others showed an interest in how to develop future careers in digital making and technology. This allowed us to bring up the conversation of career goals and aspirations naturally. They were also able to participate and show their interests through the doodles we collected. We were able to polish our skills with children who may not have wanted to participate in the activity, we were able to change opinions and nurture passion for learning about fabrication and digital craft technologies.
- At Pilton Community College we worked with students who already knew each other in a place where they felt comfortable and knew procedures and boundaries. We were also limited to a couple of



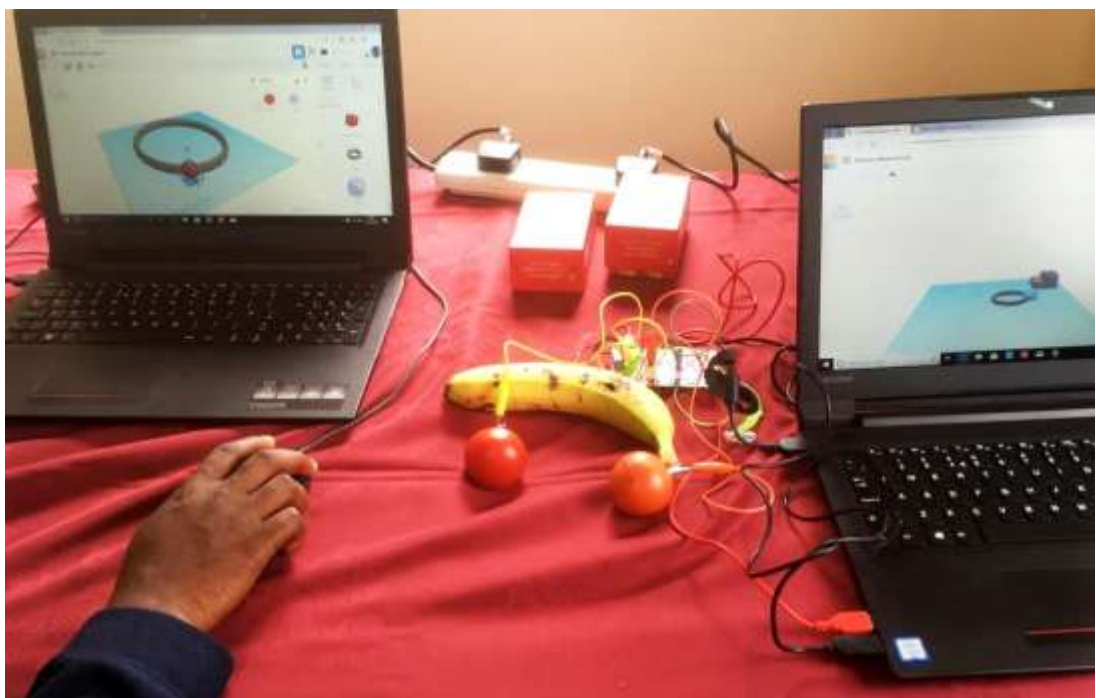
sessions with the group, which encouraged faster progress from adult-initiated activity onto young people-initiated activity.

Young Consultants and Thursday evening sessions

During the project we delivered three Young Consultants drop-in sessions on Thursday evenings. Sessions held at the Fab Lab didn't have to meet the objectives of external organisations (as was the case with some outreach activities), so could be more driven by the young people. The Fab Lab has made a long-term commitment to running these sessions, so there is more potential for building a lasting programme. We used the sessions to introduce the young people to the equipment in the Fab Lab, build their confidence in using it and exploring their ideas for the future of the Fab Lab.

The young consultants have been a great assistance in learning what their age range might desire to see in their local library or makerspace. They have suggested participatory wall displays and activities that we could run. They have decided to create something that can go in the library to promote the Fab Lab, which shows their desire to give back and this could also be used in their portfolios and on job applications.

We would like to grow the sessions to the point where we can open it up even more and have the Young Consultants helping assist as part of the Fab Lab and develop peer-to-peer contact and more Fab Lab advocacy. We are interested in how the group dynamic will develop in future. We might ask them to set common goals and ambitions, but we are also interested to see if this will develop naturally over time.





What tools, techniques and infrastructure have you developed to enable communities to continue to play an active role in your organisation?

Facilitation Skills:

Delivering the Young Consultants drop-in sessions and the variety of young participants we worked with in outreach workshops had a great effect on our personal practice as we have thought of ideas and workshops that we wouldn't have considered before.

We have learned that young people do need some guidance and examples to aspire to as many didn't fully contribute until encouraged. We believe that everyone struggles with being pushed out of their comfort zone and this project has given us many opportunities to develop this skill for facilitating and encouraging participants to get involved and contribute. Patience was a huge factor in encouraging participants to participate and challenge themselves. Relating to them as people is also a key factor as we believe that having open communication with equal responsibilities allows young people to share their opinions and to create without hindrance. Having an atmosphere of trust and openness where young people feel their thoughts and suggestions will be valued is very important.

New access opportunities:

We are rethinking the infrastructure that allows people to access the Fab Lab. Previously we tended to run planned activities every month that are paid for by attendees. Through the project we have explored providing free taster events each month for the people who may be unable to access the Fab Lab in this way. The open access sessions on a Thursday evening are especially useful for providing access to young people, who are unable to become members of the Fab Lab until they are over 16.

We will now be considering new workshop formats, including sessions organised by the youth consultants, free access activities, activities that cater for younger children, and activities that involve specific organisations in the community. The youth consultants will continue to be a part of the Fab Lab community, and we look forward to sharing the outcomes of their work with the community and the library staff.

Future Ambitions:

We have strong ambitions about how we would like to work co-creatively with young people and are very interested to see where we will be in a year's time. Our ambitions have got clearer in the work we have done so far but participating in this project has made us think



more and want to achieve more in working with young people. We want young people to take even more part in having a say in Fab Lab and how, and what sessions are provided for young people.

Next steps are to evolve the operational logistics of the Fab Lab to be more welcoming to young people— particularly developing the Thursday evening session to be more open and co-creative, with longer opening hours. We'd also like to continue developing activity suitable for 0-8 year-olds.

We aim to embed a co-creative approach across our work in the Fab Lab but also in the wider library service by sharing our project with the wider organisation.

How has delivering the project allowed you to reach out to new audiences?

We have shared some news as we have gone along via social media and we plan to create a single well-rounded publicity document/report to send out to all of the contributors and participants. This document once created will also act as a marketing tool and case study with pictures and information about what activity has been developed as a result of the project.

As part of our internal collaboration days for staff that take place once a year, we intend on sharing what we have been doing as part of this project. We will share with staff more widely via our internal bulletin and share the case study with senior managers within the organisation so that they can have more detail.

We would like to plan a sharing or celebration event with the young consultants on the project.

We have been able to reach out as a result of this project to young people in our communities with all of the opportunities that what the Fab Lab has to offer. We have had opportunities to start working with young people in a way that we haven't before. We have had the opportunity to attend outreach in the local secondary, a creative jam with youth club attendees and started a youth session every Thursday afternoon as part of this project's activity.

Now that we have made key contacts in the community, we will continue to contact them with the opportunities and activity that we have coming up for young people in the Fab Lab. We have developed better contacts and communication with our community through this project and we have reached numerous people who would have been otherwise unaware of our existence. The young people are starting to act as advocates for the Fab Lab and encourage their friends to join in as well. This is great as more people understand what we are, what we do and what we can offer.



What tips would you give other makerspaces looking to develop co-created projects?

- Just get going and then modify as you go along.
- Give people an idea of what is available and possible before you ask them to commit.
- Don't have any preconceived notions about how you will work with a group or partner organisation.
- Work on a variety of avenues and partnerships so if one doesn't pan out you have other opportunities to keep pursuing.
- Give a longer period for activity and people to develop.
- Monitor your progress as you go so you can see how far you have come, and you can benchmark your progress with future activity.
- Take opportunities and be ready to respond to opportunity as it presents.
- Be willing to use your participants as consultants and make use of information that they can help you with.
- Give time and patience to working with young people to encourage their self-confidence to be able to contribute.
- Be prepared to be flexible.
- Be persistent. Keep going as you may be having an impact that will only become evident further down the line.



Step-by-step: how was the project delivered?

	Number of participants	What took place
Week 1		Senior Supervisor contacts Pilton Community college librarian about being a partner in the project in Fab Lab.
Week 3		Meetings between Fab Lab team and senior management to make them aware of the Make:Shift:Do Crafts Council project.
Week 4		Senior Supervisor starts to look at costings for publicity of the youth group with marketing team who give some costings for the budget template.
Week 4		Senior Supervisor talks to volunteer co-ordinator in the organisation to make sure that the young Fab Lab volunteer paperwork (a role description, a volunteer agreement, an application form and health and safety) put together meets organisation standards.
Week 4		Gantt and Project budget put together by Fab Lab tutor and Senior Supervisor. Looking at materials required for activity and tutor time.
Week 5	12	Tutor and senior supervisor contacting gatekeeper organisations Petroc College to chat to a group of teachers/lecturers about being part of the project with Fab Lab.
Week 6	50	Tutor and senior supervisor visit Petroc College to chat to a large group of students about the activity in the Fab Lab.
Week 6		Application received for the project to be a young volunteer in Fab Lab.



Week 7		Invitation extended for co-creation partners to attend co-creation workshop in London with Crafts Council, unfortunately partners not available.
Week 14		Tutor contacts local youth group and Space* who run the youth service across Devon. They are interested in having the Fab Lab attend a Creative Jam.
Week 17	25 16-18 year olds	<p>Fab Lab delivered workshops at the Creative Jam in Tiverton. During the first session the participants were given demonstrations on the vinyl and 3D printing machines. The second session they had to come up with their own business model and product to help reduce or reuse single use plastic.</p> <p>This activity was adult-initiated and shared decisions with young people and how and what they created. We started by demonstrating techniques and then supported them to take more of a lead in what they wanted to produce. They worked together to create some great models including an intricate vinyl sticker for clothing products and a 3D printed model for a gaming joystick.</p>
Week 18	5 Youth workers	Contact made again with Pilton Community College to see if any other teachers would be interested in pupils participating in co-creation activity with Fab Lab. Phone call follow up 18/02. It can be very challenging working with schools you need to have patience and persistence.
Week 19		First session with Young Consultants at the Fab Lab. Although only 1 Young Consultant was scheduled to arrive, we had 3 additional consultants turn up on the day which shows that you need to be prepared and be flexible.



Week 19	4	<p>We discussed skills that could be gained through the programme and what they might want to accomplish. I also demonstrated use of the 3D scanner to introduce them to the possibilities of the Fab Lab.</p> <p>Dates suggested by Pilton Community College for Fab Lab activity.</p>
Week 20	350	<p>We were invited to take part in SCOMIS Live 19, an IT education trade show with workshops and digital making activity.</p> <p>The co-creation side of this event was with the organisers that we worked in partnership with so there was less scope to co-produce with the young people. They discussed workshops that would work best for the audiences and what would work well in the time constraints. After the back and forth we had four planned workshops.</p> <p>This was a great opportunity to branch out into a different audience. Young people at these sessions took part in pre-prepared sessions to introduce them to the Fab Lab and the digital making kit. We were also able to recruit and advertise in order to garner interest in our youth sessions.</p>
Week 21	31	<p>The Museum of Barnstaple and North Devon invited us to deliver a workshop involving a vinyl cutter demo and activity where the students created illustrations based on countries around the world.</p> <p>The students decided the topic as they were focusing on the subject in school however we decided together on using the vinyl cutter as it allowed us to create a product quickly.</p> <p>The first part of the session was more instructional and informative. Once the</p>



Weeks 21 and 22

19

students were happy with the kit, they decided on a theme as a group and used the vinyl cutter to create objects. My role was simply showing them how to translate their design into a product.

Marland School arranged to bring several groups of students for tours of the Fab Lab. These visits aimed to share the possibilities of the Fab Lab to young people with behavioural and learning difficulties. I also decided to use the opportunity to focus on collecting feedback and ideas from the young people.

After each 40-minute tour which involved three machine demonstrations I would ask the participants to draw their favourite thing/machine/tool. With the doodles I created an art piece with the laser cutter machine— this was the tool that had emerged as the most popular. This gave a creative way that these young people could respond to the Fab Lab.

Week 21

2

Young Consultants Session 1:

After the initial Young Consultants discussion, we decided to run scheduled drop-in sessions on a Thursday. The first two sessions of these were machine workshops to introduce young people to the potential of the Fab Lab.

Session 1 was focused on vinyl cutting. The two young adults that turned up to this session made stickers for their art and school sketchbooks. This was their own choosing and showing them how everything worked was my role. This was more consultation at this stage, but they also made decisions and designed and created in this session.

Week 22

8

Pilton Community College

I took the 3D printer to Pilton Community College and the group used the 3D design software to create something of their choosing. We had many different



Week 22	4	<p>outcomes. I was also able to discuss ideas for the next workshop and they decided that they would like to create some t-shirts using our vinyl cutter.</p> <p>This session was adult-initiated with decisions on design shared with the young people. I worked to show the young people what the possibilities were and then they decided what they wanted to design and create.</p> <p>Young Consultants Session 2:</p>
Week 23	8	<p>Machine Demo on the Laser Cutter. As Mother's Day was around the corner, the young people decided that they wanted to create Mother's Day gifts. This program was decided and discussed amongst the young people however I did initiate which machine demo we would be working on. At the end of this session we started discussing what they may want to create as a group effort or larger item. We also discussed what they might enjoy seeing in the library and what they would be interested in attending as a younger audience.</p> <p>Pilton Community College Session 2:</p> <p>The students had decided in the first session that they wanted to create their own t-shirt designs using hot flex vinyl. The group were better informed, and this empowered them to create some wonderful designs and feel more confident in their choices. The participants knew each other beforehand and were able to work cohesively as a group.</p>
Week 24		<p>Fab Lab Open Workshop: Puzzle Piece Paint and Decorate</p> <p>Open session in which the public were invited to see the Laser Cutter in motion and to paint their own puzzle pieces for a combined group outcome.</p>



Week 24 1

This was an interesting way to work with collaborative art as pieces were contributed throughout the day and most people didn't meet or interact with everyone who attended, so the final outcome was unforeseen. We were also able to get younger children aged 0-6 years into the Fab Lab which isn't always possible.
Young Consultants Session 3:

In this session most of the Fab Lab consultants were away on holiday during the Easter school break. The Young Consultant who arrived had an interest in the 3D software. While they worked on that we discussed ways that the Young Consultants could develop, bringing up a multitude of new ideas came forth.