Feature

Make, hack, fabricate

Jenny Foster looks behind the hype around makerspaces, and provides a snapshot of maker and hack activity, taking a look at some inspiring case studies from public libraries around the UK.

Jenny Foster (jennyfoster1112@gmail.com @jenfosterlib) **is Client Services and Support Manager, University of Southampton and has also worked in public and in FE libraries.**

MAKER culture in libraries is about sharing resources and knowledge to create something new, be that an object, experience or a skill. It teaches problem solving and creativity and opens up access to skills and technology by putting both in the public domain, rather than within institutions or closed communities.

In America, library makerspaces operate in many forms, from Chattanooga's 4th Floor (http://chattlibrary.org/4th-floor) **to TekVenture's shipping container makerspace** (http://tekventure.org/maker-station/)**. In the UK, although the movement in public libraries has been slower to take off, events around coding and hacking have been taking place for a number of years. In May, Dundee narrowly became the first UK public library to use a 3D printer, printing book characters and engaging with users with learning and physical disabilities.** (http://tinyurl.com/qjn5xbu)

I talked to Ian Anstice of Public Libraries News, and he shared these thoughts, summing up the current situation frankly:

'There's a tremendous amount of hype over makerspaces and, especially, over 3D printers but there's no denying that it represents an interesting possibility for public libraries. Where funding is more available, in the US and Canada, it appears to be taking off nicely. So, if you have a spare room or if a Fab Lab comes calling asking for space, then it is something to seriously look at. Such functionality gives public libraries an in into the world of Science Technology Engineering and Mathematics (Stem) that we have otherwise been lacking in. It will need a whole bunch of new skills or training which many cash-strapped authorities may find it difficult to justify, so that is another reason for partnerships. Just be careful you know your reasons for getting one and be honest with yourself and back off if the real reason is you want to prove how dynamic you are.'

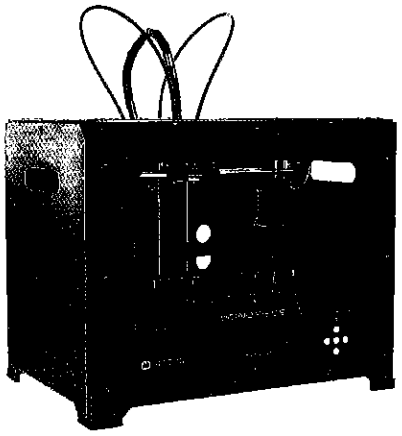
This feature is intended to be a snapshot of activity of UK public library maker and hack activity. It makes no claims to be comprehensive – every week sees a new event or initiative and another library make links with their local maker community. The Oldham Hackspace Hack the Library event and the recent 3D printer demonstration at Upper Norwood Library are just two that have emerged in the last few weeks.

We take a look at Fab Lab Devon, eDay plus @ Gateshead Libraries and Manchester's MadLab. Finally, we look at the work of the Common Libraries initiative (www.commonlibraries.cc), which complements these first hand accounts, in that it provides a toolkit for those seeking to integrate makerspaces within libraries, and a direction for those wanting to engage with their local maker culture.

Makerspaces

Makerspaces, sometimes also referred to as hackerspaces, hackspaces, and fablabs are creative, DIY spaces where people can gather to create, invent, and learn. In libraries they often have 3D printers, software, electronics, craft and hardware supplies and tools, and more. From:
http://oedb.org/ilibrarian/a-librarians-guide-to-makerspaces/

There's a tremendous amount of hype over makerspaces and, especially, over 3D printers but there's no denying that it represents an interesting possibility for public libraries.
– Ian Anstice



3D printer technology.

FabLab volunteer Vince Jarman customising the printing kit to make it more robust for travel out on the road, ready for 'pop up' Fab Lab sessions.

Fab Lab Devon

Steve Turner, Economic Development Officer at Devon County Council, explains the drivers behind the first UK public library Fab Lab.

As part of a multi-million pound redevelopment of Exeter Library, Devon County Council took the opportunity to open the first Fab Lab within a UK public library in May this year.

The Fab Lab is a low-cost digital workshop equipped with laser-cutters, 3D printers and scanners, computer numerical control (CNC) router, 3D milling machines, electronics bench and programming and design tools, where users can 'make almost anything'.

It utilises a ground floor room, adjacent and complementary to the new Business and Information Hub, which provides business information and intellectual property (IP) support for local businesses, alongside a programme of events and seminars.

The lab is operated by a manager, with the backing of a network of trained volunteers, who are able to offer support to demonstrate the technology and provide taster sessions for users on subjects as diverse as:

- how to design and 3D print an object
- an introduction to Raspberry Pi technology
- laser engraving
- simple electronics courses
- CNC routing.

Although still developing, more than 130 people have attended taster courses so far, with a huge demand for more to be held. A key plank of the Fab Lab project is to develop an outreach programme to take activities to other parts of Devon. This vision is now being realised as the Lab is taking part in the Sidmouth Science Festival during October and, with the development of a second centre in King Edward VI Community College in Totnes, will be enabling more people to experience new forms of fabrication technology.

Devon County Council has invested £90,000 capital funds in the Fab Lab, with further investment from Arts Council England (ACE) Bridge Challenge Fund run by the Real Ideas Organisation and from the Digital Makers Fund (run by Nesta and Nominet Trust, in partnership with Autodesk). The University of Exeter and Exeter College are also supporting the Fab Lab, and the council is currently developing a collaboration agreement with the college with a view to them ultimately running the lab for the benefit of the wider community.

Exeter Fab Lab relies on its community and volunteers to provide expertise and know how. But as these volunteers describe, it is by no means a one way process:

Vince – Fab Lab volunteer

Vince is a commercial radiologist with a background in engineering who was looking for an outlet for some project ideas.

Vince volunteers at the lab and it has helped put him in touch with like-minded makers who help and contribute freely to overcoming obstacles in his 'making' process. He adds: 'I've always had a fear of public speaking, so helping to run some of the taster courses and talking to small groups of people is helping me to overcome my fears.'

Fran – textile designer and volunteer

Fran is a textile designer who has been inspired by the Fab Lab, as it has allowed her to develop technical skills which feed in to her own work. Through using the lab and also volunteering there, she's been able to meet and work with people who have similar interests, helping her creative process.

Fran added: 'Volunteering at the Lab has helped me refresh my teaching skills and it's really rewarding to show people what they can do and the creative possibilities that are opened up.'

John – retired engineer

John is 72-year-old retired electronic/mechanical engineer, with previous experience of working in the public sector.

John says: 'I've always been fascinated by the world of technology and computing and when I saw that a Fab Lab was actually in Exeter, I was keen to help. I want to learn new tech skills and impart them to younger folk. I also have a secret project, too; an autonomous lawnmower, because I prefer to spend my time making things and having fun at the same time!'

Volunteering at the Lab has helped me refresh my teaching skills and it's really rewarding to show people what they can do and the creative possibilities that are opened up.

eDay plus @ Gateshead Libraries

Gateshead Council's Library Service came up with the idea of an eDay back in 2012. Gail Holmes and Jacqui Thompson explain how the idea came to fruition, the partners involved and the type of activities that takes place at these annual events.

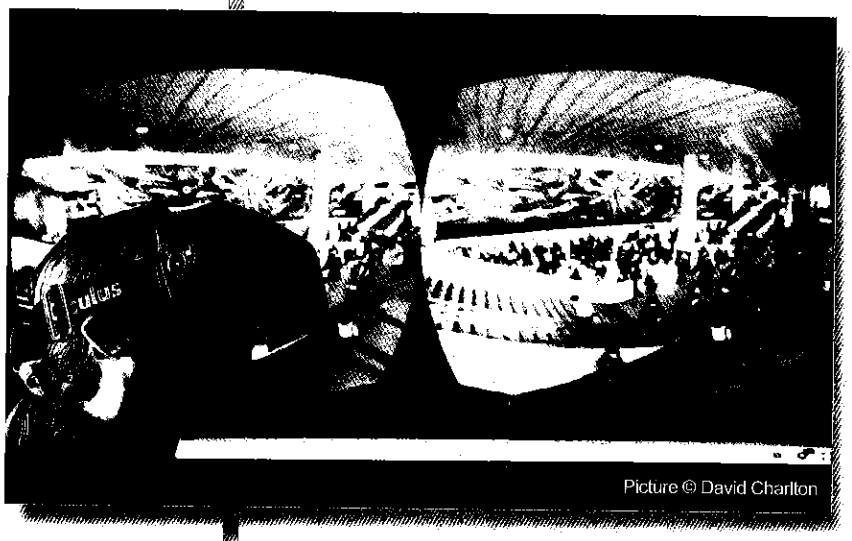
The library service was looking for ways to grow our digital offer and attract more men and boys into the library. The initial focus was on gadgets and our Community Learning Officer, Jacqui Thompson, carried out extensive research to discover what was going on in the north east, networking with local industry, maker groups and joining several forums. It soon became apparent that opportunities existed to build on the growth of the region's digital businesses, and that there was a need to focus on creativity and skill development to coincide with the introduction of programming into the curriculum.

Thanks to Jacqui's enthusiasm and the amazing support of our partners, the eDay idea has grown to include careers guidance, maker sessions and programming workshops. Since 2012, Newcastle Makerspace has provided invaluable expertise, access to kit and delivered workshops and technology making sessions for us. Vector 76, who develop augmented reality apps for retail and museums, have brought along the fantastic Oculus Rift headset to various events; Ubisoft, Newcastle University and our other partners have all contributed time and expertise to run coding and other workshops and the council's IT department has supplied old keyboards and other kit to enable sessions to take place. Our activities attracted the attention of the Carnegie Trust, who invited us to become part of the enterprising libraries project and provided a small amount of funding, which enabled us to run a few additional events such as Stem sessions.

To begin with, people were surprised to see such activities taking place in libraries, but feedback has been positive and people realise it makes great sense.

To begin with, people were surprised to see such activities taking place in libraries, but feedback has been positive and people realise it makes great sense. Through our eDays and other activities, we have been able to introduce local people to some of the most exciting and innovative technologies around including Oculus Rift, Raspberry Pi and 3D printing.

The 2014 eDay, run on 27 September, saw the introduction of Coderdojo sessions, electronic circuit workshops and making HTML dynamic animations.



Trying out the Oculus Rift headset.

Manchester's MadLab

Sue Lawson discusses her experiences of working with Manchester's MadLab and embedding a maker and hack culture with the library service.

Google 'makerspaces and libraries' today and you'll find thousands of results; blogs, articles, resources, how-tos and case studies. But back in 2009, when I first visited Manchester's newly opened MadLab, the world of the hack/makerspace was totally new to me.

I was determined to nurture closer ties between libraries, hacker and maker spaces and for the past five years I've worked with the MadLab community to deliver a variety of projects and courses. The success of the partnership has led to an increasing range of collaborations between libraries and community groups, digital activists, coders and artists such as internet radio production workshops, curry and coding nights, Robogals, DIY video game development, digital photography workshops and code clubs. Most recently it is contributing to the city's newest programme of cutting edge events: www.librarylive.co.uk

Creation space

We're trying to think of the whole library service as a dispersed creation space, but in the new Central Library there is an especially strong focus on using and learning practical skills and applying them creatively. The Media Lounge has seven iMacs where library users are editing films, learning graphic design or digital photography skills and teaching library staff too. In the Henry Watson Music Library you can learn (or teach) the piano, you can get (or give) an electric guitar lesson, play a digital drumkit, compose music or spend a wet afternoon using synthesizers, vocoders and mixing decks.

Our events have created an opening for people across Manchester to experience making and hacking culture in places where people may never have heard of MadLab, Fablabs or Maker Faires. Both Longsight Library and Wythenshawe Library have hosted Coding for Girls sessions plus Curry and Coding nights, and we now run 12-week Internet Radio Production courses across five libraries in Manchester, in partnership with FC United. Knitting, sewing, Lego clubs and comic creation are all in the pipeline.

Making connections

Imagine working in a library where we invested as much in programming and outreach as we do in building our collections. By strengthening our links with maker culture we can build better relationships with our communities, encourage peer-led learning and collaboration, re-emphasise the value of life-long learning and potentially connect with the millions of people who don't use libraries.

The Waiting Room, Colchester – an integrated library-hack-maker space housed in the former waiting room of St Botolph's bus station.

Common Libraries: prototyping the library of the future?

Annemarie Naylor, Director at Common Futures talks about the Common Libraries initiative.

Common Futures describes itself as a socially conscious business working across the public, private and third sectors to explore and kick at the boundaries of the community ownership landscape. Over the last few years, it has worked with the library sector to explore areas around enterprise, income generation, community involvement and digital transformation.

Its Common Libraries initiative, currently supported by Arts Council England, is intended to encourage the evolution of libraries into sustainable platforms for the creation, consumption and exchange of knowledge and know-how in both physical and virtual spaces.

Prototype

Working with a number of partners, including Essex Libraries and the Carnegie UK Trust, Commons Futures helped to establish The Waiting Room in Colchester – an integrated library-hack-maker space housed in the former waiting room of St. Botolph's bus station. The Waiting Room is a community workshop, restaurant, meeting place, studio and event space.

Core to the ethos of Commons Libraries is that the space should be community-led, with its resources and direction informed by the community that owns, manages and / or uses it. Common Futures has developed a toolkit for libraries seeking to engage with their local hacker and maker communities.

Borrow/barter/buy/bespoke

The Waiting Room is a community enterprise. It generates income through joint ventures with local start-ups, including creative businesses and restaurateurs. It facilitates lifelong learning through a programme of maker events and workshops. It offers a 'pay what you can' membership model as well as free workshops, such as Maker Wednesdays. This combination, along with other commercial activities, generates an income stream to cross-subsidise offers that are free at the point of use.

The library component of the project stems from the exchange of knowledge and know-how – with users of the space encouraged to contribute their skills and expertise. Individuals offer their time on a barter basis, for example running sessions on Maker Wednesdays, as well as in the form of loanable Maker Boxes.

Maker Boxes are lent out as instruction kits to support individuals eager to replicate specific projects. They will also be sold, complete with materials sourced from local businesses, as complete Maker Kits to generate additional income for partners and creative start-ups. The intention in future is that the boxes will be a loanable asset with the library' being not just a repository for them, but also facilitating their creation. Finally, the bespoke aspect of the offer stems from the idea that, should they choose, users can commission one of the resident artists or makers to create an item for them, rather than embarking on a maker project themselves.

Going forward

In March 2015, Common Futures will be hosting two events to help library leaders engage with their hacking and making communities and to raise awareness of other outputs from the Common Libraries initiative. In the meantime, the full report and the toolkit are included with the other resources accompanying this feature.

There is also a plan to market test Maker Boxes and Kits to assess the demand for this type of product beyond the Waiting Room, in relation to which an open call to express interest in participating is anticipated towards the end of the year.

Further reading and resources

Beyond the Bullet Points: Missing the Point and 3D Printing
- http://quartz.syr.edu/blog/?p=2538

Mission Creep: 3D Printing Will Not Save Your Library
- http://bit.ly/1owWgFW

Why Your Library May Soon Have Laser Cutters and 3-D Printers, February 2014
- www.wired.com/2014/09/makerspace/

Libraries and Makerspaces/FabLabs (FabLabCon 2013)
- www.slideshare.net/waaier/fab-labcon

Articles from Public Library News on 3D Printers & Maker Spaces
- http://bit.ly/1t6qolp
- http://bit.ly/1t6qolp
- http://bit.ly/1wuzMpP
- http://bit.ly/1uJta2F

Common Libraries: Toolkit for Libraries
- http://commonlibraries.cc/resources/

Common Libraries: Library-Hack-Maker-space Project Report
- http://commonlibraries.cc/projects/

Sue Lawson's Friends with Benefits: IFLA and SCL Masterclass presentation on partnership with tech community in Manchester www.librarydust.info/?p=522

Maker Faire UK www.makerfaireuk.com/

Fab Labs UK www.fablabsuk.co.uk/