
THE TITCH SCHOOLS PROJECT

Young Designers, Designing for Young People



Background

TITCH (Technology and Innovation Transforming Child Health) is a national network aimed at injecting much needed stimulation to paediatric healthcare technology innovation. At its core, its membership includes Alder Hey, Birmingham Children's, Great Ormond St, Royal Manchester Children's, Sheffield Children's, Devices for Dignity, and Sheffield Hallam University. Other NHS and Academic organisations are associated with TITCH in a wider network that will continue to grow with time. TITCH has already been supported by funding from the Yorkshire and Humber, Greater Manchester and North West Coast Academic Health Science Networks.

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One of the key features of existing technology for children and young people living with Long Term Conditions (LTCs) such as diabetes, asthma, cerebral palsy, and depression is that they are often adult technologies repurposed for children/young people or, at best, designed by adults for children and young people. This can mean that the designers are often lacking some fundamental empathy of what it is to be a child or teenager of any kind, let alone a child or teenager living with a LTC.

One of our beliefs is that children and young people might be in the best position to design appropriate technology solutions with and for other children and young people with LTCs; they will bring a contemporary empathy and tacit understanding of the motivations, desires, activities and influences that adults are less likely to have. The vision is that this could introduce an 'X' factor into the final solutions that means children and young people with LTCs will engage with the technology and devices more and through these technologies and devices, with the management of their condition.

Collaborative Design/ Engineering

The schools programme is the creation of Dr Joe Langley at Sheffield Hallam University and is based on the philosophy that we want to build exciting collaboration between services users and young designers and engineers to support developments in paediatric healthcare technology innovation.

The pilot programme has been supported by Prof. Paul Dimitri (Director of Research & Innovation and TITCH Clinical Lead) and Prof. Derek Burke (Medical Director) from Sheffield Children's Hospital, Nathaniel Mills from D4D/TITCH and by Marie Judge from Sheffield Hallam University. Members of the Local Enterprise Partnership have also provided support for young designers during the product development phase of the programme, providing insight into the MedTech Industry.

Within the year long programme children/young people who are living with a LTC (and their family) were paired with groups of AS or A Level students who are studying Product Design or Design Engineering courses. The programme has the support of a range of professional organisations (outlined below), who act in a mentoring capacity to the students. Fundamentally, we want to explore whether young adults with design and engineering skills can develop more



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empathetic solutions for children and young adults living with LTCs by collaborating with them. Additionally, this program will also help to address other underlying issues:

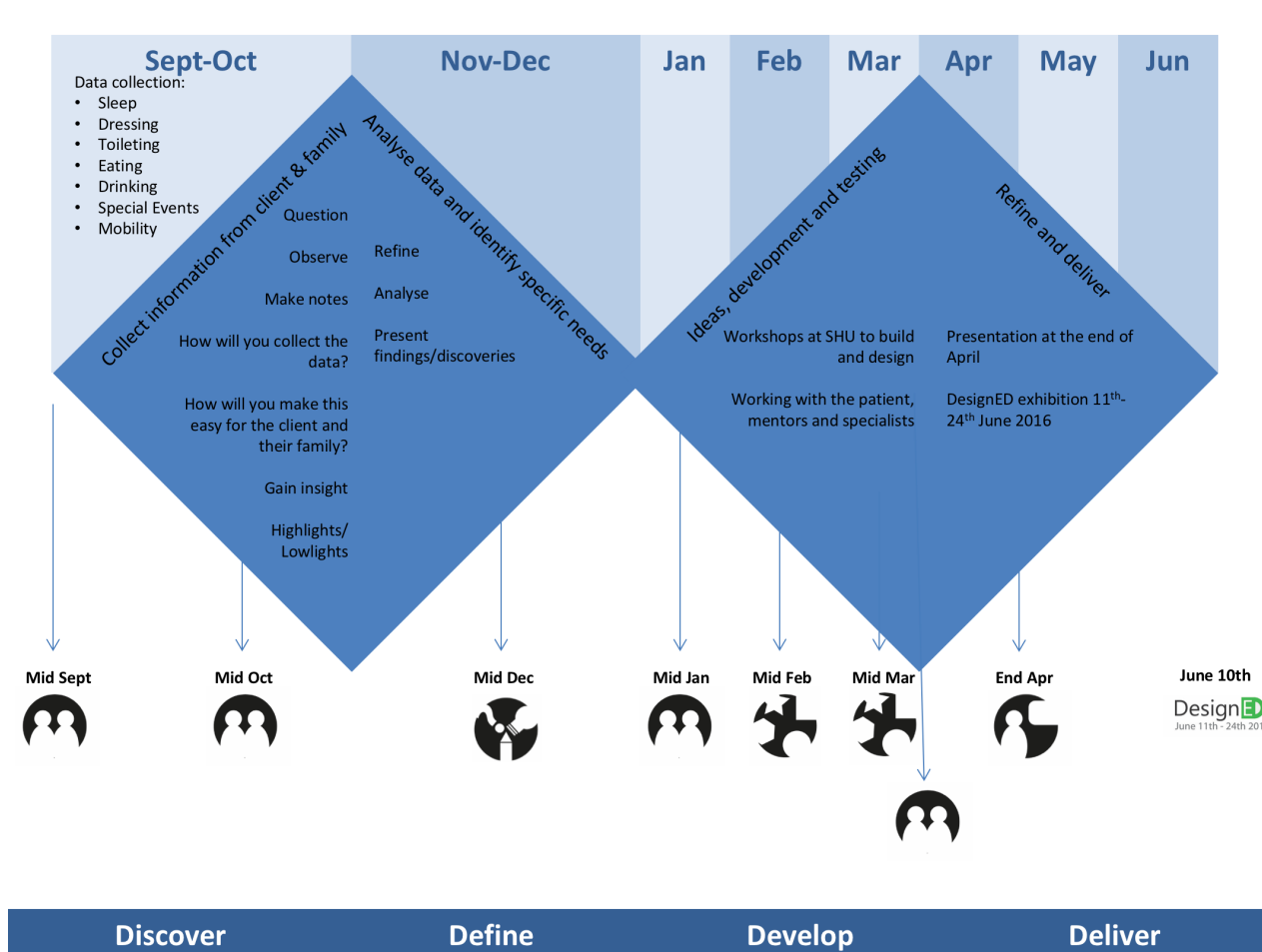
- Capacity building, bridging the skills gap—raising awareness of progression routes in design and engineering and inspiring young people to pursue careers in the Med Tech sector
- Building inclusivity – reducing prejudices and challenging discriminatory views through integrating ‘able-bodied’ and ‘disabled’ in collaborative innovation teams and by making it ‘OK’ to talk about and highlight both visible and ‘invisible’ LTCs

Timescales and Support

The program runs across the school year.

- The students are introduced to their patient partners and their families early on in the school year, forming different collaborative design teams
- Together they develop a ‘tool kit’ that allows the patient and their family to capture and record their daily life from practical Activities of Daily Living to social activities and hobbies for pleasure and leisure.
- Using these tool kits, the patient and family members indicate things that they like, that frustrate or annoy them, that they wished they could do more of or have less of.
- They work through this data as a team with the students and identify ‘problem statements’ that the students can then work on together with their partners to develop ideas and solutions.
- The year is interspersed with workshops that share different design techniques with the teams, act as ‘check-in’ points to bench mark progress, enable access to technical expertise and production resources and allow meeting points with clinical and commercial mentors who inspire through their personal stories as well as providing critically expert reflection on each teams’ work.

Sheffield Hallam University (SHU) leads this programme and offers a series of workshop events with access to their workshop space. These events will be distributed across the year and enable the school students to begin prototyping, testing and developing their designs. They act as a ‘meeting’ points between the different stakeholders and help to situate the work within a participatory design framework.



The time line for the TITCH Schools Programme

Sheffield Children’s Hospital (SCH) supports the project from two perspectives. The hospital assists with the project by addressing ethical requirements for patients, identifying suitable patients and supporting the recruitment of those patients and their families into the project. The students involved are enrolled as placement students at the hospital (going through Occupational Health and a Disclosure and Baring Service check). This enables them to have some immersive contact with relevant health professionals, patients and their families in a clinical context, accompanied by an appropriate representative of the hospital at all times.

Through the **Local Enterprise Partnership (LEP) Med Tech Sector Advisory Group**, a number of Chief Executives of regional Med Tech companies volunteered small proportions of their time throughout the year to mentor the students in their projects from a business and commercial perspective, enabling students to propose product and engineering solutions with a commercial viability rationale. This includes: Keith Jackson of JRI, Tom Harrison of Kingkraft, Brian Reece from Sheffield Precision Medical, Steve Roberts from Fripp Design and Research, Neil Garner from Sheffield Precision Medical

Local Schools and Colleges. In the pilot phase we worked with Dinnington High School and King Edward VII school and their AS and A Level students.

We hosted two showcase events towards the end of the school year (June/July 2016) to give the students the opportunity to 'pitch' their projects to each other, the patients and their families, Children's hospital clinicians, SHU designers and schools liaison staff, D4D staff, Med Tech business mentors plus some dignitaries.

One of these events was the DesignED; an exhibition of Design and Technology work by young people in schools and colleges across South Yorkshire and beyond. The project will work with the Schools and Colleges Liaison and Design and Technology Education Team at Sheffield Hallam University to develop the program in school based Design and Technology over a number of years. It will give young people an opportunity to work with a genuine need or problem, broadening their design experience and giving them a real insight to careers that might lie ahead.

The other was a more 'formal' presentation opportunity wrapped up in a celebratory format for which we will engage a civic celebrity to give the students some sense of gravitas and significance.

Outcomes of Pilot Project

Two of the students King Edward VII school have been offered support to take a 'year out' before university and develop their concepts into products and business. This offer of support came from one of the SCR Med Tech LEP groups members who came to the formal presentation of work. The nature of this support still has to be finalised

For one of the same two students, the family of their associated patient partner (11 y/o) has also offered support to help develop the solution and wants to be involved in taking it forward.