

Institution: Kingston University		
Unit of Assessment: 32 – Art and Design: History, Practice and Theory		
Title of case study: Fixperts: Learning and Participation models for making as a public good		
Period when the underpinning research was undertaken: 2011 – 2020		
Details of staff conducting the underpinning research from the submitting unit:		
Name: Daniel Charny	Role: Professor of Design	Period employed by submitting HEI: Dec 2012 – present
Period when the claimed impact occurred: 2016 – 2020		
Is this case study continued from a case study submitted in 2014? N		

1. Summary of the impact

Fixperts is a human-centred design teaching model arising from Charny's practice-as-research, which develops technical and interpersonal skills. It has directly provided personalised design solutions for over 500 individuals, in particular giving new independence to disabled people. It has become a global phenomenon, taught in over 30 Higher Education Institutions across 20 countries, and has influenced teaching practice at institutions in the UK and abroad. The RCA Fixperts awards scheme has attracted 796 students from 22 universities across 21 countries. Fixperts has also impacted on primary and secondary education in the UK, through inclusion in the STEM curriculum and CPD for teachers, and on development of young peoples' capabilities in the wider community through engagement with the Comino Foundation.

2. Underpinning research

Fixperts is a simple framework for teaching a human-centred design process developed by Prof Charny which takes the form of a web platform and network [R1], which can be adapted to a range of learning settings and age-groups. In a basic Fixperts project, participants ("the Fixperts") team-up with an insight provider ("a Fix Partner") to identify a daily issue in the Fix Partner's life that becomes the focus of the project. The project is documented at all stages, usually captured in a film which is uploaded to a public, open-source, online archive [R2].

Fixperts is based upon an approach to participatory and open design that characterises Charny's practice-as-research. Charny's work refocuses participation in design upon the concept of making and, latterly, fixing: a knowledge-in-practice that allows individuals, communities and societies to respond flexibly, creatively and reciprocally to a range of self-defined challenges. In Fixperts, Charny contributes a model of making as both an expressive and reflexive practice. In his seminal 2011 V&A exhibition, *Power of Making*, Charny explored how '*making is the most powerful way that we solve problems, express ideas and shape our world*' and how '*the knowledge of how to make – both everyday objects and highly-skilled creations – is one of humanity's most precious resources*' [R3]. Whereas, if one loses their capacity to make tools, systems and technologies for themselves, then they become increasingly dependent upon those who still possess the means to do so, diminishing agency and worsening inequalities of power, money and resources.

Charny's research into the social implications of making developed through two further exhibitions. *Maker Library Network* (MLN) [R4] was the result of a British Council commission to create a programme that connects designers and makers in the UK and South Africa. The outcome was a cultural exchange framework and open-source resource aimed at providing a sustainable and scalable means of building a critically engaged, connected international community of designers and makers. It was launched at Design Indaba Expo 2014 (Cape Town, 28 February–2 March 2014), and run by the British Council until 2017. The MLN concept was developed into a second format, *Brave Fixed World* for the Łódź Design Festival, Poland (9–19

October 2014) [R5]. This proposed a platform for fixing in day-to-day life (Fixhub) building on models of public-facing makerspaces like the Fablabs and repair cafes. It offered access, experience, engagement and confidence in making, with a focus to inspire fixing and repair. This prototype drew on Charny's research for Fixperts and, in connection with the MLN, further included a library and a gallery.

This prototype of the new FixHub format became the model for the *Future of Fixing*, an online resource which was created by Charny and uploaded to Wikispaces, then to GitHub, via his creative consultancy From Now On. The complete exhibition was made available online and as an open resource, including full working planners and content - an original way of touring an exhibition with distributed design principles [R6]. The versions were made locally relevant and inclusive by the adapting curators.

Fixperts learning programmes for universities [R1] were initially developed by Charny as an element of this research and practice focus on fixing (and fostering creativity and social design), and developed these questions of agency, resilience, creativity and making in response to real-world design challenges in a more formalised learning environment. Key research insights and conclusions from the Fixperts programme were consolidated in a paper which presents four approaches to the challenge of moving from the Person to the Problem to the Fix [R4]. These four models – Primary, Partnerships, Community, Public - represent the evolution of the Fixperts framework to better enable the development of students as confident and empathetic socially-led designers. The Fixperts learning programme as research is both a response to and the expression of a provocation: what if design and making as tools to develop ideas, to respond to change and to think critically about real-world human-centred innovation were at the heart of education? Fixperts interrogates the central role that making plays in the design process, informing otherwise impossible decisions and outcomes, and considers how making brings together imagination and skill, two qualities vital to society and individuals responding to our changing world.

The Fixperts learning programme won the International Blueprint Award for Design 2016 and is a participant in the H2020 'Make it Open' grant, which will create open schooling hubs in 10 European countries where more than 150 schools will each collaborate with enterprises and civil society organisations in order to run activities where children solve challenges in and with the community, using tools and approaches from maker education.

3. References to the research

- R1 – Charny, Daniel**, 2015, Fixing Education website: <http://fixing.education/fixperts>
- R2 – Charny, Daniel**, 2017, Fixperts film archive: <http://fixing.education/films>
- R3 – Charny, Daniel**, Sept 2011 – Jan 2012, [Power of Making Exhibition](#) (V&A Museum)
- R4 – Charny, Daniel**, 2014 – 2017, [Maker Library Network Exhibition](#) REF2ID: 32-21-1680
- R5 – Charny, Daniel**, 2014, [Brave Fixed World](#) (Łódź Design Festival, as curator)
- R6 – Charny, Daniel**, 2015, [The Future of Fixing](#) (open-source curated exhibition)
- R7 – Micklethwaite, P., Charny, D., Alvarado, M., Cassim, J., Dong, Y., and de Vere, I.** (2020) Fixperts: models, learning and social contexts, in Boess, S., Cheung, M. and Cain, R. (eds.), Synergy - DRS International Conference 2020, 11-14 August 2020. (peer-reviewed)
DOI: [10.21606/drs.2020.325](https://doi.org/10.21606/drs.2020.325)

Grant

'Make It Open' is part of the Horizon 2020 H2020-EU.5.d. programme (ID: 872106) and coordinated by Bloomfield Science Museum Jerusalem, running from Oct 2020 to Sept 2023. The total budget is EUR1,549,037, with the Fixperts budget standing at EUR228,875.

4. Details of the impact

The Fixperts model's flexibility and unique approach to making and learning has led to it becoming a global phenomenon, used in over 20 countries in a range of contexts. It provides an accessible, adaptable but nuanced way to introduce skills of creative problem-solving, social engagement and human-centred design into both specialist design learning and general STEM settings. It has become the framework used in a number of innovation challenges, schemes and awards run by major funders, design institutions and endowments [S1].

Since 2016 FixEd, the website and think-and-do tank started by Charny to provide a platform for the Fixperts model, has provided a hub for several strands of impact activity. These focus on three main types of beneficiary: schools and Further Education colleges; Higher Education Institutions and informal learning settings. In addition to these beneficiaries in learning and education, FixEd provides access to a searchable archive of over 500 FixFilms documenting the fixing challenges and solutions that Fixperts and their Fixpartners have created. These films have been viewed over 500,000 times in total [S1]. Each of these films represents a material, social or psychological improvement in an individual or group's everyday life.

Due to the open-source nature of the Fixperts approach and its central principles of sharing, adaptation and open access to materials these figures and those reported in the rest of this case study likely represent only a portion of the true reach of Fixperts' impact globally.

Universities and Higher Education Institutions

Fixperts been taught in over 30 Higher Education Institutions across 20 countries [S1], including Kyoto Institute of Technology, National College of Art and Design (Dublin), Bath Spa University, Tongji College (Shanghai), University of Johannesburg, Escola Massana (Barcelona), Berlin University of the Arts, Warsaw Fine Art Academy, Thammasat University (Bangkok), Coburg University (Bavaria) [S1].

An independent evaluation found that Fixperts helps students develop technical design skills relating to prototyping and making, and transferable skills around communication and working with clients. For universities, it was found that Fixperts provides a concise and well packaged way to develop student skills and introduce them to key concepts and values around social design and user-centred design. In addition, it is a useful vehicle for fulfilling universities' obligations towards local community engagement and communicating to the public the work of design schools in an appealing and accessible form. The evaluation also noted the benefits to Fix Partners, in particular disabled people, who gain independence in the achievement of everyday tasks, and a sense of empowerment in being able to have greater control and choice over when and how tasks are carried out [S2].

The Helen Hamlyn Design Centre at the Royal College of Art has run Fixperts Awards annually since 2013, to celebrate the solutions that university students from around the world and their Fix Partners create to improve the world around them. To date 796 students from 22 universities across 21 countries have applied to the awards, with fifteen longlisted each year [S3]. In addition to the impact upon those students and their universities, the submitted films document the positive outcomes participation has brought for the Fix Partners, whose real-life making challenges form the heart of each submission.

Fixperts has also had impact on the Helen Hamlyn Centre's own organisational approach, influencing them to use video more consistently to document and disseminate their projects [S4]. The Helen Hamlyn Professor of Design, Royal College of Art [S4] stated:

'The impact of Fixperts has been significant– we now direct our own students and researchers to the Fixperts site to study its solutions for people with the frailties of ageing or disabilities. Fixperts is also educating a whole generation of young designers to look at social challenges of everyday living right on their doorstep.'

In 2020, Fixperts became a partner in a joint project with Loughborough University and Mimar Sinan Fine Arts University (Istanbul): the "Sustaining Inclusive Design Collaborations through

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Co-Design Platforms (SiDe Programme)” project. Students were teamed up with volunteer design partners from two NGOs on disability and carried out a co-design process throughout the term. A representative from Mimar Sinan Fine Arts University [S1] stated:

‘We can clearly express that the Fixperts method transformed our educational approach into a creative-problem-solving process through co-design. Besides, the method not only increased students’ understanding of the inclusive design but also helped the development of new knowledge on design within the partnering NGOs too.’

Schools and FE colleges

The Fixperts programme has had a major impact on STEM and design teaching in UK secondary schools. Because it has been designed to align closely with the Key Stage 3 & 4 Design and Technology curricula in English schools Fixperts offers secondary and FE teachers a flexible and accessible means to teach socially engaged and human-centred design within a benchmarked, quality assured teaching and learning framework. Fixperts has been offered in secondary schools in the UK since 2016 via free learning resources, downloads, Fixperts films and support from the FixEd specialist team [S1].

In 2016 the UK examination board AQA approached Charny and FixEd to embed Fixperts in a new STEM Technical Award at GCSE level. The 2017 course specification for the AQA STEM Level 1/2 Award (for teaching from Sept 2017 onwards and exams in 2019 onwards) comprises three mandatory units. In Unit 2, “Creating a STEM product or service”, learners carry out a project using the Fixperts process, either using an existing contact within the community or using AQA’s set of resources produced in collaboration with Fixperts [S5].

Following this, STEM Learning UK, an organisation which works in collaboration with the Government to provide teachers with access to resources, training and CPD in STEM subjects across the UK, approached FixEd to develop resources for Design and Technology teachers. Fixperts was made available to teachers as a training session on inclusive design, and was also incorporated into support for school STEM clubs. STEM Learning UK incorporated Fixperts into their primary-level Engineering course which trained at least 50 primary teachers over three years, and also into their NQT support which was used by around 200 teachers. They also offered subsidised day-long training sessions specifically on Fixperts, facilitated by a Fixperts trainer [S6]. The Technology CPD Lead, STEM Learning UK [S6] stated:

‘The feedback from our clients about Fixperts has been overwhelmingly positive. Secondary schools could see the advantage of working in this way, especially once they had experienced the resources for themselves. Fixperts is really welcomed by secondary teachers that are ahead of the curve in the new Design and Technology GCSE and who want to work with clients and go down a bold route, which Fixperts scaffolds for them. Primary schools absolutely loved it: they are looking for ways to engage young people in social capital, and Fixperts is fantastic for that.’

Fixperts has been cited and reproduced as Covid-19 home learning resources on the website of Potential Plus UK, an independent charity that has been working with families and schools for the benefit of young people with high learning potential. Two of the challenges in the 50 Challenges for 50 Years Anniversary Challenge Book were contributed by Fixperts [S7].

Fixperts has been a partner in the RSA Pupil Design Awards since 2018 [S8]. These awards encourage pupils aged 11-18 in participating schools to use their creativity and imagination to design solutions to real challenges facing people and the planet. The Teacher Resource Pack, which supports teachers in delivering the awards, provides a seven-week scheme of work, comprehensively supported by activities and resources from Fixperts [S8].

Fixperts Anywhere: Communities, Learning and the Campaign for Making

In 2018 Fixperts partnered with the Royal Academy of Engineering to produce FixCamp, a prototype three-week summer camp for 265 children aged nine to fourteen from 48 schools [S1] during which participants ‘fixed our world through daily challenges’, starting with designing and making their own toolbelts. Fixcamp was funded by the Comino Foundation, an

educational charity with a mission to develop young peoples' capabilities. The Development Fellow at the Comino Foundation [S9] stated:

'The impact of the summer camp was significant for the children involved in that it gave them opportunities to experience the sort of personal learning and development that the Fixperts approach provides in a more exploratory, research-friendly environment than most schools in England currently provide... Underpinned by deep academic engagement, [Charny's] research has at its core potential for enriching learning throughout people's lives, in both formal and informal settings.'

The Comino Foundation subsequently engaged Fixperts to work with the North West Comino Creative Consortium (NWCCC), a multi-stakeholder community of practice bringing secondary schools in Manchester together with employers and partners from the creative and technology sectors. Eight Design Technology teachers from NWCCC schools joined a Fixperts expert trainer in March 2019 for a session exploring client-centred design, and in particular designing for disability. The focus was on the encouragement of iterative design – giving pupils a situation/problem with more than just a 'standard' design brief, enabling them to explore and experiment designing for different disabilities. This then fed into the teachers' curriculum planning [S10].

Fixperts was awarded the 2020 Sir Misha Black Award for Innovation in Design Education [S11].

5. Sources to corroborate the impact

S1 – FixEd Website: [Fixperts](#); [Films](#); [Social Responsibility Practices Course](#); [Fixcamp](#)

S2 – [Evaluation of Fixperts](#) by The Tavistock Institute of Human Relations, 2016

S3 – Testimonial from the Fixperts Director

S4 – Testimonial from the Helen Hamlyn Professor of Design, Royal College of Art

S5 – AQA Specification for Level 1/2 Award in STEM (3765)

S6 – Testimonial from the Technology CPD Lead, STEM Learning UK

S7 – Potential Plus UK: [Challenges 11 & 12](#)

S8 – The RSA Website: [Pupil Design Awards blog](#); [The Teacher Resource Pack](#)

S9 – Testimonial from a Development Fellow, Comino Foundation

S10 – [The North West Comino Creative Consortium 2019 publication](#)

S11 – <http://www.mishablackawards.org.uk/award/fixed>