DESIGN EDUCATION DOES NOT EXIST IN A VACUUM

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ABSTRACT

There is no advantage to designers in perpetuating outdated modes of thinking. Graduates of such an approach would be disadvantaged in comparison to their peers regarding their ability to design within the constraints of the real world. Not something students would choose or something that educators would actively impose. <Future> Design education does not exist in a vacuum; therefore, the teaching model needs disruption in order to support the development of empathic, sensitive and entrepreneurial, future game-changers. Furthermore, disruption of this nature within design education has the potential to derive wider societal benefits, through improving young people's agency and ability to address issues beyond their own professions and experiences.

Our work is leading us to a new educational paradigm, although this was not our original intention. This paper aims to explain how we engaged with a large-scale multi partner, multi country Research and Innovation project – the Transport Innovation Gender Observatory (TinnGO)[1] - to approach our disruption to a typical, outdated method of design education using design internships informed by citizen social science. In this paper, we explore the barriers and opportunities experienced in combining citizen and stakeholder engagement with design education focused on gender smart mobility. To conclude, we will propose ways to move the paradigm forward.

Keywords: Empathic education, disruption, diversity, citizen social science, new thinking modes

1   INTRODUCTION

The environment in which graduates will be 'employed' is multi-faceted, complex and influenced by over-arching economic barriers that prevent many conceptual solutions from reaching the market, and into the hand of users. Following the COVID-19 crises, it is evident that perception of the world of work for new design graduates is also unstable (Wong, 2021) [2]. A UK focused industry trend report based on young designers entering the profession (Dribble, 2021) [3] even suggests that the route to becoming a designer has started to change to a less formalised route, perhaps initiated by the greater flexibility of remote training aligned to a higher current-technology literacy that enables new designers to explore different routes. Education is an ever-changing entity but clearly, recipients are beginning to question the way that they acquire knowledge. A dangerous route? Does working in isolation, a silo, remove objectivity and inhibit those new designers from understanding the real needs of users? We have addressed the importance of empathy (Woodcock, 2020) [4] in design and the value for immersive strategies (Magee, 2021) [5] that engage with citizens from marginalised backgrounds in an equitable way (Mudyarabikwa, Regmi, Ouillon 2021) [6] and to respectfully learn to walk in the shoes of others in previous publications, and indeed at E&PDE (Woodcock et al, 2019 [7] to Magee et al, 2021) [5].

Following our lockdown and remote working period, we have found that a number of things have changed.

Change is ongoing, and needed, not least in training graduates to challenge the validity of a given design challenge; to challenge the notion that problems can be 'known' without really 'knowing.' Previously, we have undertaken a number of tasks focused on embedding empathy, discursive techniques to improve communication with hard-to-reach groups (Woodcock, 2019) [7] and fundamentally attempted to dissipate the barriers to involvement that so often impacts the effectiveness of silo-solutions. We have had micro-success, but we see that this remains relatively tokenistic in the bigger picture of design at scale. We are yet to be convinced that design education carries the notion of this democratic,

compassionate approach through to its climax – nor that it had become a common thread, through which the next generation of creatives frame their thinking. This is not the fault of the education system behind it, but rather a symptom of the repeated assessment process that makes it difficult for educators to embed new, somewhat abstract, techniques that have no immediate comparison against which to score performance.

An approach that might have the potential to enhance design students' empathy and expose them to wider and more complex design challenges was implemented by Magee, Ouillon and Woodcock. The approach involved the design students in an immersive design internship programme whereby ideas for concept designs or design challenges related to gender and diversity sensitive smart mobility were informed by action research intelligence from citizen social scientists.

2   RESEARCH METHODS

TInnGO and Coventry FabLab [8] implemented an action research approach by training local people in ten countries as Citizen Social Scientists. Our definition of citizen social science is social or community-based research, conducted by members of the public, with the support of professional researchers for the benefit of citizens, scientists and the community/society. It is associated with other terms such as Community Participatory Action Research (PAR) and peer research. While the term has a broad meaning, it is underpinned by an approach that seeks to engage the collaboration of the public in a dialogue about science and society (Clark and Illman, 2001) [9]. Citizen social science recognises that the citizens are experts on the communities from which they come. Therefore, they can play an important role in exploring complex phenomena from behavioural science.

Early on in the project, Magee, Ouillon and Woodcock tested combining citizen social science with the design studio experience for product design students at Coventry University. To achieve this, they recruited eleven local elder women, as Citizen Social Scientists to co-design with 30 product design students over a period of four, four-hour sessions, culminating in a presentation of design concepts to tutors and a panel of the local elders. The experience was mutually beneficial, supporting students to address their design ideas in an inclusive and empathetic way by enabling direct input and feedback from potential consumers. When the Covid-19 pandemic hit, it was no longer possible to deliver the citizen social science programme as planned in the design studio. Therefore, the co-design experience was expanded to engage interns in a programme that reframes the relationship between knowledge gain and creative endeavour. An approach where citizen and stakeholder contributions at varied levels are valued and lead policy change, product or service design; upskilling stakeholders as citizen social scientists and co-designers so that their lived experience enhances the depth of understanding within young design teams, during internship.

To begin with, consider the term; '*interns*'- who tend not to be formally employed (i.e., typically without remuneration and not contracted other than an informal agreement), but rather invited to volunteer for externally funded, multi-disciplinary projects with a variety of ambitions but with a common goal – of widening the skill and knowledge base of a given community. We already have the traditional notion of people engaged primarily in taught education, taking some time out to work in consultancy, research or similar external activity. Perhaps with the hope that this improves their own employability. Yet, the same term might be applied to citizens who have sought a new start in Coventry and have been willing to learn new skills provided by our living lab (ENoLL, 2016) [10]. Within this bubble, we have highly skilled, experienced citizens who are willing to share their knowledge, and years of learning, for the benefit of others (Fablab); and 'in turn' for the economic benefit of the region. And perhaps beyond; those who possess wider experience have a sought-after mind-set and tend to be more capable with addressing others, in short, their world experience better enables them to engage with a world of requirements other than their own typically narrow life experience (Woodcock et al, 2020) [11].

To address the limitations resulting from the COVID-19 pandemic, a group of transport design students were recruited as design interns to work within a virtual living lab environment (a space where researchers, citizens, designers and stakeholders can come together). This environment aimed to get close to the lived experience of citizens, to better understand their mobility needs whilst also providing the design interns with information from citizen driven action research. This involved the following mixed methods approach. The students came from, and operated in, different geographical locations, including Malaysia, India, Spain and the UK. Whilst existing in multiple time zones may seem to be a disadvantage, in practice it was managed smoothly, we operated flexibly and as a quirk of these arrangements were able to meet weekly as a large group, regularly throughout the week for short

discussions and frequently on an 'ad hoc' basis. Although we hadn't expected to do so, we met up for a variety of discussions – many more than we may have been able to had we been co-located and perhaps more so than would normally be anticipated for an internship. Despite the challenges for our students to rapidly and unexpectedly relocate to their home places, the experience was positive and rich.

The TInnGO project was built around hubs in ten European countries which communicated citizen and stakeholder identified smart mobility challenges to the intern designers from their own citizen social science activities. It was important to include research methods that are capable of collecting data 'from below,' especially from social groups whose perspectives are usually overseen. This is to support local citizens and stakeholders' ability to shape the process of problem setting and the quest for realistic solutions, e.g., with the involvement of citizen (social) science (Kythreotis et al., 2019) [12]. The citizen social science activities involved a number of methodologies such as interviews, focus groups and Participatory Design Walks described by Bertelsen et al (2017) [13] as a citizen driven approach that can provide valuable insights for design (Morrison et al, 2019) [14].

In addition to action research, citizens/stakeholders could collect and upload their own images to provoke a design discussion. These were posted on an online whiteboard (Mural) where individuals could comment, anonymously if desired. Using the information from the Mural board as well as the citizen social science activities the intern designers set about co-developing concept designs with the project hubs. Design activities lasted over 18 months, generating over 50 design provocations, some of which may be found on TInnGO's Open Innovation Platform (OIP) https://oip.transportgenderobservatory.eu/ideas-lab. A number of design and engineering students worked on concept designs (or provocations) using internally generated and submitted ideas from the ten National hubs. These related to current, context specific, mobility related challenges (Woodcock et al, 2021) [15] whereby the concept designs aimed to provoke further discussion and ideas for policy and service change as well as new products or adaptations to existing infrastructure. This process involved weekly meetings with the wider Coventry University team as well as regular contact with and input from the ten European Hubs.

The Hubs would also use the designs to run labs with citizen social scientists/stakeholders to co-create the next phase. This typically involved additional citizen and stakeholder engaged workshops for example as well as feedback on each concept design directly by citizens and stakeholders on the Open Innovation Platform.

3   RESULTS

The citizen social science approach combined with the design intern programme, resulted in the development of over 50 concept designs (or design provocations) and nearly 300 discussions (from citizens and stakeholders about the gender smart mobility solutions). The conversations continue on the Platform. Combining active engagement of citizens into the design process through citizen social science informed internships helped to bring the lived experience closer to the design process and helped to improve the design intern's ability to design for a wide range of needs.

"I'm back on the course and everyone is talking about fast cars and aesthetics, and I can't stand it I keep thinking is it accessible, is it inclusive etc. This is changing designer's perspective before they eyed the market! (Transport Design student/TInnGO intern, Coventry University).

Using an asynchronous feedback and discussion platform (Open Innovation Platform) can support student designers to obtain direct input from citizens into their design process in a low resource intensive way. The process specifically helped further the design interns understanding of the specific transport requirements and needs of different groups of women, such as older women and women with care responsibilities. The experience of the students has undoubtedly changed them as designers who will soon go out into the workforce with newly acquired empathic design skills.

Combining an approach to design pedagogy with a large-scale European research and innovation project had its challenges. However, the research project partners and their tentacles out to local citizens meant that the interns could experience a variety of input into their design process from people with very different ages, nationalities, cultures and backgrounds.

"A nice well thought-through idea. I like the protection for the child's legs but need to think about the dimensions as their legs can get very thick when all wrapped up in padded trousers or onesuits "(feedback provided by a hub citizen/stakeholder on a design interns child seating solution).

"It was really useful to allow our students to experience working within a much larger research project whilst still having the freedom to exercise their design ideas on quite a broad topic. We liked the design challenges brought forward by the TInnGO team – they were often simple problems to understand but often required complicated solutions" (Lecturer, Coventry University).

4 DISCUSSIONS

TInnGO in particular introduced a gender shift in terms of the wider project delivery. Perhaps therefore there is a difference in the thinking of the project and in certain outputs, which represent a willingness to include the emotional and societal aspects of lived experience applied to transport systems. The project was not just about designing new modes of transport but about understanding how the existing system leads to inequity. Bringing in a team of intern designers to the process of bringing the lived experience to life through future gender smart mobility concept designs merits further investigation. Design does not exist in a vacuum (whimsically nor does it solely exist in a Hoover…), isolation of the design process disadvantages the method for the detriment of the resulting designs. The future of socially responsible, citizen engaged design remains a tension between economic drivers and social barriers - we must change our way of looking at the users within the lens of the producers, we must change the way that users see themselves as excluded from solving interwoven problems. Our work is leading us to a new paradigm - and embedding this in education.

How does such a new paradigm make impact, ultimately as a learned legacy of design education? Surely, the best way to know is to ask those whom have experienced it. To co-create that knowledge so to speak. However, how long is needed to elapse until their professional reflection indicates how well their knowledge has improved their ability over that of their peers? 1 year? 10?

The Design Council's 'design differently' campaign [16] findings emphasised the value of relationship building and trust, citing 3 C's (Communicate! Capability! and Convene!) as themes around which to categorise collaboration experience. Participants used these themes to engage with local challenges across the UK, nicely slotting into the DC's democratic design values. Whilst (user) Experience businesses can provide vast amounts of corporate transport data and work closely with 'clients,' how often are they willing to fundamentally disagree? How do we know that their insight is ethical? Moral? Real? They are in business after all, and ultimately economic factors drive decisions. But then, integrity keeps business afloat and clients coming back. Why, then, are vehicles still not addressing the needs 50% of the population whose gender remains at a deficit, for instance in impacts?

This question challenges the potential of a design pedagogy that builds a more direct connection between people's lived experience and the designer/design process. Given that, UX companies exist and yet the gender issues remain.

5 CONCLUSIONS

Experience of the citizen social science informed design intern programme has informed thinking about the potential for a new educational paradigm; one where the student is critically engaged in dialogue with wider society and where the design process is directly linked to and influenced by the lived experience and needs of potential users. Evidence from the citizens, stakeholders, students, researchers and teaching staff involved suggests that all have derived benefits from the experience. For example, the interns developed more empathetic design skills and experience of discursive techniques with wide ranging communities and the citizens and stakeholders benefited from the visual concept/design solutions and opportunity to bring their own experience into the design process. In this respect, the experiment has had small-scale success.

There are, however, many challenges to scale the approach to achieve a paradigm shift. For example, the research and teaching team involved were fortunate to have access to large-scale research and innovation project and the associated resources that that brings. Would the approach be achievable without the resources? The original engagement of 11 local elder women and 30 product design students within the design studio might be more replicable in the short term. In the longer term, the potential for online collaboration spaces linked to audiences outside of the academy and immediate geography such as, the Open Innovation Platform and living lab approach merit further investigation.

REFERENCES

[1]   Transport Innovation Gender Observtory (TInnGO). https://www.tinngo.eu Accessed 221221.

[2]   Wong H., (202). Young designers battle with job instability and remote work challenges in 2021. https://www.designweek.co.uk/career-survey/ Accessed 221221.

[3]   Dribble 2021 Design Industry Trends Report. https://www.industry-trends.dribbble.com Accessed 221221.

[4]   Woodcock A., McDonagh D., Magee P. and Tovey M. (2020) The Value and Place for Empathy in Designing for Older People. In: Woodcock A., Moody L., McDonagh D., Jain A., Jain L. (eds) Design of Assistive Technology for Ageing Populations. Intelligent Systems Reference Library, vol 167. Springer, Cham. https://doi.org/10.1007/978-3-030-26292-1_4

[5]   Magee P., Woodcock A., Gut K., Saunders J., Atkinson P. and Bridgman J., (2021). In pursuit of meaningful insight; covid remote collaboration and design as provocation. In *DS 110: Proceedings of the 23rd International Conference on Engineering and Product Design Education (E&PDE 2021), VIA Design, VIA University in Herning, Denmark. 9th-10th September 2021.*

[6]   Mudyarabikwa O., Regmi K., Ouillon S. and Simmonds R. Opportunities and Challenges in Designing a Public Health Knowledge and Skills Curriculum for Refugee and Migrant Community Health Champions in the West Midlands, England (UK). *Pedagogy in Health Promotion* 7.1 (2021): 71-81. Web.

[7]   Woodcock A., McDonagh D., Magee P., Ball T. and Iqbal S. (2019). Expanding horizons: Engaging students with empathic thinking. In *DS 95: Proceedings of the 21st International Conference on Engineering and Product Design Education (E&PDE 2019), University of Strathclyde, Glasgow. 12th-13th September 2019.*

[8]   Learn With Us. https://fablabcov.coventry.ac.uk Accessed 221221

[9]   Clark F. and Illman D. (2001). "Dimensions of Civic Science." *Science Communication* 23.1: 5-27. Web.

[10]   Introducing ENoLL and its Living Lab community. 02022016. https://issuu.com/enoll/docs/enoll-print/64 Accessed 221221.

[11]   Woodcock A., Ball T., Gut K., Magee P., McDonagh D., Moody L., Moreira F. and Ouillon S. (2020). Fostering design literacy, empathy and awareness in codesign. In *22nd International Conference on Engineering and Product Design Education, E and PDE 2020*. The Design Society.

[12]   Kythreotis A. P. et al., (2019). Citizen Social Science for More Integrative and Effective Climate Action: A Science-Policy Perspective. *Frontiers in Environmental Science,* 7(10). 1-10.

[13]   Bertelsen P., Kanstrup A. and Madsen J. (2017). Steps Toward Technology Design to Beat Health Inequality - Participatory Design Walks in a Neighbourhood with High Health Risks. *Participatory Design & Health Information Technology, 233*, 158-172.

[14]   Morrison A., Ola Erstad O., Liestøl G., Pinfold N., Snaddon B., Hemmersam P. and Grant-Broom A. (2019) Investigating agentive urban learning: an assembly of situated experiences for sustainable futures, Oxford Review of Education, 45:2, 204 223, DOI: 10.1080/03054985.2018.1556627

[15]   Woodcock A., Magee P. and Gut K. 2021, September. Realising gender and diversity sensitive smart mobility futures during the Covid pandemic: the TInnGO experience. In *Design Thinking Research Symposium 13 (DTRS13): Expanding the frontiers of design: A blessing or a curse?*

[16]   Design, differently. https://www.design-differently.com/6/ Accessed 221221.