

This is a repository copy of *Thinking Outside the Bag : Worker-led Speculation and the Future of Gig Economy Delivery Platforms*.

White Rose Research Online URL for this paper:

<https://eprints.whiterose.ac.uk/184772/>

Version: Accepted Version

Conference or Workshop Item:

Kirman, Ben orcid.org/0000-0002-4087-5798, Bates, Oliver, Lord, Carolynne et al. (1 more author) (2022) *Thinking Outside the Bag : Worker-led Speculation and the Future of Gig Economy Delivery Platforms*. In: Design Research Society Conference, 25 Jun - 03 Jul 2022.

Reuse

This article is distributed under the terms of the Creative Commons Attribution-NonCommercial (CC BY-NC) licence. This licence allows you to remix, tweak, and build upon this work non-commercially, and any new works must also acknowledge the authors and be non-commercial. You don't have to license any derivative works on the same terms. More information and the full terms of the licence here: <https://creativecommons.org/licenses/>

Takedown

If you consider content in White Rose Research Online to be in breach of UK law, please notify us by emailing eprints@whiterose.ac.uk including the URL of the record and the reason for the withdrawal request.

Thinking Outside the Bag: Worker-led Speculation and the Future of Gig Economy Delivery Platforms

Ben Kirman ^{a*}, Oliver Bates^b, Carolynne Lord^b, Hayley Alter^b

^aDigital Creativity Labs, University of York, Heslington, York, UK. YO10 5GB

^bLancaster University, Bailrigg, Lancaster, UK. LA1 4YW

*Corresponding author e-mail: ben.kirman@york.ac.uk

<https://doi.org/10.21606/drs.2022.XXX> LEAVE BLANK FOR INITIAL SUBMISSION

Abstract: Gig economy is presented as disruptive, technologically driven, and forward thinking. Design is explicit in this framing, through use of slick apps to reduce friction and simplify experience for customer and worker. However, this framing is often driven by the platforms, and does not fully recognize the actual experience of work. In this paper we report on a collaborative design process on developing concepts for the future of gig work from a worker-centric perspective. This explicitly does not involve the platforms as stakeholders and uses design fiction as a tool for workers to express fears, joys, and the aspects of their work that are nuanced, reflective and surprising. We reflect on the designs created through this process, the tensions, and opportunities with working with gig working couriers, and issues around power and representation when designing with and for this community.

Keywords: gig economy; speculative design; design fiction; platform economy

1. Introduction

Gig economy platforms are disrupting work and atomising workforces. Within this context, millions of jobs across the globe have been outsourced through digital platforms that connect consumers, service providers and workers in the gig economy (Srnicek, 2017). Gig work covers a growing spectrum of jobs, including on-demand delivery, domestic and care work, taxi driving, microwork, and freelancing (Woodcock & Graham, 2019). Platforms (e.g., Uber, TaskRabbit, Deliveroo) are designed to provide procured goods and services as and when they are needed (Berg, 2015). This work is categorised as a ‘gig’ due to the relatively short length of a job (as little as a few minutes in the context of food courier work) and the casual relationship between the worker and other parties. In 2021 the number of gig workers in England and Wales has risen to 4.4 million, almost triple that of 2016, with those working as delivery or private hire drivers quadrupling in that time (TUC, 2021).



There is a stream of gig economy platforms being deployed across new and established markets enabled by technology that automatically distributes work and payment remotely. However, there is an imbalance of power and a lack of transparency around how algorithms used in this industry are designed to manage workers, and their emotional labour (Lutz et al., 2018, Toombs, et al., 2018), that causes frustration and growing concern for workers (De Stefano, 2015, Waters F. & Woodcock, 2017).

Recent union actions (Anon, 2018, Rawlinson, 2021), platform co-operative movements (Conaty, 2018), worker perspectives (Graham & Shaw, 2017, Woodcock & Graham, 2019; Cant, 2019), and reviews of working practices (Taylor, 2017) highlight a need for technology and legislation to work in the best interest of gig workers. Groups such as the Fairwork Foundation and unions like the Independent Workers of Great Britain (IWGB), continue to make strides in supporting workers both in the gig economy and more widely, fighting for workers' rights, providing advice and support for organisation, increasing transparency, and challenging the industry in its treatment of gig workers (e.g., collective action against Uber, Deliveroo and Transport for London). There are examples of designers working to support workers and emerging platform markets through: designing for the needs of crowdworkers (Suzuki et al., 2016); extending workplace studies for platform work and designing for labour rather than work practices (Glöss et al., 2016); recommendations for worker-centred design for freelancing platforms (Alvarez de la Vega, Cecchinato & Rooksby, 2021); new design concepts for job speed dating apps supporting the social needs of job seekers (Dillahunt et al., 2018); and, the development of new design toolkits to support designers in thinking about emerging sharing economy markets and platforms (Fedosov et al., 2019).

Our work explores worker-led design approaches in local food and grocery delivery, and this paper reports on a series of workshops where couriers were invited to develop speculative designs around their visions for the future of gig work. This builds on the examples of critical, speculative, and activist design perspectives, such as: speculative and adversarial design (Dunne & Raby, 2013, DiSalvo, 2012); reflections of designers' importance being elevated above that of activists in the case of activist led projects such as Turkopticon (Irani and Silberman, 2016); the value of multimedia and illustrations (e.g. comics^{1,2}) in mixed-methods accounts of the working conditions of platform food couriers (Poplan, et al. 2021); and, how forms of lightweight design (e.g. zines) are valuable design tools for having conversations and building solidarity whilst doing activist research (Fox et al, 2020).

The research contributions shared in this paper include:

Insights gained from couriers in their experience of gig work as expressed through a series of design fictions

¹ <https://cosminpopan.medium.com/drawing-the-precariat-6289b892650e>

² <https://joseshwood.com/doing-gig-work/>

Reflection on the tensions and opportunities in this kind of design work, and especially on the specific challenges of designing with this community.

A discussion on the power relationships in the gig economy, and the implications for designers working within this space.

2. Designing with gig couriers

In previous work with couriers (Bates, et al., 2018), design recommendations for improving courier effectiveness were developed based on the “work” of delivery, however these were somewhat underdeveloped in terms of critical positionality around the social and political aspects of designing for couriers themselves. It became clear that considering gig work as a typical job occluded the complexities in this kind of work for the person making the deliveries, and the role of design in this process.

Design is implicated in the politics of gig work, as born from Californian ideologies (Barbrook & Cameron, 1996), and the insidiousness of gig platforms as extractive industries that use polished app design to provide cover for cost saving through avoidance of labour laws intended to protect workers (e.g., Aloisi, 2016). The increase in convenience for customers is a design priority that conceals a human cost. For example, when delivery platforms over-hire in cities to increase availability of delivery workers, at the cost of a reduced average wage and increased unpaid waiting times for those workers (Schor, 2021, p.10). Although the extractive structure begins to be challenged with practical approaches like co-operatives (Cycle-Coop) and consideration of more just structural configurations (Elzenbaumer, et al., 2016), there is still opportunity for more reflective and speculative approaches to build on the experiences, needs and desires of individual couriers (Gregory, 2021), explicitly in opposition to the use of design to strategically distance customers from labour as currently taken in these platforms.

Therefore, in the current study, the focus was explicitly turned to the courier. It was developed in collaboration with gig economy cycle couriers as well as technical, and third-sector organisations, to explore ways in which technology design can effectively communicate the imbalances of power and a lack of transparency these workers face. The objective was to generate formative data, speculative design concepts and prototypes, as a research through design project that explore couriers’ diverse experiences of their work and their perspectives on how this relates to the design of both existing and future technology. Since gig work is so entangled with the design of the on-demand delivery systems, these workers have direct and wider effects of these systems on their lives and the cities in which they work.

Our approach is to use collaborative and reflective speculative and critical design process as a way to develop “value fictions” (Dunne, 1999), examples of technologies for “implausible social goals” (Gaver & Martin, 2000) that are not overly concerned with practicalities, but instead aim to build worlds (Coulton, et al., 2019) through a research through design process,

using design “not just as a new way of communicating research outcomes, but as a new forum for communication and collaboration with a variety of Partners” (Brown, et al., 2016). In addition, by centralising the experience of the workers, and involving them in the production, with the intention of avoiding pitfalls of critical design as being reserved by designers to be shown in galleries (e.g Prado & Oliveira, 2017, and Tonkinwise, 2015), and instead use design as part of a dialogue around the real concerns of the stakeholders (Thomas, et al., 2017).

This is a useful method because, although situated in a speculative future, design fiction uses speculation in service of ideologies (Gonzatto & van Amstel, 2013). In the case of corporate fictions presented by the platforms gig work is an aspirational and shiny example of how high technology can benefit customers in convenience and gig workers in flexibility (Mihov, 2021). This fiction is maintained through advertising and other media, but the reality for workers is very different. The delivery workers who make the system work are dehumanised and deindividualized in the fictions, platforms avoid responsibilities of employers, and couriers are presented as disposable, transient, and interchangeable. Using the same visual language of the near-future, design fiction presents a way for us to explore alternative visions of the future based on an ideology that puts the couriers at the centre, instead of the platforms they work for. The intention is not to make realistic, practical, and workable design examples, but rather accessible concepts, that use the language of design to explore and embody nuanced holistic perspectives of workers’ worries and joys and help communicate them to a wider audience who might not otherwise appreciate the challenges faced in this work.

To achieve this, day-long workshops were organised in Manchester and York (UK) in March 2020, which were attended by eight couriers (“riders”) in total, who deliver food and groceries using platforms in these cities. Riders were recruited by approaching them on the street, and by sharing invitations with local courier groups. All attendees were paid a full day at the living wage rate, and the workshops were approved through institutional ethics processes. Ahead of the workshops, riders were invited to collect material they thought would be interesting and offered instant cameras, stationery, and prompts, as part of a “cultural probe” (Gaver, 1999). Although none engaged with this ahead of the workshops, riders shared many photographs, videos, messages, and items that helped illustrate different aspects of their working experience.

The workshops had two main parts. Firstly, a series of open discussions about their own work, to build rapport, set expectations for the day, and develop a richer understanding of their diverse experiences, with particular attention to the local aspects. Manchester and York are quite different cities (Manchester is a larger industrial and metropolitan city, and York is a smaller city defined by its heritage). In this early stage, we were also careful to be explicit about the anonymous nature of the work, but also how it would be used. For exam-

ple, it was intentional that no industrial partners, and no platform representatives, were present at the workshops, to foreground the worker experience and explicitly recognise the issue of power in this kind of work.

The second part focussed on creation, taking discussions from earlier in the day and working through a series of design prompts and activities focussed on their perception of the future of their work. The aim was to envisage and co-design, in sketch form, the tools and services that might exist in that future (as in Ambe, et al., 2019). Participants were encouraged to be creative and not dwell on the practical issues related to their ideas. Alongside the sketches, diagrams, annotated maps, and photographs generated and shared by participants, researchers also documented the events with extensive notes.

After the workshops, researchers collated and analysed collected material to identify themes running through the designs and responses, identify common characteristics, overlapping ideas and ensuring that nuanced ideas were not lost in the volume of data. For example, while some participants had very strong and coherent ideas about a specific concept (e.g. see Courier Simulator, below), other participants had more abstract thoughts, half-ideas, anecdotes and sketches that required further refinement, reflection and development into representative speculative concepts (e.g. Tarot, below) that helped communicate the ideas expressed during the workshop.

Based on the workshops, main themes were identified by researchers based on the extensive notes, diagrams, maps and photographs collected. For each of these themes, a speculative design concept was chosen or refined based on discussions in the workshop, that represents the key issues and insights described by the riders. These “provocations” are examples of design fictions and are collected in a design catalogue (see fig 1) that is distributed freely online (Switch-Gig, 2020). Presenting design fictions or speculative designs in catalogue/booklet form is a useful and established (e.g., Brown, et al., 2016., TBD Catalog, 2014) way to present this kind of work in an accessible and interesting way. Individually and collectively, the design fictions speak of a future envisaged by riders, based on their own experiences, that better supports their work. This future is not expressed as a narrative through the catalogue, but rather as a world (Coulton, et al. 2019), glimpsed through the designs of systems and services that exist there.

3. Provocations

In this section we highlight four of the design fiction “provocations” generated in collaboration with couriers, to illustrate both the concepts and the underlying insights to which each design reflects. The full collection of designs is available on the website (Switch-Gig, 2020).



Figure 1 The design fictions are collected into a booklet that contains further elaboration on the issues faced by couriers in their work

3.1 Courier Statue

The workshops for this project happened in the early stages of the Covid-19 pandemic, just before the first UK lockdown. At that time, there was growing national recognition of the importance of “key workers”, with special appreciation of medical professionals handling the growing crisis (e.g., “Clap for our Carers” (Addley, 2020)). Although couriers were generally understood as key workers, our participants expressed some frustration that they perceived their contribution was not recognised by their local communities. There was a sense they felt “hidden” and disrespected, and often in conflict with the city they serve. Customers hold them responsible for issues out of their control and are quick to complain about the service. There were frequent stories of conflict on the streets, with other road users, members of the public, restaurant staff and the platforms themselves, leading to a general feeling of alienation from their community and lack of respect for their work.

The image shows a screenshot of a BBC News article. At the top, there is a navigation bar with the BBC logo and various menu items like 'Your account', 'News', 'Sport', 'Weather', etc. Below this is a red 'NEWS' banner with sub-menu items for 'Home', 'UK', 'World', 'Business', etc. The main content area features a video player with a play button and a video thumbnail showing a bronze statue of three figures. To the right of the video player is the article title: '999 Cenotaph: Planned Emergency Services Memorial updated to include PPE and Deliveroo Rider'. The article text below the title reads: 'A planned sculpture to celebrate emergency workers has been adapted to reflect the current coronavirus crisis. The seven-figure Emergency Services Memorial will now feature a medic wearing PPE and a Deliveroo Rider. It is set for central London in 2023 - provided the £3 million needed can be raised. The BBC's Danie la Relph has been to meet the artist behind the work.' The article is dated '02 Jul 2020' and has social media sharing icons for Facebook, Twitter, and Email.

Figure 2 A modified news article describing a new statue for key workers, that has been modified to include a gig working cyclist.

The statue (Figure 2) is a response to this, and although provocative, represents a sense of injustice in being forgotten key workers doing difficult and dangerous work for low pay. The concept proposes to literally cement the courier as a recognised permanent fixture in the city, which contrasts with the transient and dynamic nature of the realities of their day-to-day work, and their perceived diminutive role in the community. Later, in 2021, the IWGB union campaign “Clapped and Scrapped” (IWGB, 2021) highlighted this frustration in how couriers had been poorly treated by platforms during the pandemic, during a time when the public were showing appreciation for key workers and local businesses were almost entirely relying on their service.

3.2 Ride or Wait Tarot

A consistent theme running through both workshops was the mystery of how work is allocated through the various apps. From the courier perspective, they get precious little information on how jobs are distributed by the platforms. Some reported frustration at seeing other riders being allocated jobs even though they had waited longer, and others speculated on the range of factors that might be considered by the platform. Riders developed various folk theories and superstitions based on hearsay and derived from personal experience. For example, refusing a longer job because then the algorithm might then choose to send them

shorter, more profitable ones, or by waiting further away from the big restaurants in the belief the platform prefers riders to not hang around outside popular places. Or even the exact opposite, that they are better to be more central or nearer the restaurant (Cant, 2019).

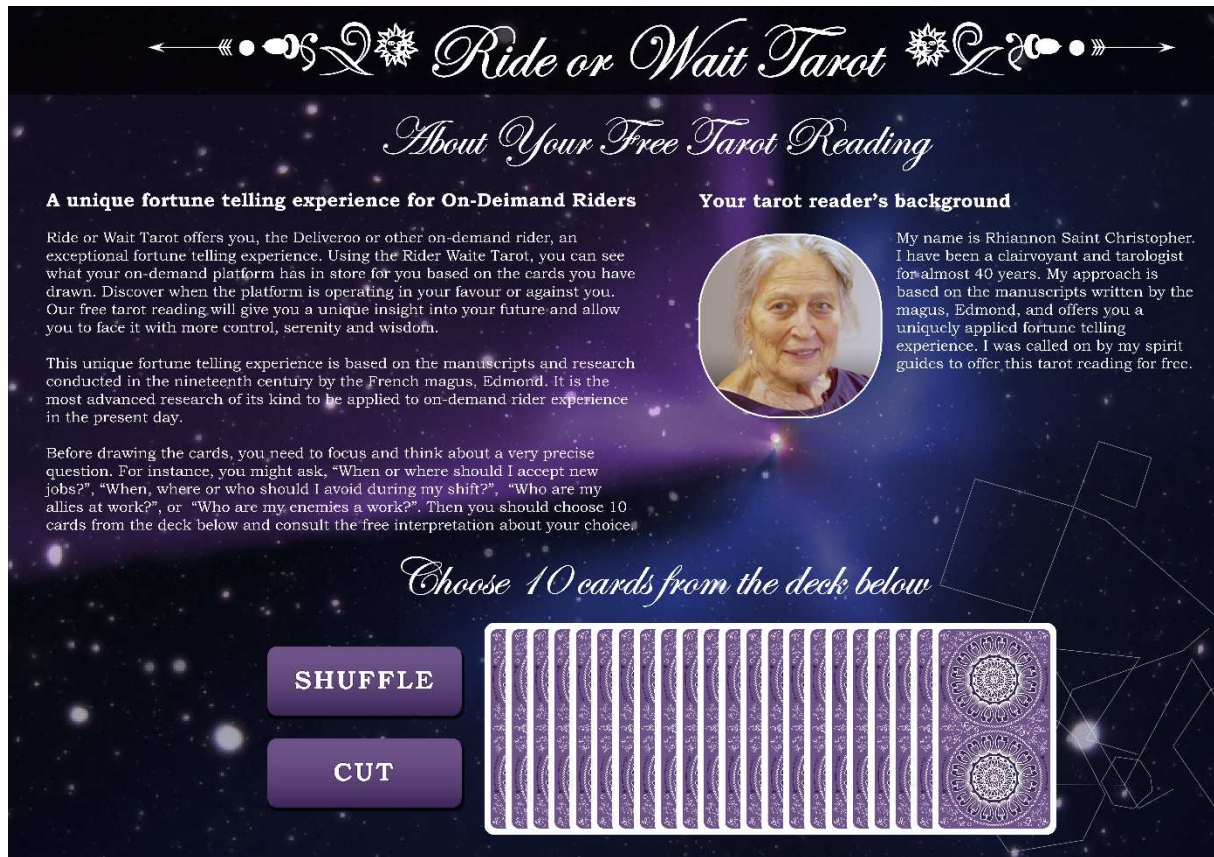


Figure 3 The Ride or Wait tarot website shows a deck of cards and invites couriers to consult with a clairvoyant before starting their shift

This kind of superstition is not uncommon (e.g. Soper, 2020) and comes from a lack of feedback from the platform. The algorithms are designed and presented as mysterious black boxes that do not provide any reasoning or justifications of decisions of how to allocate work. This is by design, both to protect the intellectual property of the system, plus perhaps also to maintain the mystique around the "clever algorithms" that make it function. Riders are therefore quick to use any information as evidence in support of theories, as they attempt to divine how it works to be more efficient. The tarot concept provides a straightforward analogue, demonstrating the desire to have insight into the workings of the ineffable, even if just to know if it is a good time to log in, or if they should wait.

3.3 Bag Goblin

In the UK, gig working couriers are usually considered “independent contractors”, who, despite relying on a small number of employers for their livelihood, are not given the same legal rights and protections as employees. For example, platforms can sack workers arbitrarily and without due process, do not provide sick pay, pensions or other benefits seen by people doing similar work for more traditional delivery companies. On top of this, platforms are often seen as untrustworthy, and riders must plan to defend themselves in case of issues. For example, riders reported “disappearing jobs” that vanish from the system without getting paid, and some platforms overstating the likely pay for taking a particular job, and then giving much less.

Part of this self-defence is by repurposing external apps like Strava (a cycle tracking app) to record their work and using their phone camera frequently to record evidence for when things seem like they might go wrong. This kind of data is also valuable when filing tax returns, since in the UK riders can claim tax relief based on using their vehicle for work.



Figure 4 Bag Goblin

The Bag Goblin is a playful representation of this kind of defensive tool, combining several responsibilities of the riders in one “device”. The goblin includes time saving features such as automatically cleaning spillages from poor containers. This was a common complaint from

riders, some of whom would always reject orders containing soup or drinks from specific restaurants. A device that can reduce this maintenance increases their productivity and therefore their take home pay.

3.4 Courier Simulator

All the participants in the workshops used bicycles as their main vehicle. Although riders had many issues with their work and employment, they were also very careful to highlight the joys of this kind of work. Alongside the factors such as being somewhat flexible in their working hours, and in some cases being able to do work while “on holiday” for apps that allowed riders to work in different cities, there was also a strong feeling that riding bicycles was itself enormously rewarding and joyful. The fun of riding a bike, getting exercise and being outdoors for their work was a common positive point.



Figure 5 An advertisement for “Courier Simulator 2020” describes the features of the game

The Courier Simulator concept is derived in part from this aspect, and in part through the subtle gamified elements of this kind of piecemeal work. One rider observed that the nature of cycle delivery makes the work effectively “High-Intensity Interval Training” (HIIT). This kind of exercise regime involves periods of high intensity work, followed by periods of recovery, that maps directly onto the high intensity of work in making a delivery, followed by the recovery while waiting for the next job. This led directly to the suggestion of the simulator as

a way for people to get the benefits of exercise. By “following along” with a rider at home on an exercise bike, clients get an effective HIIT workout, as well as a better understanding of the pressures and joys of the work.

In this section we’ve presented four of the six design fictions included in the booklet, the complete example of which can be found on the project website (Switch-Gig, 2020). The booklet is a self-contained, glossy brochure that includes the images of the design fictions along with a short description of how it relates to the experiences of couriers as expressed in the workshops. The booklet provides a useful tool to explore the nuanced issues of this kind of work, intentionally divorced from the narrative portrayed by the platforms. All the design concepts are “conceptually rich” (Gaver, 2012), relatable, humorous, and gently subversive, and all share a very human quality. Through caricature and exaggeration (Blythe, 2014) they give glimpses into the real worries, concerns of the people that do the work in bringing food and groceries to our homes, that are otherwise hidden behind a polished mobile app interface.

4 Reflection on Worker-led Methods

In this paper we have reported on the production of a series of co-developed design fiction “provocations” that attempt to relate some aspects of the experiences of food delivery couriers in their work. Through the workshops and following process of analysis and refinement this helped gain a richer understanding and more textured appreciation of this specific kind of work. However, the workshops and design process generated methodological insights that are worth further exploration.

4.1 Collaborating with an Atomised Workforce

The major challenge and opportunity of this work was the collaboration with working riders with direct experience of this kind of work. As with any collaboration there were practical difficulties, such as effective communication, and as might be expected, engaging participants with the more speculative aspects of the approach. However, since the couriers in the workshops had quite well-defined practical perspectives and needs, these were able to serve as anchors to start to explore more whimsical futures that were arguably more consequential for the riders (Elsden, et al., 2017) when placed in context.

It is also important to recognise the selection bias at play in this kind of work, that may mean some voices are over-represented. For example, long-term riders had a more complete conception of the longer picture, that allowed them to understand the value of participation and a route to sharing their experience. Similarly, riders who are actively involved with their union have extrinsic motivation to participate in research. Yet most couriers are not careerists, and gig economy platforms have very high turnover in staff. It is important to capture the voice of those who pass through this kind of work, as well as that of those who are in it for years at a time. IWGB President Alex Marshall describes couriers as “atomised workers” (Aarjan & Wood, 2021) in that the community of workers is constantly in flux as platforms

hire and couriers move on, which makes presentation of a unified voice very difficult. In our recruitment we were careful to pay couriers for their time at comparable wage to what they would expect to earn through delivery, to widen participation, and recognise their role as expert collaborators rather than subjects of research. This, ironically, necessitated hiring the couriers as self-employed workers on the project. This arrangement, and the project, was approved by the university ethics committee, but demonstrates the systemic bias that research and institutional perspectives bring to this kind of work (see Bates, et al., 2020). The challenge of this atomised workforce also made recruitment for the studies difficult, which involved approaching couriers directly on the streets of Manchester and York (see Bates, et al. 2021). There is no “hub”, or central noticeboard equivalent, that can be used for recruitment, but also, when directly approaching people, discussing potential involvement in design research projects can be a complicated conversation.

In addition to this, some kinds of voices are excluded because they operate outside the rules of the platforms, but it is still important to recognise their role in this community. Courier work may be attractive for people with restricted legal status to earn money since the platforms don't go to great efforts to prove the person completing the work has the legal right to. Renting and lending of accounts is apparently common, although usually against the rules of the platform³. Naturally a person renting an account would be suspicious of participating in this kind of research, which means their experiences are only related third hand.

4.2 Geography

It is a limitation of this work that it is geographically bound to the UK, and two northern English cities in Manchester and York. However, one of the clearest insights through the process of working in these two cities was how the city and its social and physical geography affected the experience of the riders. As above, this affected recruitment but also how riders related to one another. York has a well-defined central area where most restaurants are located, and natural physical gathering places which, as observed also in Brighton by Cant (2019), leads to opportunities to meet and organise. Riders in Manchester were more likely to drift around the city and suburbs, taking jobs as they went, whereas in York there was usually an unpaid “deadhead” leg (Ongweso, 2021) as they returned to the centre. Similarly, the socioeconomics of the cities mean that the number and kinds of deliveries changes, especially late at night and early in the morning, and at different times of year (for example York has comparatively a lot of tourism in summer months).

³ Deliveroo have implemented a “substitution” feature (<https://riders.deliveroo.co.uk/en/substitution>) where the responsibility for checking all legal work requirements is abdicated to the account holder.



Figure 6 A photo of the A-Z Map of York, annotated in pen and stickers by riders.

This really crystallised during a map annotation activity which became central to both workshops. A local street map for each city was brought to each workshop to support activities, but quickly became extremely important as a tool for expressing their experiences of their work. This was unexpected, but upon reflection, natural, since the city, and the map of the city as seen on the delivery apps, is a lens through which riders experience their work.

Given the authors' experiences of both these cities, it formed a common language between researchers and riders, and riders and other riders, as they related anecdotes and made points tied to places as examples. The maps ended up covered in annotations, stickers, drawings, and notes, even unrelated to the map itself. For example, an idea about preventing bike theft, delivered with one finger pointing to the street on the map where a suspicious bike shop is located. Ideas and experiences were both tied to map locations, for illustration and for situating insight in the real world.

4.3 Methods for worker-driven insight

Whilst philosophical roots of Participatory Design can be traced back to the worker's movement where factory equipment was designed with the workers who used it (Nash & Briggs, 2019) these methods sit in tension with the purpose of lean platforms, where cost savings are a priority. It is challenging to get a unified voice on the topic due to varied experiences of atomised individuals. Participatory Design cannot work in spaces where worker and platform relationships are adversarial, and the platform is not investing in the involvement of the worker (end user) in design. Other methods that expose the context of work such as (auto)ethnography or contextual inquiry are valuable and resource intensive (time, effort).

So how do we design with workforces like these? Focusing on worker-led design projects, effort and resources are required to build a relationship with these communities, where the priorities of union communities and proxies might not match the pull of the designer. As a rough guide, harnessing action research in technology design to focus on local issues (Hayes, 2012) and forms of lightweight design (Fox, et al., 2020) helps to build trust, solidarity and unity with communities such as marginalised gig economy workers (Bates, et al., 2020). Using fiction and speculation to amplify the perspectives of the community can also help in relationships building with workers (Knutz, et al., 2016) and is a tool to communicate the complexities of their working lives with stakeholders (consumers, policy makers, industry) who have the power to improve the worker's lives (even a little). As discussed by Helms & Fernaeus (2018), humour is an extremely useful tool in this kind of work, that mediates the narrative, allows for suspension of disbelief but contains a danger that the ideas might be dismissed.

During the workshops, the process of guiding speculation was challenging, since the couriers very driven by immediate practical concerns of their work, however this positioning as a communication outward to broader audiences helped frame the aims of the provocations and give permission to engage with the playful critical elaboration of their experiences. In this way, we deliberately positioned ourselves in critical alignment with the workers to expose the realities of the work and foreground the experiences. The current paper has focussed on the process, with particular attention to positionality, in this kind of work. We feel that that harnessing design fictions to create speculative worlds where the often-invisible labour of workers in forms of gig work (e.g. delivery, taxi driving, care workers, cleaners) can be amplified and made visible to both articulate realities of platform capitalism and challenge the perspectives of stakeholders who impact the lives of these workers through their (inter)actions.

5. Conclusion

In this paper we have presented a case study of project taken with gig workers that explores their experiences, frustrations, and joys with their work. The outcome of this is presented as a booklet of design fiction "provocations", that propose technologies as "boundary objects" (Brown, *et al.*, 2016) that demonstrate the unexpected and subtle aspects of their work in humorous, and challenging ways. These final proposals are rough but richly evocative and representative of real concerns.

In this project we took a specifically worker, individual and community centric approach to understanding experiences of work in the gig economy, in contrast to a focus on the platform and societal level implications of gig work. To do this, we held two full day workshops with riders to develop relationships with them and engaged them in a research through design process to aggregate, synthesise and tell textured stories of their work that were used to refine a series of fictional products that embody these real experiences and values.

This is a single project, based in the UK, dealing with one specific kind of gig work (local food cycle delivery), however it serves as a useful case study of how to engage with this kind of worker, the strategies, and complexities of engaging and working them in the process of research through co-design.

Especially, through engaging workers as partners in design rather than subjects of design (Sanders & Stappers, 2016), it is important to also recognise the power relationships in the gig economy is adversarial. The platforms have a vested interest in sponsoring and publishing research that happens to validate their design decisions (e.g. Bhattacharya & Shepherd, 2021), so we argue it is necessary to recognise the positionality of any design work. In the case of this project this was through visibly and purposefully excluding platforms and commercial partners from the workshops, to centre the courier and their individual experiences.

Acknowledgements:

This work was supported in part by the EPSRC through Not-Equal (<https://not-equal.tech>, EP/R044929/1) and Flip-Gig (EP/S027726/1). The authors would like to offer immense gratitude to the riders who participated in their workshops. The authors also thank Adrian Friday, Lilly Irani, Jamie Woodcock, Shaun Lawson, Callum Nash, Miralis, Future City Logistics, Cooperatives U.K., and IWGB Couriers and Logistics Branch for their invaluable inputs throughout the project.

6. References

- Aarjan, A. & Wood, R. (2021) Episode 30. - Precariat of the World, LEFT/OVER Podcast, <https://anchor.fm/leftoverpod/episodes/LEFTOVER-Episode-30---Precariat-of-the-World-feat--Alex-Marshall-e1752hb>
- Addley, E. (2020, May 28). Clap for our Carers: the very unBritish ritual that united the nation. The Guardian. <https://www.theguardian.com/society/2020/may/28/clap-for-our-carers-the-very-un-british-ritual-that-united-the-nation>
- Aloisi, A. (2016). Commoditized Workers. Case Study Research on Labour Law Issues
- Ambe, A. H., Brereton, M., Soro, A., Buys, L., & Roe, P. (2019). The Adventures of Older Authors: Exploring Futures through Co-Design Fictions. Proceedings of the 2019 CHI Conference on Human Factors in Computing Systems, 1–16. <https://doi.org/10.1145/3290605.3300588>
- Anon. (2018) Uber couriers and drivers occupy London offices in dispute over terms and conditions, 4 Oct 2018. <https://morningstaronline.co.uk/article/ubereats-couriers-occupy-london-hq-national-day-action>
- Arising from a Set of “On-Demand/Gig Economy” Platforms (SSRN Scholarly Paper ID 2637485). Social Science Research Network. <https://doi.org/10.2139/ssrn.2637485>
- Barbrook, R., & Cameron, A. (1996). The Californian ideology. *Science as Culture*, 6(1), 44–72. <https://doi.org/10.1080/09505439609526455>
- Bates, O., Friday, A., Allen, J., Cherrett, T., McLeod, F., Bektas, T., Nguyen, T., Pieczyk, M., Piotrowska, M., Wise, S., & Davies, N. (2018) Transforming last-mile logistics: Opportunities for more sustainable deliveries. In Proceedings of the 2018 CHI Conference on Human Factors in Computing Systems
- Bates, O., Lord, C., Alter, H., Friday, A., & Kirman, B. (2021) Lessons from One Future of Work: Opportunities to Flip the Gig Economy. *IEEE Pervasive Computing* 20 (4). <https://doi.org/10.1109/MPRV.2021.3113825>

- Bates, O., Lord, C., Alter, H., & Kirman, B. (2020) Let's Start Talking the Walk: Capturing and Reflecting on our Limits When Working with Gig Economy Workers. In proceedings of ACM Workshop on Computing within Limits (LIMITS 2020)
- Berg, J. (2015). Income security in the on-demand economy: Findings and policy lessons from a survey of crowdworkers. *Comp. Lab. L. & Pol'y J.*, 37, 543.
- Bhattacharya, A., & Shepherd, J. (2021, November 29) Rides and responsibilities: Understanding the needs and preferences of those who work in the gig economy. Social Market Foundation [White Paper], <https://www.smf.co.uk/publications/rides-and-responsibilities/>
- Brown, B., Bleecker, J., D'Adamo, M., Ferreira, P., Formo, J., Glöss, M., Holm, M., Höök, K., Johnson, E.-C. B., Kaburuan, E., Karlsson, A., Vaara, E., Laaksolahti, J., Lampinen, A., Leahu, L., Lewandowski, V., McMillan, D., Mellbratt, A., Mercurio, J., ... Ydholm, M. (2016). The IKEA Catalogue: Design Fiction in Academic and Industrial Collaborations. *Proceedings of the 19th International Conference on Supporting Group Work*, 335–344. <https://doi.org/10.1145/2957276.2957298>
- Blythe, M. (2014). Research through design fiction: narrative in real and imaginary abstracts. In *Proceedings of the SIGCHI conference on human factors in computing systems* (pp. 703-712).
- Cant, C. (2019). *Riding for Deliveroo: resistance in the new economy*. John Wiley & Sons.
- Carlos Alvarez de la Vega, J., E. Cecchinato, M., & Rooksby, J. (2021, May). "Why lose control?" A Study of Freelancers' Experiences with Gig Economy Platforms. In *Proceedings of the 2021 CHI Conference on Human Factors in Computing Systems* (pp. 1-14).
- Conaty, P., Bird, A., & Ross, C. (2018). *Working together: Trade union and co-operative innovations for precarious workers*. Co-operatives UK.
- Coulton, P., Lindley, J., Sturdee, M., & Stead, M. (2019). *Design Fiction as World Building*. RTD Conference <https://doi.org/10.6084/m9.figshare.4746964.v1>
- De Stefano, V. (2015). The rise of the just-in-time workforce: On-demand work, crowdwork, and labor protection in the gig-economy. *Comp. Lab. L. & Pol'y J.*, 37, 471.
- Dillahunt, T. R., Lam, J., Lu, A., & Wheeler, E. (2018, June). Designing future employment applications for underserved job seekers: a speed dating study. In *Proceedings of the 2018 Designing Interactive Systems Conference* (pp. 33-44).
- DiSalvo, C. (2012). *Adversarial design as inquiry and practice*.
- Dunne, A., & Raby, F. (2013). *Speculative everything: design, fiction, and social dreaming*. MIT press.
- Elsden, C., Chatting, D., Durrant, A. C., Garbett, A., Nissen, B., Vines, J., & Kirk, D. S. (2017). On Speculative Enactments. *Proceedings of the 2017 CHI Conference on Human Factors in Computing Systems*, 5386–5399. <https://doi.org/10.1145/3025453.3025503>
- Elzenbaumer, B., Graziano, V., & Trogal, K. (2016). Introduction: The Politics of Commoning and Design. *Design Research Society Conference 2016*. <https://doi.org/10.21606/drs.2016.614>
- Fedosov, A., Kitazaki, M., Odom, W., & Langheinrich, M. (2019, May). *Sharing economy design cards*. In *Proceedings of the 2019 CHI Conference on Human Factors in Computing Systems* (pp. 1-14).
- Fox, S. E., Shorey, S., Spektor, F., & Rosner, D. K. (2020, July). *Crafting Everyday Resistance through Lightweight Design*. In *Proceedings of the 2020 ACM Designing Interactive Systems Conference* (pp. 101-113).
- Gaver, B., Dunne, T., & Pacenti, E. (1999). *Design: cultural probes*. *interactions*, 6(1), 21-29.
- Gaver, B., & Martin, H. (2000, April). *Alternatives: exploring information appliances through conceptual design proposals*. In *Proceedings of the SIGCHI conference on Human factors in computing systems* (pp. 209-216).

- Gaver, W. (2012). What should we expect from research through design? Proceedings of the SIGCHI Conference on Human Factors in Computing Systems, 937–946. <https://doi.org/10.1145/2207676.2208538>
- Glöss, M., McGregor, M., & Brown, B. (2016, May). Designing for labour: uber and the on-demand mobile workforce. In Proceedings of the 2016 CHI conference on human factors in computing systems (pp. 1632-1643).
- Graham, M., & Shaw, J. (2017). Towards a fairer gig economy. Meatspace Press. Chicago
- Gonzatto, R. F., van Amstel, F. M. C., Merkle, L. E., & Hartmann, T. (2013). The ideology of the future in design fictions. *Digital Creativity*, 24(1), 36–45. <https://doi.org/10.1080/14626268.2013.772524>
- Gregory, K. (2021). 'My Life Is More Valuable Than This': Understanding Risk among On-Demand Food Couriers in Edinburgh. *Work, Employment and Society*, 35(2), 316–331. <https://doi.org/10.1177/0950017020969593>
- Hayes, G. R. (2012). Taking action in your research. *interactions*, 19(4), 50-53.
- Helms, K., & Fernaeus, Y. (2018). Humor in design fiction to suspend disbelief and belief. Proceedings of the 10th Nordic Conference on Human-Computer Interaction, 801–818. <https://doi.org/10.1145/3240167.3240271>
- Irani, L. C., & Silberman, M. S. (2016, May). Stories We Tell About Labor: Turkopticon and the Trouble with "Design". In Proceedings of the 2016 CHI conference on human factors in computing systems (pp. 4573-4586).
- IWGB. (2021). #ClappedAndScrapped. Retrieved November 23, 2021, from <https://iwgb.org.uk/en/page/clappedandscrapped/>
- Knutz, E., Lenskjold, T. U., & Markussen, T. (2016). Fiction as a resource in participatory design. Design Research Society Conference 2016. <https://doi.org/10.21606/drs.2016.476>
- Lutz, C., Newlands, G., & Fieseler, C. (2018, January). Emotional labor in the sharing economy. In Proceedings of the 51st Hawaii international conference on system sciences.
- Mihov, I., Pangilinan, C., Reich, D. (2021) Transit Horizons: Towards a New Model of Public Transportation. Uber.
- Near Future Laboratory (2014) TBD Catalog.
- Ongweso, E. (2021, June 14) The Motherboard Guide to the Gig Economy. Motherboard. <https://www.vice.com/en/article/pk8k88/the-motherboard-guide-to-the-gig-economy>
- Popan, C., Lovelace, R., Sherwood Gonzalez, J., Tamasan, A., Lohan, O., & Dulamita I. Beyond the dot on the map. Using multimedia and illustrations to research platform food deliveries. Work, Employment and Society Conference, 2021
- Prado, L. & Oliveira, P. (2017, August 31). Questioning the “critical” in Speculative & Critical Design. A Parede. <https://medium.com/a-parede/questioning-the-critical-in-speculative-critical-design-5a355cac2ca4>
- Rawlinson, K. (2021) Deliveroo riders planning strike across England over pay and conditions. The Guardian, 6 April 2021
- Sanders, E. B.-N., & Stappers, P. J. (2008). Co-creation and the new landscapes of design. *CoDesign*, 4(1), 5–18. <https://doi.org/10.1080/15710880701875068>
- Schor, J. (2021). After the Gig: How the Sharing Economy Got Hijacked and How to Win It Back. Univ of California Press.
- Soper, S. (2020, September 1). Amazon Drivers Are Hanging Smartphones in Trees to Get More Work. Bloomberg. <https://www.bloomberg.com/news/articles/2020-09-01/amazon-drivers-are-hanging-smartphones-in-trees-to-get-more-work>

- Srnicek, N. (2017). Platform capitalism. John Wiley & Sons.
- Suzuki, R., Salehi, N., Lam, M. S., Marroquin, J. C., & Bernstein, M. S. (2016, May). Atelier: Repurposing expert crowdsourcing tasks as micro-internships. In Proceedings of the 2016 CHI conference on human factors in computing systems (pp. 2645-2656).
- Switch-Gig (2020) Switch-Gig Project Website. <https://switchgig.wordpress.com>
- Taylor, M., Marsh, G., Nicol, D., & Broadbent, P. (2017). Good work: The Taylor review of modern working practices. London: Department for Business, Energy & Industrial Strategy.
- Thomas, V., Remy, C., Hazas, M., & Bates, O. (2017). HCI and Environmental Public Policy: Opportunities for Engagement. Proceedings of the 2017 CHI Conference on Human Factors in Computing Systems, 6986–6992. <https://doi.org/10.1145/3025453.3025579>
- Toombs, A., Gray, C., Zhou, G., & Light, A. (2018, April). Appropriated or Inauthentic Care in Gig-Economy Platforms: A Psycho-linguistic Analysis of Uber and Lyft. In Extended Abstracts of the 2018 CHI Conference on Human Factors in Computing Systems (pp. 1-6).
- Tonkinwise, C. (2015, August 21). Just Design. Medium. <https://medium.com/@camerontw/just-design-b1f97cb3996f>
- TUC (2021) Platformisation and the Pandemic: Changes in Workers' Experiences of Platform Work in England and Wales, 2016-2021. <https://www.tuc.org.uk/news/gig-economy-workforce-england-and-wales-has-almost-tripled-last-five-years-new-tuc-research>
- Waters, F., & Woodcock, J. (2017). Far from seamless: A workers' inquiry at Deliveroo. Viewpoint Magazine, 20, 09-17.
- Woodcock, J., & Graham, M. (2019). The gig economy. A critical introduction. Cambridge: Polity.

About the Authors:

Ben Kirman is a Senior Lecturer in Interactive Media and member of the Digital Creativity Labs at the University of York. His background is in interactive design and play, and using creative technology to explore contemporary issues.

Oliver Bates is a user researcher, designer and data “scientist”. His research reflects passions for social justice at work, designing to empower gig workers and challenging precarity. Free moments are spent thinking about systems change, speculative design, agitation, and dismantling capitalism.

Carolynne Lord is a Senior RA in the Department of Sociology, and School of Computing and Communications, Lancaster University. Her work is concerned with how technologies are impacting domains like gig-economy and platform work, and everyday life.

Hayley Alter is a Research Associate at ImaginationLancaster, working on creative collaboration and knowledge exchange between citizens, community group and the public sector.