The workshop is a popular framework in cultural production that brings together groups of people from different fields in order to (co-)produce knowledge. Situated between work and leisure, workshops are organized within extra-curricular activities, such as symposia, incubator programmes, and innovation labs. Those activities emerge from public cultural institutions, for-profit festivals and congresses, academic conferences, and small non-profit initiatives. Buzzwords like ‘rapid prototyping’ or ‘agility’ promote high-velocity technological development and imply that the workshop format is a highly productive one. From the perspective of design practice and more specifically, by looking at collaborative approaches to technology design, this essay explores the workshop’s capacity, or lack thereof, to create critical, constructive conditions for designing technology.

Introduction: Workshop-Pop. The Workshop Phenomenon

Hackers & Designers Summer Academy 2016 – ‘If you are so smart why are you so poor?’ workshop with Carina Namih and Simone Niquille. The Internet of Bodies, at De Punt, Amsterdam.
I was asked by one of my design students: ‘Why does everything have to be a workshop these days?’ The question most probably arose out of a certain workshop fatigue after having gone through a whole semester of weekly hands-on workshops during a practice seminar I taught on collaborative making from 2017–2018 in the design department at Sandberg Instituut, Amsterdam. However, the question also addressed a certain exhaustion of the ‘workshop market’, a workshopization of cultural production, and a general disappointment in what workshops are actually capable of. The format of the workshop offers a framework for social gatherings, producing, and sharing knowledge. However, there seems to be little specificity in articulating its premises, characteristics, and objectives.

Together with the Amsterdam-based collective Hackers & Designers (H&D) I co-founded with artist Selby Gildemacher and software developer James Bryan Graves in 2013, I make critical inquiries into the complexity of technological constructions and their societal implications through collective processes of designing technology. H&D currently has seven members and is only one of many workshop initiatives in the Netherlands that have started organizing extra-curricular bottom-up educational activities outside of the institutional context since 2010 – each of those initiatives having another angle and focus. H&D aims to bring artists, designers, and technologists together by means of hands-on workshops. The most common participant is a freelancer, in between jobs, or having just graduated. H&D has since dealt with web and network technology, computational automation processes, and ‘smart’ technology, in brief and practical encounters.

Although the workshop as understood today does not directly refer to the artisanal workshop, a sense of competency is still shared with or is to be acquired among participants. This cross-disciplinary making approach was practised at the Bauhaus where the workshop was the place that brought ‘art and technology together as a “new unity” to meet the design challenges of the period’. H&D has emphasized technology as human-made and inhabiting social orders in its workshops. According to Lilly Irani, Associate Professor of Communication, Science Studies, Critical Gender Studies, Design Lab, Data Science Institute, University of
California San Diego, ‘subjects and social orders [are] reproduced and valorized in practices of […] technological production. These forms of technologically productive social life emerge at the intersection of systems of gender, economy, and politics.’ At H&D, situations of collaborative making turn into sites for exercising and challenging positions: opposing, contradicting, and confronting. The hands-on aspect and collaborative modes of production are important. Touching, soldering, breaking apart, deploying code, are means of acquiring new knowledge and skills, but also confronting assumptions of dominant technological constructions in a temporary social context.

**Workshop Branches and Deviations**

The workshop here refers to a site and situation that hosts groups of like-minded people to meet and work intensively on a specific technological topic in a defined timeframe. Workshops usually take place outside of the daily work routine. Even if in the workplace workshops are usually positioned as a ‘fun’ disruption to the daily employment obligations.

One branch of the workshop is the hackathon, a ‘hybrid of work and leisure’, drawing on hands-on iterative prototyping and usually focusing on a specific technology or programming language. Participants are unpaid and work towards concrete solutions in a short amount of time in a competitive setup. At the end a jury selects the most innovative project, which receives a prize. Hackathons have been criticized for exploiting the willingness of participants to perform free labour.

In the cultural and artistic domain, hackathon-like workshops have become popular. In March 2018, I participated in one during a two-day intensive workshop run by a design and technology lab. Four participants were invited via a personal, informal email emphasizing the experimental character of the workshop and the opportunity to collaborate with a unique group of makers – a writer, software programmer, and a creative coder. I was asked to join due to my expertise as a designer and involvement with H&D. Upon arrival all participants were asked to engage in an introduction game to get to know each other, which required physical exercise. One participant refused, and although everyone had met before in other circumstances, the others went along with it. What followed were two days of intensive brainstorming. The challenge: ‘Create an interactive story that is set in the future. And use code.’ Nothing else was specified. The workshop space was well-equipped: markers, sticky notes, and walls covered with paper to sketch, draft. Throughout it became clear we were expected to produce a functioning prototype – a demo of an interactive installation, which would be presented and tested in public at the end. One hundred people were already invited. Posters and flyers were printed and distributed. The pressure was high. We even received a workshop facilitator, who mediated the ‘idea finding’ process. Drinks and snacks were offered in high frequency. A videographer came to interview every participant about the qualities and challenges of collaborating. The video interviews were published on social media platforms, and the project website. The tension grew towards the end of the second day. It became clear we would not be able to produce a functioning prototype in the given time frame. To be able to present a convincing demo to the audience meant that some of the participants would have to continue working on the project after the workshop was completed.

This description of the hackathon-like workshop scenario exemplifies a few dilemmas I have come across. The workshop is generally considered a highly productive space. However, it is often only considered successful if a tangible result is produced: a product or prototype that can be presented to a wider audience. By organizing a public event as concluding moment for the workshop, the organization clearly intended to introduce pressure. The team had no choice besides producing something that a broad audience would understand. Over-facilitation is another pitfall. By introducing mediation, exercises, a wide range of workshop equipment, dominant means of documentation, the – probably well-intended – workshop host establishes a highly controlled environment, diminishing
any possibility for contingency. Erasing chance from the collaborative process obstructs other unanticipated forms of value, such as longer term collaboration. The arbitrariness of the assignment ('Create an interactive story that is set in the future.') combined with an imposed hackathon-like setup of the workshop ('And use code.') implied that there was a challenge that needed to be solved, without the time and space to investigate commonalities and urgencies for producing something together. The workshop was as an end in itself.

Although the term workshop is common both to English and non-English speaking contexts, there is no standardized definition. Conceptions and expectations about what a workshop should produce diverge. Yet distinctions can be made by looking at those branches and deviations – the previously mentioned hackathon being one example. Another is the participatory design workshop, a secret weapon of socially engaged designers working in urban planning, architectural design, and software development. Participatory designers counter the detached design approach by letting end-users and citizens take part in the design process rather than approaching them as consumers. The workshop offers the participatory designer the opportunity to strategically involve all stakeholders in the design process, which enables the designer to take control over decision-making processes. The facilitating designer usually distinguishes between “experts” with technical and managerial skills, and “lay people” with informal or contextual knowledge. In most cases, designers’ status as experts confers relatively greater authority in decision-making than lay persons. Some participatory and user-centred design workshops democratize the design processes, empowering individuals to exercise control over their environment. Those workshops, however, run the risk of limiting layperson participation to ‘passive roles’, including filling out surveys and joining focus groups.

**Workshop Knowledge**

H&D workshops pull from ideas of participatory design in the sense that they open up processes of design and computer programming. They are based on the underlying claim that being limited to one’s own subjectivities, own disciplines, the individual maker won’t be able to incorporate the multiple facets of technology design. By working together with (or against) a cross-disciplinary group of makers on practical matters relating to technology design, the constraints of disciplinary thinking are confronted.

In his book *Educating the Reflective Practitioner*, influential thinker Donald A. Schön who is working on ‘reflective learning’ discusses the sequences of skilful judgements, decisions and actions that a maker undertakes spontaneously without conscious deliberation, a process he terms ‘knowing-in-action’. Makers have learned how to do something skilfully and smoothly. They do things spontaneously, ‘without thinking’ so to speak, based on their tacit knowledge. In workshops those skills are public. In my observation, the premise for collaborative design processes, of partaking in each other’s ways of doing, is that habitual methods and skills are the subject of attention and questioning. By exposing the making process to others, tacit knowledge might be disrupted and called into question. A making process that is familiar to one person might fail to meet somebody else’s expectation of how ‘things are done’. That disruption might be pleasantly surprising, or unpleasantly disturbing. Schön calls the surprise effect of errors and disruption while executing a skill ‘reflection-in-action’. When this reflection happens during the collaborative making process the makers involved do not reflect on something that happened in the past. Instead reflection happens while something is being produced, and therefore has immediate consequences for the action. Similar to collective interaction, the thing that is being made (the thing could be a conversation or a piece of technology), is shaped and reshaped by these contingent disruptions. The friction results from an interplay of people’s interaction during a collective making situation, alongside their interactions with the technology being made and that used to make it.
To give an example: H&D developed an instant publishing software with the title Momentary Zine, which was used in different workshop situations and triggers reflection-through-action quite literally. A zine is a small-circulation self-published work of original or appropriated texts and images. The Momentary Zine could be described as a publishing-karaoke machine. It uses speech input to instantly produce printed output. By speaking into a microphone, participants can produce a printed publication containing image and text. The user of the zine station goes into direct conversation with the tool, which simultaneously produces the publication. The experience of producing a zine is informed by the immediacy of speaking and instantly creating printed output as well as the confrontation with the shortcomings of the technology. Not every word will be recognized accurately by the software, and the result of the image search might be unexpected. The surprise effect of unexpected texts and images changes the zine output without much deliberation in an improvisational manner.

**Workshop Commonalities and Differences**

H&D workshops and the hackathon format have the subject of technology design in common as well as the ad-hoc collaborative modes of production and the ambition to create something new. In the context of H&D this might be a new experience, new knowledge, or a new social or material prototype. Different from a hackathon, the aim is not to set up a problem that needs fixing. There is no imposed competitive element, and the focus of the making process does not lie in producing finalized outputs. On the contrary, the artefacts produced during the workshops have the characteristics of disposals rather than proposals – they are side products of a process. In his talk at the 2018 AIGA Design Educators Conference: MAKE in Indianapolis, Matt Ratto, Associate Professor who directs the Semaphore Research cluster on Inclusive Design, Mobile and Pervasive Computing and, as part of Semaphore, Critical Making Lab in the Faculty of Information at the University of Toronto, talked about one of his critical making seminars, in which his students knew from the beginning that they would have to destroy their prototypes after the seminar. Thus it became immediately clear that whatever was made, would not be regarded as precious. The students could therefore let go of the pressure to produce functional and aesthetically pleasing artefacts. Instead they were able to consider potentialities and boundaries of the collaborative making process.

Shifting the focus away from designed objects towards prototyping allows for the development of an understanding of the inner workings of the proposed technology, its conditions and implications. As Thomas James Lodato and Carl DiSalvo write: ‘[…] a distinction needs to be made between the prototype and prototyping, as an activity. … The object is crucial, but it is a product of the social process of conceptualizing and expressing the wants and needs. The activity of prototyping, then, is dialogic in that its structure is one of exchange and its purpose is the discovery and elucidation of the conditions or factors of a design.’

The potential of the workshop as a space for experimenting with new forms of social and technological interaction lies in its being an iterative process, constantly in flux. This makes it a difficult format, maybe impossible to fully control or reproduce as a model. If seen as social prototypes that require attention and iteration, workshops can create conditions for work to be produced, processed, disassembled, and possibly disregarded.
Frictional Encounters in Collaborative Making

At the moment of encounter with technology and with each other, the collaborating makers share their understandings as well as misconceptions about the many facets that come into being while using, designing, and building technology. Working together with (or against) a cross-disciplinary group of makers, constraints of disciplinary thinking are confronted, dissonance triggered, and uncertainties released. The temporary publics (of collaborators) potentially question the design process while it is happening and might counteract assumptions made during otherwise isolated, individualized design processes.

The H&D workshops – but also those of similar workshop initiatives such as Re-learn or Open Set – are organized without an imperative of consensus, which distinguishes them from more common forms of participatory design workshops. Discussions and disagreement about the implications of the examined technology are common and welcome during H&D workshops, as with Momentary Zine. H&D submitted a workshop proposing the publishing device to the annual Libre Graphics Meeting (LGM). The proposed workshop tool incorporated proprietary web APIs. In computer programming, application programming interfaces (API) are closed and controlled systems, a set of definitions, protocols, and tools for building software. For the Momentary Zine project H&D used different APIs, one for the translation of speech to text, and one to fetch images from the internet, using the web API provided by Google, which caused some controversy. Although the LGM’s code of conduct states the conference exclusively promotes the development and use of free and open source software graphics applications, H&D decided to put forward the Momentary Zine and passed the preceding review process. At the workshop’s outset it was apparent that we had implemented Google APIs in the software, which caused an immediate conflict. Our choice for using the Google API technology was seen as provocative and unacceptable in the open source community. Two participants left the workshop site after clearly and openly opposing and disregarding our contribution to the conference. Around fifteen participants remained – a sufficient amount to continue. The Momentary Zine became centre point and documentation tool of the discussion about proprietary software being unacceptable in the context of an open source conference. Less disruptive voices were able to contribute to the debate. Yet the two adversaries should be credited for their disruption, an instance of productive confrontation that allowed everyone present to reflect on their position as makers within the open source community. The microphone became a moderating device, facilitating and documenting the discussion and zine production.

This workshop illustrates friction that changed the conditions for workshop production. Although we had planned another path, we were commonly pleased with the course and outcome. The dissonance and resistance of the two workshop participants who decided to leave, had made an important impact on the workshop, and informed the zine production. The zine was not produced – as we expected – in togetherness, and did not follow the editorial path we had designed beforehand. Neither did we expect the workshop to become a platform for unheard voices, expressing frustrations about the dogmas of their community. The success of the workshop could not be measured by the accomplishment of consensus nor by completeness of the output that was generated. However, the discrepancy of the presence of the Momentary Zine as much as the articulated opposition enabled a productive conversation about the ‘elephant in the room’: the inclusion and exclusion mechanisms of idealized technology, such as open source software.

In answer to the question of whether the workshop is productive, it does not guarantee a marketable product, nor a resolution to a problem. The likelihood of a tangible outcome is not increased with more props, competition, or time pressure. The unique situation of the workshop is the possibility for makers to encounter each other and confront their own and other makers’ ways of making. As Lilly Irani states: ‘Hackathons sometimes produce
technologies, [...] they always, however, produce subjects. While publicly exposing making processes, workshops that focus on collaborative and cross-disciplinary technology design can bring about aspects of technology, such as social orders, positions, and frictions. A makers’ tool will be exposed. Witnessing a maker work with open source as opposed to proprietary software, for instance, makes apparent that a tool is not only an idealistic choice, but that it has consequences for work routines and collaborations.

The workshop’s capacity to produce critical and constructive conditions for designing technology lies in the tacit and reflective knowledge that is made public and therefore accessible to participating makers. The potential for disruption of the making process paired with contingency and the possibility of dissension provokes socio-technological literacy. If understood as sites where differences between makers and their ways of making might unfold, workshops can facilitate temporary critical publics, which potentially disrupt the otherwise isolated and individualized design process, and challenge the maker’s assumptions about how things should be made.

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Footnotes

1. Technology design is a term used to describe the design of technology as well as the engineering process. In *Adversarial Design*, Carl DiSalvo uses the term in examining the ways that ‘technology design can provoke and engage the political’. Carl DiSalvo, *Adversarial Design* (Cambridge, Massachusetts: MIT Press, 2012).

2. I use the terms maker and making in referring to workshop participants who have different practices and educational backgrounds mostly in the fields of design, art, and computer engineering. When I refer to the maker as workshop participant or participating maker I refer to a maker as part of a specific workshop situation.


4. According to Dictionary.com the word ‘workshop’ [work (noun) and shop (noun)] dates back to 1555–65 and refers to the space in which things are crafted or repaired. As a seminar or discussion group emphasizing exchange of ideas and demonstration and application of techniques, skills, etc., origin dates differ; the same dictionary cites the first use as 1937, www.dictionary.com.


7. Ibid.


9. The foundation Lava Lab, which profiled itself as a design and technology lab, was founded by the Amsterdam-based commercial design company Lava and dissolved in 2017.

10. See video documentation, if then / what now: the making of, June 2018, vimeo.com.


14. Ibid.


18. ‘Critical making’ was coined by Matt Ratto in 2007 to describe work that combines humanities insights and engineering practices, www.criticalmaking.com.

19. Ibid.


21. These projects [participatory design projects] blur distinctions between technical and nontechnical considerations, and emphasize deliberation and consensus-based decision making.’ Tad Hirsch,
24. Ibid.

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