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Increasing Inclusiveness in Making

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Making Access: Increasing Inclusiveness in Making

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ABSTRACT

In this one-day workshop we are going to *make* access. We aim to counteract the phenomenon that access to making (e.g., in makerspaces, fablabs, etc.) is not equally distributed, with certain groups of people being underrepresented (e.g., women*[1]). After brief introductions from participants and a set of three impulse keynotes, we will envision and "make" interventions together, such as speculative or provocative objects and actions. The workshop takes a constructive stance with the goal to not rest on empirical and theoretical findings or individual experiences, but to translate those into viable interventions. These serve as exemplars of findings with the clear goal of being deployed soon after.

CCS CONCEPTS

• **Human-centered computing** → **HCI theory, concepts and models**.

KEYWORDS

making, makerspaces, gender identities, age, cultures, inclusion, feminism, normcreativity, intersectionality, diversity

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1 BACKGROUND

Though making has many positive consequences for those who make, such as participation in innovation and democracy, ease of engaging with technology, or growth (e.g., [14, 15, 22, 26, 27]), it is far from being inclusive (e.g., [3, 8, 16]). Research made obvious how elitist access to making and its facilities is, with particular groups of people dominating the spaces and communities (e.g., [2, 17, 24]). Scholars from Human-Computer Interaction, feminist studies, or arts and crafts, just to name a few, have unveiled many disparities when it comes to gender, age, or educational backgrounds in regards to who benefits from making – and who does not.

It is not only access that is limited, but also recognition (i.e., who is visible) that differs among makers [11]; sometimes women* even don't consider themselves being makers, arguing that a maker is a particular kind of person (e.g., a techie guy, someone who is business-oriented, etc.) that they do not relate to [3]. There seems to be a felt distinction between makers, artists, and craftspeople, which increases the disparities in regards to using resources, such

[1]The gender asterisk is intended to make clear that "being a woman" or "being a man" is not an essential quality; it means to acknowledge and include everyone who identifies as queer, non-binary, transgender, or intersex.

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as spaces, equipment, and communities. This contributes to gender stereotypes being still reproduced within the maker movement. For instance, women* having different disciplinary backgrounds (e.g., arts, design, communication), makerspaces often reflecting male* "cultures" (e.g., interior design, language), or gendered objects (e.g., gender-specific use of machines) are considered as aspects that maintain these stereotypes [8].

Several reactions to these disparities have evolved in the past, ranging from feminist hackspaces (e.g., [11]) or women-only makerspaces (e.g., [5, 10, 13, 25] to approaches that speak particularly to a certain group of (underrepresented) people (e.g., [4, 24]) or implications for maker communities and how to design makerspaces (e.g., [23]).

In this workshop, we aim to add to these reactions by taking a constructive stance towards balancing out disparities. With the current pandemic potentially even reinforcing such gaps, when making together in shared spaces becomes limited to impossible as practices are not tested, negotiated, and (re-)interpreted, we argue that it is even more important to engage with this topic. We will, therefore, build on the impressive body of related work (e.g. [1, 18, 19] that tells us many ways and practices of exclusion and inclusion, and on the experiences that organizers and participants made themselves. We do, however, not just collect and relate knowledge and experiences, but will translate them into viable actions; we will engage with how to change the situation for the better.

In order to do so we attempt to envision and create different ways to enable, facilitate, or sustain access to making for diverse individuals. Through creating what we call "interventions", we aim to (a) materialize, discuss, question, and thereby gain insights, (b) unveil our own assumptions and create awareness, and (c) provide ways forward in regards to inclusive access to making. With the aspiration of creating these interventions that can actually be deployed, we will push the workshop beyond available knowledge and own experiences, but *make* viable actions. Starting from the notion that "things" have agency, we aim to instrumentalize these objects' and actions' (ethical) agencies (e.g., [6, 12, 21]).

Interventions that we aim for in the workshop may take various forms: Among many others, they may be (prototypes of) speculative [7] or disobedient [9] objects (e.g., a gate that requests everyone to show a picture of a female* maker that inspires them whenever entering a makerspace), provocative actions (e.g., an advertising jingle for a makerspace that requires each young maker to bring a senior with them), or spatial interventions (e.g., a fitting room for machinery to adapt their appearance, such as height and dimensions, to fit female* bodies instead of male bodies, which are fairly often the unquestioned norm [20]).

The workshop will kick-off by impulse talks from three keynote speakers, who share their expertise with us to inspire the rest of the workshop day: **Laura Devendorf** is assistant professor of Information Science at the ATLAS Institute, University of Colorado Boulder and leads the Unstable Design Labs; her research integrates technology with (often female-associated) crafting activities.

Elisa Giaccardi is professor or Interactive Media Design at Delft University of Technology (Netherlands), directs the Connected Everyday Lab and is member of the Delft Women in Science, a campus-wide network for gender diversity, gender equality and gender awareness.

Ambra Trotto is associate professor at Umeå Institute of Design, Head of Digital Ethics at RISE, Research Institute of Sweden and Director of Design and Research and the RISE Design Competence Experience Centre for inclusive innovation and social transformation.

Adding to those impulse talks, organizers and workshop participants will add their insights and experiences, which they described in the position statement submitted prior to the workshop. These insights and experiences can take the form of selected scientific findings, personal anecdotes, or existing ideas for inclusive access to making.

Afterwards, ideas for actions will be elaborated and implemented. We will finally discuss those actions towards their actual viability and create a roadmap for actual deployments.

2 ORGANIZERS

Verena Fuchsberger (she/her) (main contact person) is a Postdoc at the Center for Human-Computer Interaction at the University of Salzburg, Austria. She focuses on the agency of human and non-human actors in HCI and interaction design; in particular, she is exploring the materiality of interactions. She has a particular interest in how physical qualities play out human-computer interactions, such as in tangible interactions, or when *making* things with the help of technology. Furthermore, Verena engages with feminist theories and practices in her work and leads the *FEM*mad* research project that investigates the role of gender in making.

Dorothé Smit (she/her) is a PhD student at the Center for Human-Computer Interaction at the University of Salzburg, Austria. Her research focuses on embodied sensemaking, especially in situations that are out of the ordinary, such as in virtual reality. She is driven to bring different perspectives - both literally and figuratively - together into effective cooperation between people, as well as the environment they are in and the things they use in their day-to-day life.

Nathalia Campreguer França (she/her) is a PhD student at the Center for Human-Computer Interaction at the University of Salzburg, Austria. Her current research activities lie in the intersection of material science, technology, and making. She is specially interested in the particularities of technological making and how it can be explored within other disciplines. She draws from her professional background in computer science and personal experiences in performance arts and craft to look into making from different perspectives. Still in the very beginning of her academic career, she is committed to engage methods and methodologies that respect diversity in research and technology-related activities.

Georg Regal (he/him) is a scientist at the AIT Austrian Institute of Technology. His research is focused on human augmentation, virtual reality and interfaces for people with disabilities. He is particularly interested in investigating how co-creation and critical making can be applied in these domains. The influence of gender perspectives in making things and the perception of technology also plays an important role in his research.

Stefanie Wuschitz (she/her) works at the intersection of research, art and technology, with a particular focus on Critical Media Practices (feminist hacking, open source technology, peer production). She graduated with an MFA in Transmedia Arts in 2006. In

2008 she completed her Masters at TISCH School of the Arts at New York University and became Digital Art Fellow at Umeå University in Sweden. 2009 she founded the feminist hackerspace and art collective Mz* Baltazar's Laboratory in Vienna. In 2014 she finished her PhD on 'Feminist Hackerspaces' at the Vienna University of Technology. She held research and Post-Doc positions at the University of Applied Arts Vienna, the Vienna University of Technology, Michigan University, Weizenbaum Institut, Universität der Künste Berlin and is currently project leader of an FWF research project on 'Feminist Hacking. Building Circuits as an Artistic Practice' affiliated to Academy of Fine Arts Vienna. She is working on an artistic research project at the TU Berlin titles "Coded Feminisms in Indonesia" (Berliner Hochschulprogramm DiGiTal).

Barbara Huber (she/her) studied philosophy before she put her heart into radio, where she worked for several years in journalistic production. Via this she got curious about (audio) technology and OpenSource software, in which she educated herself, discovering feminist tech meetings and art. Currently she is the chief technician in Viennas historical puppet theatre 'Kasperl und Pezi' and manages projects, such as FEM*mad, for Mz*Baltazar's Laboratory in Vienna.

Joanna Kowolik (she/her) studied economic and organizational psychology, theater studies, and Slavic studies. Her research was focused on the future of work and the changing work environment. She's been at Happylab since 2016 and is responsible for project and event management, where she tries to foster a more inclusive and open environment at the maker space. She's also curating and organizing the annual Maker Faire Vienna.

Laura Devendorf (she/her) designs, develops and studies technologies that destabilize practice in order to prompt creative, thoughtful, and attentive engagements with the everyday. She is an assistant professor of Information Science and an ATLAS Institute fellow at the University of Colorado, Boulder where she directs the Unstable Design Lab. She has organized CHI and CSCW workshops on subjects of "Disruptive Improvisation" tactics for design, broader approaches to designing for care, and research through design. Her current research focuses on using textiles to speculate on futures for sustainable and inclusive electronics practices.

Elisa Giaccardi (she/her) is Professor of Post-Industrial Design at TU Delft, the Netherlands. Her work is focused on the challenges that a permeating digitalisation means for the field of design. After pioneering work in metadesign, networked and open design processes, her research currently engages with how digital things today 'participate' in design in ways that previous industrially produced objects could not. A TEDx and frequent keynote speaker, Elisa successfully brings together an interdisciplinary background in humanities, digital media, and interaction design. Her work has contributed significantly to the development of post-industrial and post-humanist approaches in the field of design through more than one hundred peer-reviewed conference, journal papers and book chapters, and funded research projects in the domain of memory practices, ageing, and the future of work. Elisa is director of the MSc program Design for Interaction at the Faculty of Industrial Design Engineering at TU Delft, Associate Editor for Springer HCI, and Scientific Coordinator of the DCODE Network[2].

Ambra Trotto (she/her) is the Design and Research Director of the newly formed Design Competence and Experience Centre for Inclusive Innovation and Societal Transformation. The centre is based at RISE and collaborates with a rich regional, national and international ecosystem with the purpose of transforming existing practices into sustainable ones, through design, by initiating and curating multi-actors' synergies with beauty, diversity and meaning for sustainable futures. Ambra leads the Digital Ethics initiative, setting the foundations on how RISE will take ethics into account, when designing transformation with technology as a material. She is part of the Development Team of the strategic research area Value-shaping System Design at RISE. Ambra is also associate professor at the Umeå Institute of Design She closely collaborates with the Research group of Systemic Change and the Chair of Transforming Practices of the Department of Industrial Design at the Eindhoven University of Technology. Ambra Trotto's fascinations lie in how to empower ethics, through design, using digital and non-digital technologies as materials. Strongly believing in the power of Design and Making, Ambra works with makers, builders, craftsmen, dancers and designers to shape societal transformation. Within her design research activity, she produces co-design methods to boost transdisciplinary design conversations.

3 WEBSITE

The workshop website will briefly introduce the workshop topic, its goals, and organizers (https://hci.sbg.ac.at/workshop-making-access). It will provide details about the workshop schedules, and, in particular, the constructive *making* activities. Additionally, details for submission and acceptance will be provided. After the workshop, we will (if agreed upon by the participants) describe and visualize the created set of interventions in form of instructions for replication.

4 PRE-WORKSHOP PLANS

Next to the aforementioned website, we will set up a communication channel (via Discord[3]) with participants to engage in joint preparation, such as everyone introducing themselves and describing their motivation to take part in the workshop. The hybrid format of the workshop will allow interested people to participate independent from where they are located. We will pay particular attention to individual requirements in terms of time (e.g., time zones, breaks needed) by asking about such prior to the workshop, and we will take particular actions to make the workshop material accessible.

5 PARTICIPANT CONTRIBUTION

To express interest in participation, a position statement (including a brief bio) shall be submitted. The submission can be a written statement (2 pages ACM manuscript), a comic, a visual (e.g., an annotated picture), a video (3 minutes), any mixed media, etc. Contributions could be a selected finding, a personal anecdote, an artistic expression (e.g., a related dance, a performance, an installation) or an idea for increasing inclusiveness. Submissions will not be made public, but remain with the organizers. However, participants may share those with the group via Discord if they like. In a curated process, contributions will be selected based on their fit to the workshop and

[2]https://www.dcode-network.eu

[3]https://discord.com

potential to inspire interventions. We will limit the workshop to (a maximum of) 20 participants. Since the main part of the workshop will be hands-on sessions in groups, with only limited time spent on individual contributions, we expect this number of participants to be appropriate in terms of being a heterogeneous group of people, and of creating a vivid atmosphere for the making activities.

6 IN-PERSON, HYBRID OR VIRTUAL-ONLY

We plan the workshop to be hybrid, which means that we will have some organizers and participants on-site, and others taking part from a distance. The beginning of the workshop and the wrap-up will be held synchronously, while the hands-on activity will be done in subgroups that chose their timing in between those two synchronous sessions. For those subgroups we aim to connect on-site with virtual participants if possible, with one organizer at least joining each subgroup. The keynote speakers will also join subgroups.

In case that the current pandemic again limits travel opportunities, we will consider a fully virtual workshop as an alternative to ensure safety for organizers and participants.

7 WORKSHOP STRUCTURE

The workshop will be structured in three parts, which are as follows:

- Part I (90 min): Welcome, impulse keynotes, participants' and organizers' contributions
- Part II (120 min): Ideation of viable actions, *making access*: creating interventions
- Part III (90 min): Discussion of viability, roadmaps for deployment, and wrap up

The actual timing, including the number and length of breaks, will be decided upon once participants have been selected in order to determine their timezones and requirements first.

On-site, a room will be needed that offers sufficient space for collaborative activities (i.e., being flexible with desks). In order to enable virtual participation, we will need a strong internet connection to have a stable video-chat running, and a projector to display the remote participants properly.

8 POST-WORKSHOP PLANS

During the final part of the workshop, we will assess the created interventions towards their viability in different settings and environments, asking whether, where, and how they could be deployed (e.g., in makerspaces, fablabs), displayed (e.g., in exhibitions), or distributed (e.g., in newspapers or online repositories).

We will discuss with the participants their individual motivations and possibilities to bring interventions into life, and, as organizers, we will offer our existing research cooperation (a cooperative research project to increase inclusive access to making, called FEM*mad[4]) as a possibility to deploy and study the impact of selected interventions.

The workshop will, thus, end with a set of interventions that we will describe and, afterwards, provide on the workshop website, including pictures and instructions for creation so that others can use them as an inspiration, replicate and apply them as they like.

[4]https://hci.sbg.ac.at/femmad

We foresee that workshop participants act as catalysts and the workshop leads to a widespread implementation of interventions, to worldwide support the strive for more inclusive making.

9 CALL FOR PARTICIPATION

Though making has many positive consequences for those who make, it is far from being inclusive. Research unpacked how elitist access to making and its facilities is, with particular groups of people dominating spaces and communities. Scholars from HCI, feminist studies, or arts and crafts, have unveiled many disparities in regards to who benefits from making – and who does not.

In this one-day (hopefully hybrid) workshop, we aim to take a constructive stance towards balancing out such disparities. We build on related work that tells us ways and practices of exclusion and inclusion, and on participants' experiences. We do, however, not just collect and relate those, but translate them into viable actions; we will engage – hands-on – with how to change the situation for the better (https://hci.sbg.ac.at/workshop-making-access).

To express interest in participation, a position statement shall be submitted to verena.fuchsberger@plus.ac.at including a brief bio and a related selected finding, a personal anecdote, an artistic expression (e.g., dance, painting), or an idea for increasing inclusiveness. The submission can be a written statement (2 pages ACM manuscript), a comic, a visual (e.g., an annotated picture), a video (3 minutes) or any mixed media. Submissions will not be made public.

In a curated process, contributions will be selected based on their fit to the workshop and potential to inspire interventions. Furthermore, we strive for a diverse group and will pay attention to complementarity of participants. At least one author of each accepted submission must attend the workshop and all participants must register for both the workshop and for at least one day of the conference.

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