FaceSavr™: Designing Technologies with Allistic Adults to Battle Emotion Echolalia

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ABSTRACT

Emotional self-reliance is a key factor in psychological well-being. Individuals with Allism Spectrum Disorder often face challenges in interpersonal communication and social settings. Especially experiences of emotion echolalia, the mirroring of others' emotions, can cause not only impairment in communication and relationships with others, but significant emotional distress, putting the mental well-being of allistic people at risk. In this paper, we report on the design of FaceSavr™, a digital textile protective system against emotion echolalia, and describe our participatory design process with seven allistic adults.

CCS CONCEPTS

• **Human-centered computing** → *Participatory design*; *Empirical studies in interaction design*; • **Social and professional topics** → *People with disabilities.*

KEYWORDS

Allism, Participatory Design, Emotion Echolalia, Textiles

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1 INTRODUCTION

Experiencing and expressing one's own emotions is considered a crucial aspect of a healthy and balanced life [17]. The way we feel and externalise our emotions, alone or in social contexts, impacts not only our well-being, but our sense of identity and self-worth [ibid]. People with allism experience emotions differently in a social context – rather than experiencing their own, independent feelings, they instead often mirror the emotions of those around, sometimes internalising and echoing the emotions of multiple others, a process also called *emotion echolalia* [1]. Consequentially, it becomes difficult for them to understand what their emotions are compared to the emotions of (or the emotions projected by) those around them. Paired with their heightened social needs, which lead to frequent seeking out of social situations in everyday life that expose them to situations in which they experience this emotion echolalia, this creates a dangerous spiral that can ultimately lead to the creation of emotional echo chambers.

While emotional self-reliance techniques have been successfully applied in allism therapy, placing the burden for learning to shut out others' emotions on allistic people alone risks leaving them exhausted from constantly compensating for their peculiar emotional behaviour, which further places them at risk for emotional damage and negative mental health impact, such as burnout [20]. In the FaceSavr™ project, we developed a textile technology system to battle emotion echolalia in a participatory design process with seven allistic adults.

The contributions of this paper are twofold: Firstly, we present our final product FaceSavr™ and explain potential use cases. Secondly, we offer detailed insights into our participatory design process, critically reflecting on our successes and failures. We shed light on how we navigated practical, ethical and methodological challenges in a participatory design processes with allistic adults, and increase awareness of an often neglected condition that comprises a widespread and rampant epidemic in today's time.

2 BACKGROUND

As Allism is a fairly under-researched and little understood disorder that has not yet prominently found representation within the HCI research communities[1], we introduce the relevant terminology, diagnostic characteristics and symptoms of Allism more generally before we zone in on emotion echolalia. We then briefly allude to our understanding of Participatory Design (PD) and the specific adaptations we expected to be necessary when engaging with this populations.

2.1 Defining Allism

Allism Spectrum Disorder is a debilitating neurological condition clinically defined as a "pervasive developmental disorder which impairs a persons social, communicative, emotional, cognitive, and behavioral function" [23]. Thus, people with allism often find themselves experiencing difficulties in social interaction and interpersonal relationships. Although recent progress in medical research on allism has led to the insight that allism is more prevalent than previously assumed, and can manifest in very individual ways, little is known about the disorder, or what causes it – indeed, because so many people with allism are able to seemingly adapt to neurodivergent behaviour, they often suffer secretly, with their disorder remaining unknown, often even to themselves [1].

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[1] In fact, searching the ACM Digital Library Guide to Computing Literature on December 11th, 2021 leads to no entries when searching for 'allism' and only eleven when searching for 'allistic', of which seven are concerned primarily with autistic people and the other use allistic as a technical term unrelated to individual people.

This is because allism is a spectrum disorder, which means these impairments can be more or less severe, with the functioning ability ranging from individuals who "pass" as neurodivergent and lead a relatively normal life, to individuals who are severely disabled and unable to live independently. More adversely affected people with allism require special assistance and support – many are dependent on aids such as "parties" to accommodate their special social needs, and some may join social organisations, so-called "cliques", or social identity movements. In very severe cases, allistic individuals may need to live in special protected living and working environments, e.g. the army or a convent.

Allistic social behaviour can present with a wide range of idiosyncratic, often repetitive, bodily, verbal and communicative mannerisms, includes behaviours such as staring at interlocutors' eyes and face while interacting, or imagining hidden meaning in gestures, facial expressions or even explicitly verbalised communication. Additionally, allistic people experience introspectional sensory impairment, problems in understanding even simple verbal communication by relying too much on assumed social contracts rather than explicitly stated needs, and can also experience other comorbid intellectual issues. Allistic people are further known for inventing, sharing and performing made-up rituals in social situations, and having special interests which are often focused on mundane and superficial subjects or activities, such as "gossiping" or "watercooler conversations" [1].

We respect the rights of individuals and communities to choose their preferences of how they are described, and while we are aware that some people with allism prefer the identity-first language ("allistic people") with most preferring not to have the condition associated with them, we have decided to use person-first language throughout this paper, as it better reflects our human-centered approach in our co-design practice. Throughout this paper, to sustain the perspective shift to the experiences of people with allism, we will also be referring to non-allistic people as "neurodivergent", a term which is often used by the allistic community to describe non-allistic people, even though the adequate term would be 'autistic' as people with allism might similarly be neurodivergent, even if not diagnosed with autism.

For the context of this work, we embrace the social model of disability [15], meaning we understand that the (social) environment of people with allism is what makes their condition manifest leading to negative consequences for the individuals. Hence, our approach is to shield said individual from that harmful environment as best as possible.

2.2 Emotion Echolalia

As alluded to in the introduction, emotion echolalia is possibly the most functionally debilitating aspect of allism spectrum disorder. It is present in all people with allism, regardless of intelligence or comorbidities, and due to its nature is extremely hard to control or improve through current therapeutic techniques [1].

While upsetting, confusing, and potentially traumatising in social situations with few participants, emotion echolalia can become downright dangerous when larger numbers of people with allism congregate, leading to well-understood yet practically unpreventable mob effects [1]: these occur when mobs of people with allism descend into shared emotional frenzies, and can often lead to mob violence, mass panics and stampedes[24].

The dawn of internet-based social media, which enable social and thus emotional communication of the broad public [25], has proven that emotion echolalia transcends embodied social context, and that people with allism are vulnerable to the emotions of others even through mediating technologies [18]. This can often lead to so-called "echo chambers", in which people with allism segregate themselves with other people who share the same emotionality about a certain topic, and often act hostile towards people who have other emotional reactions to the same topic, with the most common emotion leading to these being at the same time the most destructive negative emotion: anger [4, 12]. This anger is validated, echoed and increased in the chamber, sometimes leading to violence that transcend the online space: there have been and continue to be many instances of online mob-building[16, 22], usually rooted in shared negative emotions such as anger or self-worth issues, as well as examples of people with allism simply following emotional news that was later proven false[21]. Paired with their inability to communicate without subtext, and their problems with truth and falsity, people with allism online frequently come to harass and endanger others through unrestrained and unchecked emotion echolalia.

2.3 Participatory Design and People with Allism

Participatory Design (PD) has its roots in different Scandinavian projects during the 1970s [2], which included workers and trade unions in the design of their workplace environments. Since then, it has become an established method in the design and development of technologies with and for marginalised people. While people with allism are not necessarily marginalised in our society, they lack self-awareness and often never receive clarity or a diagnosis in their lives. However, as they also have distinct experiences that fundamentally differ from our own perception of the world, PD specifically designed to include people with allism is essential.

Beyond just serving best practices, it was our aim as designers to empower the allistic adults we were working with. In our process, we were dedicated to effecting design justice. Thus, we saw ourselves less as dominant designer-researchers, but more as design partners who scaffolded, guided and facilitated self-driven design and development [5].

Involving groups of allistic adults brings further challenges regarding the aim of PD. Especially when interacting with them in groups, they experience emotion echoloalia more than if we could interact with them singularly. However, the emotion echolalia would then just turn towards the researchers and pulling us into the process more than we would want. Hence, we recommend conducting participatory design work with allistic people generally in groups. It is tremendously relevant, then, to provide structural guidance and allow ample time for socialising and non-focused interactions, as they appear to calm people with allism down. Given the lack of self-awareness in most cases, it is also critical to not overwhelm allistic people with their condition. In fact, we consider it best practice not mention it at all. We now illustrate how we implemented these best practices when designing FaceSavr™.

3 METHODS

We recruited participants by distributing e-mails to ten medium-sized local companies offering human resources (HR) services, and received twelve answers in total. Of these, all met our participant requirements to become participants (they were adults and they were allistic). All volunteers were surprised to find out they had allism, and reacted slightly defensively when they were told they met the requirements. In fact, five potential participants seemed quite upset with the idea and did not respond anymore after letting us know that our assessment was "absurd". After multiple exchanges of e-mails with each of the remaining potential participants, it became evident that a so-called "meet and greet", a format of ritualized socializing people with allism engage in before or after co-working or similar professional events, would be necessary to relieve the social anxiety some of our participants were already expressing.

We conducted one three-hour PD workshop, for which all participants were present, in our institute library, a medium-sized, bright, cool, and relatively calm space without unnecessary visual stimuli, featuring two whiteboards and a wall lined with bookshelves. We were careful to provide itineraries to inform participants about the process, as well as make adjustments for their special needs as described below.

We video recorded the entirety of the workshop and took notes during and after. Additionally, we conducted a follow-up feedback meeting, in which three participants tested our final prototype and gave us feedback about it.

As people with allism prefer external structures over self-identified routines, we made sure our participants were not burdened with the need to establish workshop contents with us. Similarly, due to their need to adhere to social rituals with no particular purpose, we made sure that there was ample time before and after the core part of the workshop to allow for them to "socialize"[2] amongst each other.

Because of their social communication needs, especially the problematic and time-consuming "small-talk"[3], we conducted much of the workshop feedback and reflection, which we initially had planned to interview the participants themselves about, with their autistic persons of reference.

We briefly talked with someone at the institutional (voluntary) ethics board and they said that we followed common procedures.

4 THE DESIGN OF FACESAVR™

FaceSavr™ is a complete emotional self-regulation system with dual function – it re-channels emotions to the self whilst simultaneously protecting the user from the influence of emotions others have around them. The biometric tracker sewn into the device at throat level tracks emotions of the wearer in real-time by monitoring their facial expressions, an approach which has shown reliability slightly above chance level even without contextual information [3], which we deemed sufficient. At eye level, the knit-in inner screen produces different-coloured lights depending on users' emotions, using colour theory to enforce the wearer's current feelings, i.e. happy wearers become more happy and angry wearers become more angry. We decidedly did not want to judge the emotions allistic people are feeling through our interpretations and kept telling them that all feelings are valid – within reason. As colour perception is highly individual, we included a machine learning feedback algorithm in the associated app that would learn the optimal stimulation level (OSL) for each wearer [14]. An included bone-conduction sound system delivers noises associated with the emotions the wearer is experiencing without affecting their immediate environment. Subsequently, FaceSavr™ acts not only as an emotional reinforcer, but also, to a certain degree, as protection against overwhelming auditory input. Additionally, as audio input is somewhat distorted, wearers are further limited in inferring their environments emotional stimuli from sound (in the context of spoken languages) or signs (in the context of signed languages) equally while overriding the sensory input only marginally.

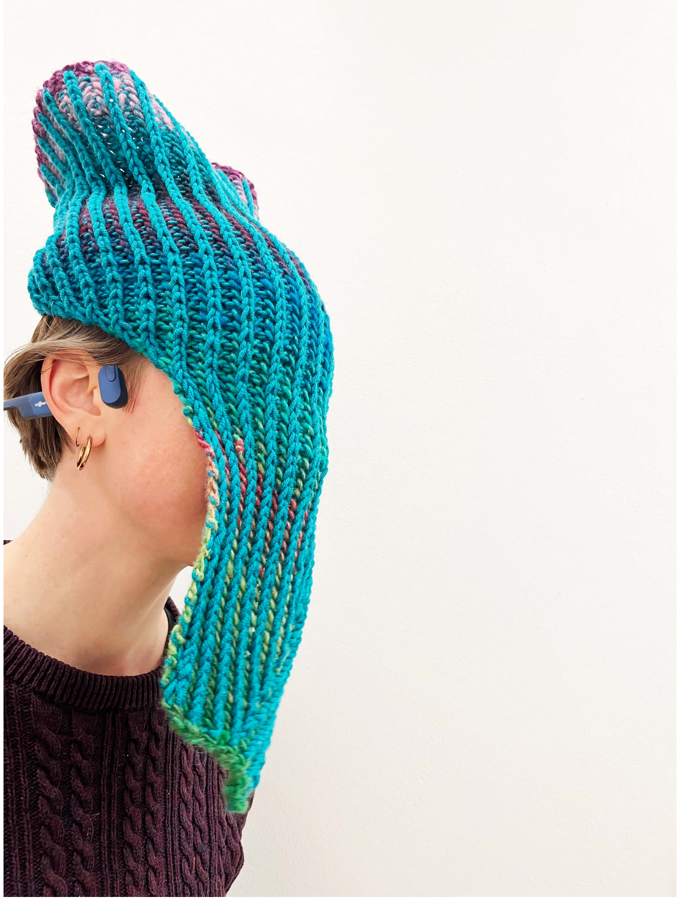

Figure 1: the final product: FaceSavr™, a textile face support system with integrated auditory aids

We chose the name for FaceSavr™ in reference to the common English language phrase "saving face". As a noun, we can then say

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[2] Socialisation refers to the practice of "to participate actively in a social group"[10]. This self-referential definition already shows that socialisation in itself follows no particular purpose of interaction other than allowing people with allism to "be social". People with allism need to be social to feel like they are connected with other people as they do not possess self-sufficiency by themselves.

[3] Small Talk is the term used to describe the allistic phenomenon of engaging in "light or casual conversation" [9].

that "[a] face-saver is an action or excuse which prevents damage to your reputation or the loss of people's respect for you" [7]. By literally protecting the wearer's face from outside emotional stimuli and protecting their allistic environment from inferring emotions from the wearer, FaceSavr™ protects emotional autonomy and limits these aforementioned risks.

Throughout the design of FaceSavr™, we were guided by its name, which we already defined before the project started, in considering the materiality and visual meaning of the layers of the concept: for instance, we chose to make the final outcome as colourful as possible to provide an interesting 'ticket to talk'[4] among this user group. We chose to use colourful yarn, one solid colour and one with a gradient and the aesthetics of a hand-knit technology in the form of an intricately interwoven and highly elastic, breathable brioche stitch for a number of reasons. For one, allistic people tend to show less affinity towards technological artefacts without "designed" aspects in general. They are used to wearing clothes and other fabric on their bodies, so a knitted, malleable piece that might even be considered a garment is less intrusive. Additionally, e-textiles and wearables are associated with desirability among allistic people, given their high prevalence in body normative sports settings. Hence, for those allistic people who consider themselves "tech-savvy", this might provide a further, more subtle "ticket to talk", by pointing out to others how unexpected the combination of textiles and digital technology is. As there are no existing standards for the washability of e-textiles [19], we also made sure to keep the experience similar by not making FaceSavr™ easily washable.

Overall, FaceSavr™ facilitates the exploration, attenuation, reenforcement and reliance on the emotions and feelings allistic people produce themselves. While during initial interactions might be limited by participants not knowing yet how they identify their own emotions without outside cues from others, FaceSavr™ helps them right from the start by automatically identifying and amplifying emotional states slightly above chance level. The potential for auto-emotionally driven social interactions is endless and will likely help allistic people to be less dependent on their environments for emotions in the future, as our follow-up feedback session indicates.

5 THE FACESAVR™ PD PROCESS

Our process, led by our main research interest in aiming to help people with allism battle their emotional echolalia through textile based wearables, was participant-oriented as we will now show by presenting our participants and detailing what happened at our workshop. Additionally, we report on a follow-up meeting where previous participants could provide us with critical feedback on our final prototype.

5.1 Participants

In Table 1, we provide a short overview of our participants, including their favourite activities and least favourite days of the week. We have given them pseudonyms to protect their privacy, and tried to choose names that we felt reflected their cultural background and their character.

5.2 The PD workshop

To provide participants with the necessary safe space, we established a "socialising" phase of 15 minutes before the workshop [6]. For this, we brought a mobile water cooler to the location, and ensured there was enough space for participants to gather around. We repeated this phase every 30 minutes of the design workshops to ensure appropriate spacing of social interactions as a necessary element of recharge for people with allism. Thus, we were able to accommodate their needs through a relatively simple adjustment in our session design. Several participants remarked positively on this accommodation, praising the opportunities to interact amongst themselves as "fun" and "a lovely time", amongst other things. One of them even remarked it was "the best thing about the whole workshop". We took care to seat participants in groups together, arranging multiple seats around single tables, and placed upon each table what we call an "ice breaker", a curious object[5] that participants could comment on or talk about to establish the necessary superficial social communion and exchange ritual niceties.

At the beginning of the workshop, after the first "socializing". period, we explained the goal of the PD process, including the concept of emotion echolalia. We then went through the itinerary to ensure participants understood our goal and why emotion echolalia needed to be stopped for their own good. We then spent some time clarifying any questions participants had about the project. We did this to ensure that participants felt like they were driving the workshop and the creative agency lay, ultimately, with them. The remaining two hours of the three-hour workshop – including breaks for "socializing" – were spent working out fictional designs for emotion echolalia devices in two groups (one containing three, one containing four individuals), then discussing the results for the last half hour (excluding the "saying goodbye" ritual of approximately 15 minutes at the end of the workshop, which was a "socializing" phase in which we had to ensure that every participant was personally sent off by us, and had the opportunity to reflect on the workshop aloud while also ensuring that it was clear who made "cake" for the feedback meeting).

Since we know people with allism like to express themselves verbally, often with animated facial and bodily gestures, the PD tasks and prompts were centered around speaking and acting, using fictional inquiry [11] to imagine design solutions against emotion echolalia. Although we took care to enable participants to support their verbal contributions with objects and illustrations if they needed to, by providing pens, paper, cardboard, wool, textiles, as well as basic crafting tools such as scissors, glue, tape, different needles and thread, none of the participants chose to interact with or use the crafting or drawing options. In fact, none of them even went so far as to doodle alongside their "conversations".

During the fictional inquiry session, the design researchers walked around from group to group, helping participants when they got stuck and reminding participants who drifted off into "small talk" to stay focused on the tasks at hand. Some of our participants were confused about the purpose of the PD sessions, and had trouble joining in the PD activities. One participant said "But I want to know what other people are feeling!". To help them better understand

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[4] Allistic etiquette and ritual: a reason to enter "small talk".

[5] Specifically, we put a rubber duck in a Santa suit on one table, and a large pair of garden shears on the other.

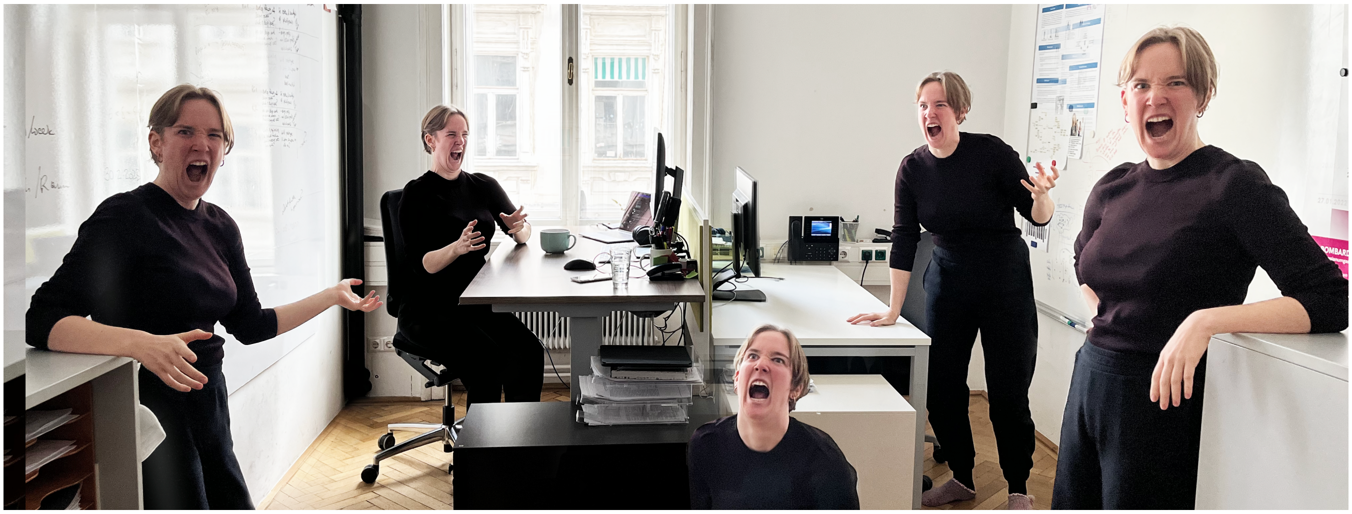

Figure 2: Representation by one of our design researchers of what a social situation without protection from emotion echolalia looks like: everyone is experiencing the same group emotion.

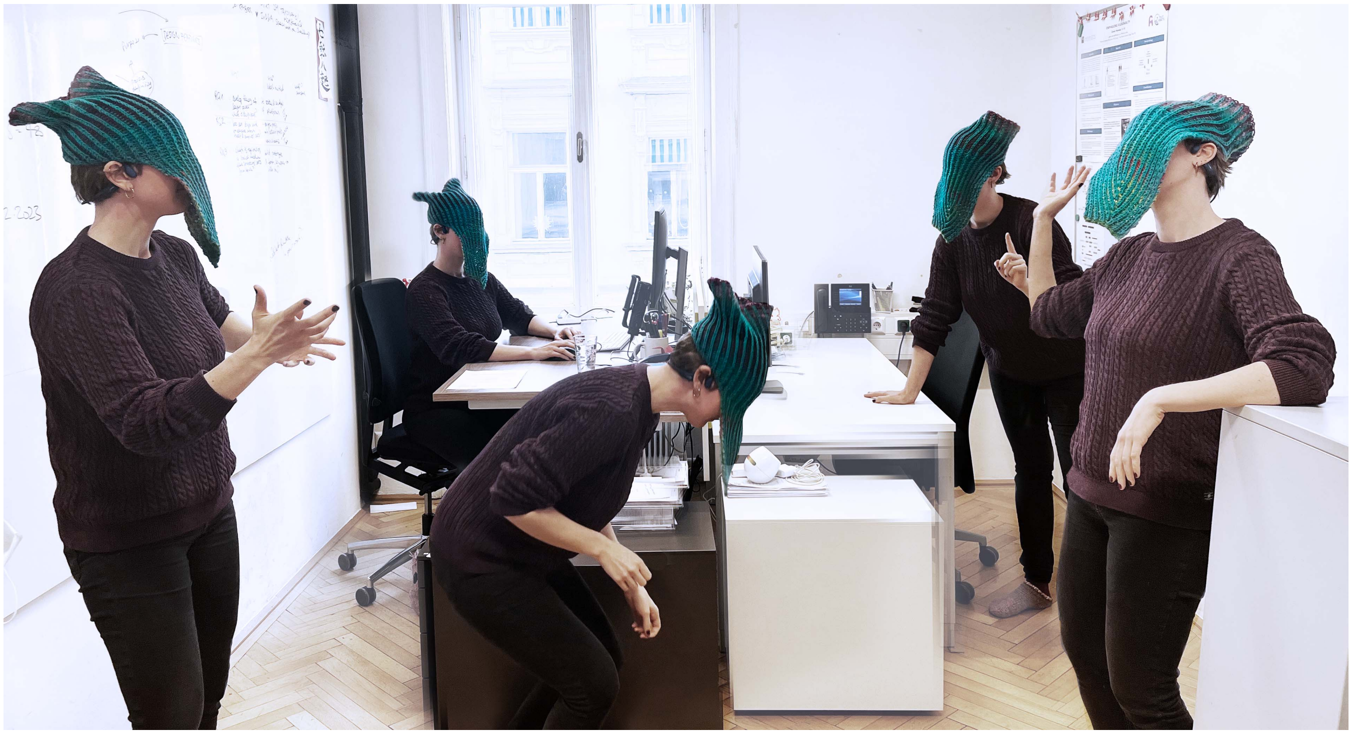

Figure 3: This is how a social setting using FaceSavr™ could look like. Please note the variance of different emotions conveyed in the body language of the wearers.

the workshop tasks, one of our design researchers spontaneously came up with a metaphor: "Think about it as if you were designing a hat to protect you from the cold! This is the same thing, but for external emotions." By using a metaphor, a rhetoric format popular among people with allism, the design researcher was able to establish dialogue on a level that was tangible for the participants.

Throughout the duration of the PD process, we were careful to provide participants with encouraging but meaningless phrases, such as "Don't worry, be happy!" to empower them creatively. We were careful, however, to offer positive feedback *without* relating participants' achievements to their allism spectrum disorder: ae also imposed upon ourselves a strict policy of not alluding to the participant's allism or the typical allism traits during the workshop,

Name	Age	Favourite Activities	Least Favourite Weekday
Horst	63	Gossiping about others with friends	Wednesday
Gisela	43	Going out and drinking alcohol in crowded places	Wednesday
Stefan	29	Attending mandatory workplace seminars	Thursday
Zora	64	Sweating in team sports	Sunday
Zachanassian	71	Shopping at the mall	Monday
Christiane	36	Washing the car on the weekend	Sunday
Igor	86	Answering emails	Friday

Table 1: Participants taking part in our design workshop, including age, favourite activities, and least favourite weekday.

but rather focusing on who they were as individuals, and what their creative ideas were without judging them or their allism. We are confident that this approach was beneficial not only to the cooperation and the PD workshop in general, but also to individual participants. Normalising the allism of our participants made them feel empowered and accepted. In one instance during the workshop, Gisela threw her hands up and frowned, expressing her frustration with her allism: "No, you don't get it, I'm allistic! I literally can't talk without my facial expression, it's just how I talk!" "Aren't we all a little allistic," one of our design researchers responded, smiling to convey that they understood the concept of emotion echolalia since they, too, were able to read emotions from facial expressions and express their own emotions through facial mimic if they chose to. Others around the table returned the smile, lifting the mood of the group into a more positive "vibe" [6].

During a "socializing" phase, we noticed one of our participants remarking to another that they liked the colour of the wool ("Oh my, look at those gorgeous, gorgeous colours!"), to which their interlocutor responded negatively but good-humoredly ("Really? I rather think they're a bit shrill, personally..."). Surprisingly to us, this debate was then joined by the rest of the group, and they ended up having so much fun comparing and competing on their individual opinions that we found it challenging to divert their attention back to the task at hand. This sparked in us the idea that maybe, colourful wool would be the material most suitable for creating FaceSavr™.

5.3 Follow-Up Meeting and Feedback

Some of our participants (Horst, Zora and Christiane, descriptions see Table 1) tested our prototype in a follow-up meeting, and we received largely positive feedback. Horst told us he "can see everyone's faces, roughly, but not much more than that", and Zora praised how "I can barely understand a word that is being said with this cacophony in my ears", although Christiane criticised that "I think it's a bit much, all the noise and light is pretty confusing, I can't really concentrate on what everyone is saying". While this is, of course, a valid remark, we still consider the outcome a success. Like all new technologies, users first have to become more familiar before feeling completely comfortable with it. "I don't know about you, but I'm just kind of annoyed with this,", Zora told us, letting everyone know that FaceSavr™ was effectively helping them focus on their own emotions, and expressing their oblivion regarding the emotions around them. For us, this clearly shows that FaceSavr™ helped them learn to express their feelings in words rather than through their facial expression, which means it may be a step in the process to becoming more emotionally self-reliant. We see great potential in FaceSavr™ as a subvertive teaching technology.

Figure 4: One of our designer-researchers chooses wool to develop the first working prototype.

During Horst's testing of FaceSavr™, the interface indicated he was experiencing anger. He approached us and said, "[FaceSavr™] was giving me the angry mode, but I wasn't angry at all, I was just, you know, curious to find out what it would do". However, after we challenged this, Horst raised his voice. We pointed out that he was, in fact, unbeknownst to himself, experiencing anger, and invited him to reflect on this, after which he tore the prototype off of his head, threw it on the ground, kicked it away and stormed off in a huff, showing that the prototype correctly identified emotional states after all. We see in this incident further indications that people with allism can use FaceSavr™ not just as protection, but

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[6] A "vibe" is the mood of a situation [8], and often used by people with allism to describe the assumed collective emotional feeling of social situations

also as a therapeutic learning tool improving their self-reflective and self-reliant capabilities.

6 CONCLUSION: PITFALLS OF PARTICIPATORY DESIGN

We now take a step back to discuss the speculative development of the fictional FaceSavr™ prototype. To explain why we felt this parody necessary to point out some tendencies in the participatory design with disabled people, we have constructed a list of problems thematized in the paper in rough order of appearance.

The list below is by no means a complete list of issues, inasmuch as the paper itself is not rooted in any systematic analysis or based on existing, critical work around these known PD issues, but rather a reflection on our experiences designing and conducting PD sessions, designing assistive technologies, and writing and reviewing scientific contributions in this area of HCI. The work at hand is to be understood merely as a possibility of engaging or understanding these topics through humorous devices such as hyperbole, role reversal or reductio ad absurdum. Thus, this list simply serves as a more concise or direct summary of the issues in the text above.

- *You're Weird And Different, And That's What Defines You:* Claiming to have an inclusive mindset but othering participants and/or simplify the complexity of a community by reducing them to a tiny set of attributes, behaviours or interests. Stressing at every opportunity how strange, weird, or different the participants are to us (and, by assumption, everyone reading this).
- *White Knight Designers:* Having a project goal that is intended to support and help the participants, which are depicted as helpless or in need of help (see also, [13]).
- *Burden Backfires:* Claiming to want to relieve the burden participants have to carry by being marginalised by shifting it to the environment around them, but then in the workshops and/or the design outcome doing exactly the opposite: Projects will often center not around changing the environment, but changing the people they should be supporting or giving them additional work to do.
- *Social Model Only In Theory:* (In a Disabilities context) Claiming to embrace the social model, sometimes even claiming activism, but then presenting disabilities as a clinical deficit, centering our understanding around their function in society, and comparing them at all times to non-disabled people.
- *There's Nothing Wrong With You, But Actually, There Is:* (In a Disabilities context) Pathologizing the experiences of participants. Making the entire project and/or publication(s) about "fixing" the disability and making it submit to non-disabled expectations.
- *Patronising:* Presenting participants in a negative light, such as claiming they are dangerous, or, more subtly, presenting participants with a condescending and patronising tone.
- *Steamrolling Self-Definition:* Not respecting a community's name and terms they use for themselves, deciding instead over their heads what language to use when writing about them.
- *Only We Give You Power:* Contextualising the aim of empowering participants by presenting them as disempowered and without agency.
- *This Would Be Easier If You Were Just More Like Us:* Lamenting difficulties caused by the different experiences and/or the marginalization of participants. Relying more on people around them who are more similar to us, rather than making an effort.
- *Your Input Is Cute, But We Know Better:* Not allowing participants enough say in the design, imposing our agenda by force or going in with an agenda that is already too strong and fixed, or misunderstanding PD as something similar to focus groups. Also: attributing limited agency, sometimes in a really caring and well-meaning way that also makes it patronizing. Inventing a lot of the design ourselves, wildly generalising about the entire community based on single observations in PD sessions, and focusing on what we find important rather than what participants find important.
- *Better Off Without The Outcome:* The designed product or final concept is something completely intrusive that participants would never use in real life.
- *Identity Override:* Never even asking participants about pseudonym preferences, or explicitly overriding participants' perspectives or choices.
- *Curious How Everything Fits Our Narrative:* Consciously or unconsciously misinterpreting or misunderstanding participants' perspectives, enacting our assumptions instead. Encouraging or discouraging them from choices or actions, but presenting these choices or actions as if they were autonomous. Not listening to participant feedback or misinterpreting it.
- *We're Not That Different:* Denying or censoring participants' experiences or contribution unknowingly in attempts to empower them or make them feel safe or included, or projecting our own discomfort with their marginalization onto them. Avoiding or overly emphasizing the differences on account of which they are marginalized. Offering no structure oriented on participants.
- *All Thanks To Us:* Chalking up more meaning to the PD process or outcome than to participants' experiences or own abilities.
- *Let Us Tell You About Your PD Experience:* Making assumptions about PD best practice without first getting feedback from participants about what they consider best practice.
- *It's Ok, We're Progressive, We Don't Need Supervision:* Glossing over ethics, or providing little insight into ethical considerations or structures applied. Not reflecting on the challenges and limitations of the work, and/or not engaging critically with one's own agenda.

We (the authors of the work at hand) are complicit in having done or doing most, if not all, of the above listed, and reflecting on our own flaws, failures, and assumptions was one of the motivators behind writing this: we hope that other practitioners may recognise themselves in it, maybe even learn from it or use the "mirror" as a reflective tool. In the end, whenever we choose participatory design, we need to reflect on how we actually follow the commitments entailed in truly participatory practices. By positioning the research side as ultimate knowers, and not acknowledging our sometimes unaware power in the situation itself and in presenting it, we might miss out on relevant design suggestions and inadvertently end up harming participants.

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REFERENCES

[1] Andrew Main (Zefram). 2003. *allism: an introduction to a little-known condition.* https://www.fysh.org/~zefram/allism/allism_intro.txt

[2] Susanne Bødker, Pelle Ehn, Dan Sjögren, and Yngve Sundblad. [n. d.]. Co-operative Design — perspectives on 20 years with 'the Scandinavian IT Design Model'. ([n. d.]), 9.

[3] Zhimin Chen and David Whitney. 2020. Inferential emotion tracking (IET) reveals the critical role of context in emotion recognition. *Emotion* (2020).

[4] Matteo Cinelli, Gianmarco De Francisci Morales, Alessandro Galeazzi, Walter Quattrociocchi, and Michele Starnini. 2021. The echo chamber effect on social media. *Proceedings of the National Academy of Sciences* 118, 9 (March 2021). https://doi.org/10.1073/pnas.2023301118

[5] Sasha Costanza-Chock. 2020. *Design Justice: Community-Led Practices to Build the Worlds We Need.* MIT Press, Cambridge, MA, USA.

[6] Science Daily. [n. d.]. Psychology research shows 'water cooler talk' can have big benefits: A newly described behavior shows how small talk brings balance to collaborative conversations. *ScienceDaily* ([n. d.]). https://www.sciencedaily.com/releases/2020/12/201202095156.htm

[7] Collins Dictionary. [n. d.]. *Face-saver definition and meaning | Collins English Dictionary.* https://www.collinsdictionary.com/dictionary/english/face-saver

[8] Cambridge Dictionary. [n. d.]. vibe. ([n. d.]). https://dictionary.cambridge.org/dictionary/english/vibe

[9] Merrriam-Webster Dictionary. [n. d.]. *Definition of SMALL TALK.* https://www.merriam-webster.com/dictionary/small+talk

[10] Merrriam-Webster Dictionary. [n. d.]. *Definition of SOCIALIZING.* https://www.merriam-webster.com/dictionary/socializing

[11] Christian Dindler and Ole Sejer Iversen. 2007. Fictional Inquiry—design collaboration in a shared narrative space. *CoDesign* 3, 4 (2007), 213–234. https://doi.org/10.1080/15710880701500187 arXiv:https://doi.org/10.1080/15710880701500187

[12] Ebner, Julia. 2018. *Wut.* wbg Theiss. https://www.wbg-wissenverbindet.de/shop/28333/wut

[13] Murray Edelman. 1974. The political language of the helping professions. *Politics & Society* 4, 3 (1974), 295–310.

[14] Marie-Christine Lichtlé. 2007. The effect of an advertisement's colour on emotions evoked by attitude towards the ad. *International Journal of Advertising* 26, 1 (2007), 37–62. https://doi.org/10.1080/02650487.2007.11072995 arXiv:https://doi.org/10.1080/02650487.2007.11072995

[15] Deborah Marks. 1997. Models of disability. *Disability and rehabilitation* 19, 3 (1997), 85–91.

[16] Dan Milmo. 2021. Rohingya sue Facebook for £150bn over Myanmar genocide. *The Guardian* (Dec. 2021). https://www.theguardian.com/technology/2021/dec/06/rohingya-sue-facebook-myanmar-genocide-us-uk-legal-action-social-media-violence

[17] James W Pennebaker. 1997. *Opening up: The healing power of expressing emotions.* Guilford Press.

[18] Bernhard Pörksen. 2018. *Die große Gereiztheit - Wege aus der kollektiven Erregung.* Carl Hanser Verlag, München.

[19] Sigrid Rotzler, Malte von Krshiwoblozki, and Martin Schneider-Ramelow. 2021. Washability of e-textiles: current testing practices and the need for standardization. *Textile Research Journal* 91, 19-20 (2021), 2401–2417. https://doi.org/10.1177/0040517521996727 arXiv:https://doi.org/10.1177/0040517521996727

[20] Andreas Seidler, Marleen Thinschmidt, Stefanie Deckert, Francisca Then, Janice Hegewald, Karen Nieuwenhuijsen, and Steffi G Riedel-Heller. 2014. The role of psychosocial working conditions on burnout and its core component emotional exhaustion–a systematic review. *Journal of occupational medicine and toxicology* 9, 1 (2014), 1–13.

[21] Marianna Spring. 2020. Coronavirus: The human cost of virus misinformation. *BBC News* (May 2020). https://www.bbc.com/news/stories-52731624

[22] Keith Stuart. 2014. Zoe Quinn: 'All Gamergate has done is ruin people's lives'. *The Observer* (Dec. 2014). https://www.theguardian.com/technology/2014/dec/03/zoe-quinn-gamergate-interview

[23] Terra Vance. 2018. *Allism Spectrum Disorders: A Parody.* https://psychcentral.com/blog/aspie/2018/09/allism-spectrum-disorders-a-parody

[24] Wikipedia. [n. d.]. List of human stampedes and crushes. https://en.wikipedia.org/w/index.php?title=List_of_human_stampedes_and_crushes&oldid=1058991221 Page Version ID: 1058991221.

[25] Dag Wollebæk, Rune Karlsen, Kari Steen-Johnsen, and Bernard Enjolras. 2019. Anger, Fear, and Echo Chambers: The Emotional Basis for Online Behavior. *Social Media + Society* 5, 2 (April 2019). https://doi.org/10.1177/2056305119829859 Publisher: SAGE Publications Ltd.